ENTRANCE INFORMATION

THE UNIVERSITY ORGANIZATION

Relation to the State and the Student
The Colleges and Schools
Definitions and Explanations
The Four Quarter System

ADMISSION TO THE UNIVERSITY

Certificates and Examinations
Requirements
Expenses
Fellowships, Scholarships, and Aid

SEATTLE, WASHINGTON
PUBLISHED QUARTERLY BY THE UNIVERSITY
1919

Entered as Second Class Matter, at Seattle, Under the Act of July 16, 1894
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THE ENTRANCE INFORMATION BULLETIN

This bulletin contains such parts of the General Catalogue and Announcement of the University as are needed for the information in regard to general facilities and requirements of admission of those intending to become students. Specific information concerning the work of the different colleges, schools, and departments, will be found in the complete General Catalogue or in the separate bulletins listed on the last page.

LOCATION OF THE UNIVERSITY

The University of Washington campus, comprising 355 acres, lies between Fifteenth Avenue Northeast on the western boundary and Lake Washington on the eastern and Forty-fifth Street on the northern and Lake Union on the southern. The campus is best reached from the railway stations and docks by Ravenna or Cowen Park cars. Administration Hall is reached by leaving the street car at Fortieth Street and Fourteenth Avenue Northeast and walking one block east. It faces on Fifteenth Avenue at the left of the Fortieth Street entrance to the campus.
UNIVERSITY CALENDAR
1918-1919

AUTUMN QUARTER

Examination for admission and for exemption from College English, Thursday, Friday and Saturday, September 26, 27 and 28, at 9 a.m. and 2 p.m.
Registration of new first year students............................................. Friday and Saturday, September 27 and 28
Registration of all other students...................................................
Instruction begins.................................................. Monday and Tuesday, September 30 and October 1
President's annual address.................................................. Friday, October 4, 10 a.m.
Women's assembly............................................... Friday, October 11, 11 a.m.
Thanksgiving recess..................................................................
............. Wednesday, November 27, 6 p.m., to Monday, December 2, 8 a.m.
Quarter examinations..............................................................
....Tuesday, Wednesday, Thursday and Friday, December 17, 18, 19 and 20

WINTER QUARTER

Registration days......................... Thursday and Friday, January 2 and 3
Instruction begins.................................................. Monday, January 6
Washington's birthday (holiday).......................... Saturday, February 22
Quarter examinations..................................................
............. Friday, Saturday, Monday and Tuesday, March 21, 22, 24 and 25

SPRING QUARTER

Registration days......................... Monday and Tuesday, March 31 and April 1
Instruction begins.......................................... Wednesday, April 2
Campus Day................................................................. Saturday, April 25
Junior Day................................................................. Saturday, May 24
Memorial Day (holiday).......................... Friday, May 30
Quarter examinations..................................................
.............Tuesday, Wednesday, Thursday and Friday, June 10, 11, 12 and 13
Class Day and President's reception.......................... Saturday, June 14
Baccalaureate Sunday.................................................. June 15
Commencement and Alumni Day...................... Monday, June 16

SUMMER QUARTER

Registration................................................................. Tuesday, June 17
Instruction begins.......................................... Wednesday, June 18
Quarter examinations..................................................
............. Saturday, August 20
THE BOARD OF REGENTS

WINLOCK W. MILLER, President .................................................. Seattle
 Term ends March, 1920

WILLIAM T. PERKINS .............................................................. Seattle
 Term ends March, 1920

ELDRIDGE WHEELER ................................................................. Montesano
 Term ends March, 1921

OSCAR A. FECHTER ................................................................. Yakima
 Term ends March, 1922

JOHN A. REA ............................................................................. Tacoma
 Term ends March, 1922

WILLIAM A. SHANNON ............................................................. Seattle
 Term ends March, 1923

RUTH KARR McKEE ................................................................. Olympia
 Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
UNIVERSITY OF WASHINGTON

OFFICERS OF ADMINISTRATION

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. ................. President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. ...................... Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. ................. Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. ....................... Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. ................. Executive Secretary
Administration Hall

'ARTHUR RAGAN PRIEST, A. M. ...................... Dean of Men
Administration Hall

MACY MILLMORE SKINNER, Ph. D. ................. Assistant Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ................. Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. ................. Librarian
Library

FRANK STEVENS HALL ................................ Museum
Museum

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. .......................... Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M. .......................... Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. ........ Director of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. .......... Dean of the College of Education
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. ........... Acting Dean of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M. ............... Dean of the College of Fine Arts
Meany Hall

JOHN NATHAN COBB .......................... Director of the College of Fisheries
Commerce Hall

HUGO WINKENWERDER, M. E. .................. Dean of the College of Forestry
Forestry Hall

'COLIN VICTOR DYMENT, B. A. .......... Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M. ............ Dean of the Law School
Commerce Hall

WILLIAM ELMER HENRY, A. M. .......................... Director of Library School
Library

MILNOR ROBERTS, A. B. ......... Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. .......... Dean of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN PADELFORD, Ph. D. .... Acting Dean of the Graduate School
Denny Hall

'J. ALLEN SMITH, Ph. D. .......................... Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

'EDWIN AUGUSTUS START, A. M. .......................... Director
Administration Hall

EVERETT FRANCIS DAHM, A. B. ................. Assistant Director
Administration Hall

1Absent on leave.
2Absent on leave 1918-19; resigned 1919.
3Detached on special service 1917-19.
THE UNIVERSITY ORGANIZATION

The University of Washington is one of the five institutions of higher education which complete the system of public education of the state of Washington. Each of these institutions, the others being the State College and the three normal schools, has its field delimited by the legislature of the state. To the University is given exclusive authority to instruct in the following major lines: Aeronautical engineering, architecture, commerce, fisheries, forestry, journalism, law, library economy, marine engineering, and medicine.

The University has concurrent authority with the State College to instruct in the following major lines: Chemical engineering, civil engineering, electrical engineering, home economics, liberal arts, mechanical engineering, mining, pharmacy, professional training of high school teachers, school supervisors, and school superintendents, and pure science.

Schools and Colleges and Their Fields.—To carry out its share of this educational responsibility, the University is organized in several schools and colleges, the organization, opportunities, and requirements of which are set forth in this annual announcement. These schools and colleges are:

(A) The Colleges of Liberal Arts and Science, which provide a liberal education in the fields of arts and of pure science, leading in a course, normally requiring twelve quarters of residence, to the degrees of bachelor of arts and bachelor of science.

(B) The professional and technical schools and colleges, including:

(1) The College of Business Administration, covering in a course of twelve quarters the fundamentals of scientific training for industry and commerce. The degree given is bachelor of business administration.

(2) The College of Education, in a course of twelve quarters, prepares students for careers in the field of education as high school teachers and school administrators. The degree is bachelor of education. Students in the College of Liberal Arts may major in the department of education and take the degree of bachelor of arts.

(3) The College of Engineering has four departments, chemical, civil, electrical, and mechanical engineering (including aeronautical and marine), their curricula leading in twelve quarters to the degree of bachelor of science in the special field chosen by the student, of science in the special field chosen by the student. The degree of master of science in each field is open to graduate students. The college opens a wide range of training for technical activities.
(4) The College of Fine Arts offers curricula of twelve quarters in architecture, vocal, instrumental, or public school music, or musical theory, painting and design, public school drawing, and music and drawing, leading to the degrees of bachelor of architecture, or bachelor of fine arts, with a major in one of the subjects named.

(5) The College of Fisheries, just established, lays a scientific foundation for work connected with the great industry of the fisheries, one of the chief resources of the Pacific Coast. The degree is bachelor of science in fisheries.

(6) The College of Forestry offers a curriculum of twelve quarters preparing for work as a scientific forester or in the great industry of lumbering. The degree is bachelor of science. The full professional course is fifteen quarters, with a liberal allowance of electives, giving opportunity for specialization in forest service and state work, logging engineering, forest products, or the lumber business. For this course the degree of master of science may be given.

(7) The School of Journalism requires for entrance as a major an equivalent of the junior certificate, elsewhere explained, substantially the first two years of college work in arts or science. The curriculum leads to the degree of bachelor of arts and prepares its students for practical newspaper work.

(8) The School of Law is the standard of approved law schools for admission to the bar of this state. For admission the student must present a junior certificate from the College of Liberal Arts or the College of Science, or its equivalent. The curriculum of the school requires three school years or nine quarters, and leads to the degree of bachelor of laws. The degree of master of laws is also given. Students may carry on work in liberal arts or science and law concurrently, taking both bachelors' degree in six years, or eighteen quarters.

(9) The Library School likewise has a three year or nine quarter curriculum, which must be preceded by the work required for a junior certificate in the College of Liberal Arts or the College of Science. It prepares for professional library work and gives the degree of bachelor of library economy.

(10) The College of Mines offers four year or twelve quarter curricula, leading to the degree of bachelor of science in mining engineering, geology and mining, metallurgical engineering, or coal mining engineering.
The fields open to graduates of this college are indicated by these divisions. The college also offers a curriculum in ceramics (clay, glass and cement products.) The graduation degree of master of science may also be obtained.

(11) The College of Pharmacy offers two, three, four, and five years courses, the first preparing for practical pharmacy, the second for commercial pharmacy, the third providing a well rounded scientific training in this field, and the fourth an opportunity for graduate and research work. The two year course offers the degree of graduate in pharmacy, the three year course that of pharmaceutical chemist, the four year that of bachelor of science in pharmacy, and the five year that of master of science in pharmacy.

(C) The Graduate School. In this school the master's degree in arts or science is given after one year of resident work of high grade and special character. The degree of doctor of philosophy is given in four departments, botany, chemistry, English, and mathematics.

It will thus be seen that the university offers wide opportunities either for a liberal education in the arts and sciences or for specialized professional and technical training. Since the university life is enjoyed in common, students of the former class are in daily contact with the practical applications of learning, and those of the latter class work in close association with the spirit and traditions of liberal culture. Through its extension service the university makes much of its teaching and influence effective among those who cannot become resident students.

Definitions and Explanations.—In all statements relating to the university the word course refers to a single study pursued for a definite period, for which credit may be given toward university requirements for graduation in accordance with the number of hours taken; a curriculum is a group of courses arranged to be taken consecutively or concurrently; a department is the unit of instructional organization in a particular science or art, as the department of geology; a college gives full curricula, beginning with the work of the freshman year and covering twelve quarters; while the work of a school is based upon two or more years of college work.

The four year programs of the colleges of arts and science are further divided into the lower division (freshman and sophomore) and upper division (junior and senior). The junior certificate is given for the completion of the requirements of the lower division. The more advanced work of the upper division leads to graduation with the bachelor's degree. The specialized work of the schools is upper
division or graduate work and requires the junior certificate as a minimum to enter upon it.

Special Curricula Within the Schools.—There are also given certain semi-professional curricula for which no special school or college is provided. Such is the curriculum in nursing and public health, given in the College of Science.

The university does not give a medical course but it offers a premedical curriculum especially planned as a foundation for study in a medical school. This may be two years in length for schools not requiring college graduation, or four years for schools requiring that amount of preparation.

Under the provisions of the National Defense Act, students in the university may attain commissions as reserve officers in the United States Army by meeting the requirements for advanced work in military science. This is done without interference with the students' regular academic work.

The Four Quarter System.—The university is now operated on the four quarter system, each quarter having approximately twelve working weeks. These quarters or terms begin in October, January, April and the latter part of June. The university is closed only through the month of September. A careful reading of the calendar will show the working of this plan in detail. Students may enter at the beginning of any quarter. This permits them to do a full quarter of university work in the summer, to complete a university course in three years, if health and resources permit, or to otherwise adjust their university residence to meet personal conditions. This flexible plan is of especial advantage in the University of Washington because the absence of extremes in climatic conditions is favorable to mental work at all times of the year.

ADMISSION TO THE UNIVERSITY

General Statement

Students are admitted to the residence work of the University by certificate or by examination, only graduates of accredited four year secondary schools being admitted on certificate. They are classified as graduates and undergraduates. Undergraduates are classified as regular students (freshmen, sophomores, juniors, and seniors), unclassified students, and special students.

All correspondence regarding the admission of students to the residence courses of the University as well as the requirements for graduation should be addressed to the Registrar. Every applicant for admission at the beginning of the autumn quarter, is requested to forward his credentials as early in the summer as possible, at the same time indicating the college or school of the University that he intends to enter. Credentials for students expecting to enter the
autumn quarter should be received in the Registrar's office before August 15.

Admission by Certificate.—A graduate of an accredited secondary school, whose course has covered the requirements for entrance as either a regular or an unclassified student (see page 10) will be admitted upon recommendation of his principal and the presentation of a satisfactory certificate. Since the school diplomas do not give the necessary information, they cannot be accepted for this purpose. The principals of all accredited high schools in the state are furnished with the official blanks, which may also be obtained from the Registrar's office.

Applicants for advanced standing are required to furnish a complete certified statement of both preparatory and college credits, together with a letter of honorable dismissal from the institution last attended.

The list of accredited schools is as follows:

### 1. PUBLIC HIGH SCHOOLS

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<th>Ellensburg</th>
<th>Montesano</th>
<th>Sequim</th>
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<tr>
<td>Almira</td>
<td>Elma</td>
<td>Mosay Rock</td>
<td>Shelton</td>
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<td>Anacortes</td>
<td>Endicott</td>
<td>Mount Vernon</td>
<td>Snohomish</td>
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<td>Arlington</td>
<td>Enumclaw</td>
<td>Newport</td>
<td>South Bend</td>
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<td>Asotin</td>
<td>Ephrata</td>
<td>Nookaza</td>
<td>Spokane—</td>
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<tr>
<td>Auburn</td>
<td>Everett</td>
<td>North Bend</td>
<td>Lewis and Clark</td>
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<tr>
<td>Battle Ground</td>
<td>Fairfield</td>
<td>Oakesdale</td>
<td>North Central</td>
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<tr>
<td>Bellingham</td>
<td>Fall City</td>
<td>Oakville</td>
<td>Sprague</td>
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<td>Whatcom</td>
<td>Farmington</td>
<td>Odessa</td>
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<td>State Normal High School</td>
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<td>Rickleton</td>
<td>Foster</td>
<td>Omak</td>
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<td>Friday Harbor</td>
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<td>Pascou</td>
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<td>Burlington</td>
<td>Granite Falls</td>
<td>Pe Ell</td>
<td>Lincoln Park</td>
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<td>Burton (U. H.)</td>
<td>Harmony</td>
<td>Pomeroy</td>
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<td>Canas</td>
<td>Harrington</td>
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<td>Hartline</td>
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<td>Republic</td>
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<td>Couperville</td>
<td>Laurel</td>
<td>Rivetsville</td>
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<td>Creston</td>
<td>Leavenworth</td>
<td>Rochester</td>
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<td>Davenport</td>
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<td>Dayton</td>
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<td>Deer Park</td>
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<td>Dryad</td>
<td>Malden</td>
<td>Seattle—</td>
<td>Winslow</td>
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<td>Eatonville</td>
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<td>Broadway</td>
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<td>Millwood</td>
<td>Queen Anne</td>
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<td>Monroe</td>
<td>West Seattle</td>
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<td></td>
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<td>Sedro Woolley</td>
<td>Juneau, Alaska</td>
</tr>
</tbody>
</table>
II. OTHER SECONDARY SCHOOLS

Adelphia College, Seattle (academic department)
Annie Wright Seminary, Tacoma
Brunot Hall, Spokane
Forest Ridge Convent, Seattle
Holy Angels Academy, Seattle
Holy Names Academy, Seattle
Holy Names Academy, Spokane
Pacific Lutheran Academy, Parkland
Pless School, Seattle
Seattle Pacific College, Seattle (academy)

Spokane College, Spokane (preparatory department)
St. Helen's Hall, Portland, Oregon
St. Martin's College, Lacey (high school department)
St. Nicholas School, Seattle
St. Paul's Academy, Walla Walla
College of Puget Sound, Tacoma (preparatory department)
Walla Walla College Academy, Walla Walla
Y. M. C. A., Seattle

III. SCHOOLS OUTSIDE OF WASHINGTON

Graduates of secondary schools outside of Washington will be admitted on the same terms as graduates of accredited schools of Washington, provided the school in question is fully accredited, (1) by the North Central Association of Schools and Colleges, (2) by the New England College Entrance Certificate Board, or (3) by a leading university whose standards of admission are practically the same as those of the University of Washington.

Admission by Examination.—Applicants for admission by examination are required to pass an examination based on a four year course amounting in the aggregate to fifteen units and covering the requirements of the college that the student wishes to enter.

Entrance examinations are held at the University on Thursday, Friday and Saturday preceding the opening of each quarter.

The schedule of hours for examination may be obtained from the Registrar.

Certificates of successful examinations before the College Entrance Examination Board will be accepted in lieu of matriculation examinations conducted by the University of Washington.

Examinations for Exemptions in English.—The department of English will give an entrance examination in English composition for those students who wish to attempt it, with the view to being excused from all or a part of the required course in college composition. It is hoped that a large number of entering students will present themselves for this examination, which will be held on the same dates as the regular entrance examinations.

REGISTRATION

All new first year students will be registered on Friday and Saturday, September 26 and 27, 1919.

Only old students and new students entering with advanced standing will be registered on Monday and Tuesday, September 29 and 30, 1919.

Registration of all students for the winter quarter will take place on Friday and Saturday, January 2 and 3, 1920; for the spring quarter, Friday and Saturday, April 2 and 3, 1920; and for the summer quarter, Tuesday and Wednesday, June 22 and 23, 1920.

Late Registration.—In order to enforce promptness in the matter of taking up university work at the opening of the quarter a penalty of $1 is imposed for registration after the regular registration days.
The same penalty is imposed for changes in election after the begin­ning of the regular class work, except where such changes are made upon the initiative of the student’s instructor or class officer.

No student will be allowed to register after the first week of the quarter without qualifying by the aid of an approved tutor. (This rule does not apply to graduate students.)

Except in the cases of students who have been granted a leave of absence, or withdrawn in good standing, during the preceding quarter of residence, no students may register in the University after the third week of a quarter without special permission from the Board of Deans.

REQuIREMENTS FOR ADMISSION

Freshman Standing.—Freshman standing in the University is granted to any recommended graduate of an accredited secondary school who presents fifteen units* of credit, distributed as follows:

2 units of mathematics (1 unit algebra, 1 plane geometry).
3 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented).
(a) Latin and Greek (not less than 2 units of Latin, or 1 of Greek will be counted.
(b) Modern foreign language (at least 2 units in one language; not less than one unit will be counted in any language).
(c) History, civics, economics (at least one unit to form a year of consecutive work in history).
(d) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit will be counted in physics, chemistry, or general biology. No science will be counted as applying on this re­quirement unless it includes a satisfactory amount of laboratory work).
2 units in subjects represented in the above groups (a) - (d).
5 units selected from any subjects accepted by an approved high school for its diploma; not more than 4 units in vocational subjects. (For admission to the College of Business Administration only, a maximum of 8 units in commercial subjects will be ac­cepted. Only 4 of these will be counted, if the student is transferred later to any other college of the University).

A candidate who fulfills these requirements will be admitted to freshman standing in any of the colleges of the University. However, if he has not taken in high school certain of the subjects recommended for admission to the college that he may decide to enter, he will take them in the University. These subjects may apply toward a degree, as far as elective courses make this practicable. In certain curricula, however, these subjects must be taken in addition to the prescribed subjects.

Entrance with condition, to freshman standing, is not permitted. Excess admission credit does not establish any presumptive claim for advanced standing, unless the student has taken a graduate course in the high school of at least one semester.

Additional Subjects Recommended for Admission to the Several Colleges

COLLEGES OF LIBERAL ARTS AND SCIENCE (GENERAL COURSES)

3 units of English.
1 unit of algebra.
1 unit of plane geometry.

* 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 school year of not less than thirty-six weeks.
A student entering the College of Liberal Arts or the College of Science must take the following subjects in the University as part of his requirements for graduation, if he has not taken them in high school:

2 units (20 credits) of a modern foreign language.*
(For the College of Science, French or German is the required language.)
1 unit (10 credits) of United States history and civics.
1 unit (10 credits) of another history.
1 unit (10 credits) of either physics or chemistry.
(Both physics and chemistry are required in the College of Science.)
1 unit (10 credits) of either botany or zoology.
1 unit (10 credits) of additional mathematics or science.

CURRICULUM PREPARATORY TO MEDICINE (COLLEGE OF SCIENCE)

1 unit of United States history and civics.
1 unit of medieval and modern history.
1 unit of physics.
2 units of either French or German.

CURRICULUM FOR NURSES (COLLEGE OF SCIENCE)

1 unit of United States history or civics.
1 unit of medieval and modern history.
2 units of either French or German.

CURRICULA IN HOME ECONOMICS (COLLEGE OF SCIENCE)

For admission to any of these curricula, a student may satisfy the entrance requirements of either the College of Science or the College of Liberal Arts.

COLLEGE OF EDUCATION

2 units in one foreign language.
1 unit in one of the following: physics, chemistry, botany, zoology.
1 unit in a history.
or ½ unit U. S. history, and ½ unit civics.

COLLEGE OF BUSINESS ADMINISTRATION

2 units of history (American and modern history preferred).

COLLEGES OF ENGINEERING AND MINES

½ unit of advanced algebra.
½ unit of solid geometry.
1 unit of physics.

COLLEGE OF FINE ARTS (MUSIC, ARCHITECTURE, DRAWING)

* Beginning with 1921, two years of one foreign language will be required for admission to the College of Liberal Arts, the College of Science, or the College of Fine Arts. For the College of Science this language must be French or German; for the College of Fine Arts any modern foreign language; for the College of Liberal Arts any foreign language. If the requirement has not been met in high school, it must be made up in college without credit.

General recommended subjects are the same as for the College of Education.*

Music students must also present the equivalent of four years' work in music.

Architecture students should present one unit each in physics and chemistry, and one-half unit each in trigonometry and free-hand drawing.

As all curricula in Fine Arts require at least four years for foreign language, it is desirable that as much of this work as possible be taken in high school.

COLLEGE OF FORESTRY

3 units of English.
2 units in one foreign language.
ENTRANCE INFORMATION

1 1/2 units of algebra.
1 unit of plane geometry.
1 unit of physics.
1 or 1 1/4 unit of botany.

COLLEGE OF PHARMACY

For the three-year course:
3 units of English.
1 unit of algebra.
1 unit of plane geometry.

For the four-year course:
3 units of English.
1 unit of algebra.
1 unit of plane geometry.
2 units in one foreign language.
1 unit in one of the following: physics, chemistry, botany, zoology, physiology, general biology. (Must include satisfactory amount of laboratory work).

COLLEGE OF FISHERIES

2 units of one modern foreign language.

SCHOOL OF LAW, LIBRARY SCHOOL AND SCHOOL OF JOURNALISM
(See following page.)

Unclassified Standing.—A graduate of an accredited secondary school who presents fifteen units in subjects accepted by his school for graduation, but who does not meet the requirements for admission to freshman standing may, upon recommendation of his principal, be admitted as an unclassified student. Such a student will be allowed to enroll for those courses only for which he has had adequate preparation. By virtue of his classification, he is not a candidate for a degree, but he may ultimately become a candidate for a degree by fulfilling as part of his college prescriptions all the requirements for entrance to and graduation from the college in which he is registered.

Special Students.—All courses offered by the University are organized for regular students, that is, students who have had the equivalent of a good high school education fully covering college entrance requirements. Under certain regulations, however, a student who cannot be admitted to freshman standing or as an unclassified student, may be admitted, classified as a special student, and allowed to register for those courses only for which he shows special preparation.

The number of such students admitted is necessarily limited by the facilities of the University. The regulations governing the admission of special students are as follows:

1. For admission to any college or school of the University, a special student must be at least twenty-one years of age.

2. In general, a student from an accredited high school will not be admitted to this classification if he has been in attendance in the high school during the previous year.

3. All available certified credits for previous school work must be
submitted to the Registrar and an application blank for admission as a special student filled out, giving, in addition to other information, the kind of work desired, the reasons for desiring such work, and, when no credits can be presented a detailed statement of any previous educational work and practical experience. When it seems necessary to assure the applicant's preparation for the particular courses desired, an examination will be required.

4. Registration as a special student is for one quarter only. Re-registration will be refused if the student has not shown satisfactory earnestness and definiteness of purpose, or if his work has not been good.

5. By virtue of his classification, a special student is not eligible for any degree. He may ultimately become a candidate for a degree, however, by completing the admission requirements of the college in which he is registered.

6. Persons desiring to be admitted as special students will apply to the Registrar for the necessary application and credential blanks.

In order that applicants for admission as special students may receive full consideration, it is desirable that their applications be filed with the Registrar several weeks, at least, before the date of registration.

Advanced Undergraduate Standing.—Students from classes above the first year in other colleges of recognized rank, who present letters of honorable dismissal, may be admitted to the advanced standing for which their training seems to fit them. No advanced credit will be given for work done in institutions whose standing is unknown, except upon examination. Definite advanced standing will not be given until the student has been in residence for at least one quarter.

Admission to the School of Law, Library School and School of Journalism.—Clear entrance to the College of Liberal Arts or the College of Science, and 102 hours (2 years) of advanced credit in prescribed freshman and sophomore courses, covering all prescriptions for the junior certificate, are required for admission to the School of Law.

Admission of Normal School Graduates to Advanced Standing.—Graduates of the normal schools of this state and of institutions of like standing elsewhere, who have completed two full years of normal school work after graduating from a four-year accredited high school, will be admitted to junior standing in the Colleges of Liberal Arts, Science, or Education. For graduation with the degree of bachelor of arts, bachelor of science or bachelor of education, these students are required to earn a minimum of 90 credits in the University, including the satisfaction of such of the requirements for graduation from the respective colleges as have not been fairly covered by previous work.

Admission to Graduate Standing.—A bachelor’s degree from a
college or university of good standing is required for admission to the Graduate School.

Auditors.—With the consent of the instructors concerned, any mature person, not registered as a student in the University, may be enrolled at the Registrar's office as an auditor in not more than two courses, without payment of any fee. This provision does not apply to laboratory courses, or to any courses offered in the summer session.

No such person may regularly attend any course in which he has not been registered, or enrolled as an auditor.

Expenses

Tuition.—By authority of a special act of the legislature of the State of Washington passed in 1919, vesting the Board of Regents with full power to modify existing fees and to establish new ones, the following fees are announced to become effective at the opening of the summer quarter of 1919.

The matriculation fee of $10 formerly collected from all new students is abolished.

University Tuition.—A general tuition fee of $10 per quarter will be collected from each student at the beginning of each quarter, excepting as noted below under "exemptions."

Law Tuition.—In addition to the general university tuition fee of $10 paid by each student, a special tuition fee of $10 a quarter will be collected from all students registering in the School of Law. Students taking work in the School of Law and also in other schools and colleges of the University will pay at the rate of $1 for each credit hour of law work elected.

Short Courses.—The tuition for registration in all short courses, such as mining, forestry, and marine biological station is the same as for any quarter, viz. $10.

Exemptions.—Any honorably discharged soldier, sailor, marine, or nurse, who served during the war with Germany, is entitled to register and attend courses without the payment of any fees except special or individual instruction fees and except student laboratory deposit fees and disciplinary fees.

The university authorities may, in their discretion, also grant exemption from the payment of tuition for a given quarter to a limited number of students who after one quarter of residence at the university have shown themselves worthy from the standpoint of scholarship and financial need.

Application for the war, as well as the scholarship, exemption must be made in person to the Dean of Men or the Dean of Women.
In the case of war exemptions, proper evidence of an honorable discharge must be offered.

Refunding of Fees. — Tuition fees are not returnable in whole or in part, except that one-half of such tuition may be returned in case the student is compelled to withdraw within sixty days of the date of his registration by reason of sickness or other causes entirely beyond his control. Students withdrawing under discipline forfeit all rights to the return of any portion of the fees.

No part of the tuition may be refunded under any circumstances after sixty days from the date of the student’s registration.

Associated Students Fees. — The regular Associated Students fee of five dollars is paid for the autumn, winter and spring quarters, three dollars for the winter and spring quarters only, two dollars for the spring quarter only, and one dollar for the summer quarter only. Payment of this fee is optional with graduate students, teachers attending classes on Saturdays and at irregular hours, regularly enrolled extension students, any student registered for not more than six hours of work, and Seattle teachers who have served or are serving the University by training cadet teachers, provided their cases have been reported to the registrar by the department of education.

LABORATORY DEPOSITS

The actual amount of material that a student may use during a laboratory course cannot always be stated in advance. The student’s deposit therefore, as announced in the catalogue, and made at the Comptroller’s office, is an amount which is expected to cover the value of the material that will be consumed; this includes the expense involved in the actual repair—not replacement—of the scientific apparatus used by the student. In case these charges overrun this amount it becomes necessary for the student to make a further deposit. At the end of the quarter the student receives a rebate order from the department concerned, which informs the comptroller as to the amount consumed and a refund is paid accordingly. This rebate order must, however, be presented for payment on or before September 15 next following the date of the receipt. The books are closed after this date and no orders will be honored thereafter.

The following are the laboratory deposits for each quarter in force in the various laboratory courses, arranged by departments:

Anatomy.—105, 106, 107—$3; 104—$5; 101, 102, 108—$10.
Astronomy and Navigation.—1, 2—$1; 121, 122, 123—$2; 201—$5.
Botany—8, 9, 10, —$1; 13, 14—$1.50; 1, 2, 3, 11, 12, 26, 53, 105, 106, 107, 111, 119, 130, 140, 141, 142, 143, 144, 145, 150, 200, 235, 250, 261, 261, 258, 264, 261, 262, 263, 271, 279, 280—$2.
Chemistry.—All courses except 221, 222, 223—$5; breakage ticket, $5; desk key, $.50.
Civil Engineering.—1—$1; 21, 22, 23, 24, 27, 30, 55, 56, 142, 167—$3.
**Economics and Business Administration, Typewriting.—$1.50 for 5 hours or less; $3 above 5 hours, maximum 10 hours.**

*Education.—171—$1.*

*Electrical Engineering.—132, 141, 107—$2; 100, 122, 181, 182—$3; 15, 20, 104, 162, 104—$4.*


*Forestry and Lumbering.—1, 5, 95, 104—$1; 101, 102, 105, 187—$2; 51, 188, 216, 214—$3.*

*Geology—1, 2, 5, 11, 12, 31, 32, 113, S. C. 1—$1; 120, 121, 122, 128, 124, S. C. 2—$2; 21—$3.*

*Home Economics.—8, 109, 200—$1; 142—$1.50; 55, 61, 62, 108—$2; 1, 2, 3, 106, 107, 130, 131—$3; 4, 103, 121, 185—$4; 183—$5; 5, 6—$6.*


*Library Economy.—Undergraduates—$1; graduates, $2; collected first two quarters.*

*Locars—$0.50 per year at Mines, Chemistry and Engineering buildings.*

*Mechanical Engineering.—1, 2, 3, 4, 53, 54, 55, 56, 105, 106, 107, 108, 109, 151, 152, 153—$2.*

*Mineral and Mining.—50—$1; 101, S. C. 2, S. C. 3—$3; 101, 102, 176—$6; 155—$5 or $10; 106—$20 to $40; metallurgy, 103, 106, 163, 164, S. C. 2—$5; 102—$10; 153, 160, S. C. 2—$12; 101, S. C. 1—$20; ceramics, 102, 103, 182—$8; 151—$7; 121, 123, 125—$6 or $10.*

*Muse—18 (A, B, C)—$12 to $27 the quarter for one lesson hour, according to instructor; practice rooms, 1 hour—$3; 2 hours—$5.*

*Painting, Sculpture and Design.—9, 10, 11—$1; 72, 108, 104, 157—$2; 56, 57, 58, 107, 108, 109—$5.*

*Pharmacy.—15—$1; 7, 10—$2.50; 1, 2, 5, 6, 11, 104, 105, 108, 107, 118, 114, 115—$5; 109, 110, 111, 121, 122, 128, 201, 202—$2.60 to $5; breakage ticket—$5.*

*Physical Education and Hygiene.—$1 per year locker and apparatus; paid by all taking one or more courses. Women's suits, style and cost to be arranged.*

*Physics.—1, 2, 5, 48, 49, 50, 51, 89, 90, 97, 98, 99, 101, 102, 103, 104, 114, 203, 209—$2.50.*

*Psychology.—101, 106—$1; 1—$2.*

*Zoology.—1, 2, 3, 4, 5, 7, 51, 66, 101, 108, 106, 164—$2; 34, 55—$3; 101, 152, 153—$4.*

*Special Examinations.—A fee of $1 will be charged for all examinations given outside of the regular schedule.*

*Late Registration.—A penalty of $1 is imposed for registration after the regular registration days. The same penalty is imposed for changes in election or withdrawals from individual courses, made after regular registration days.*

*Graduation Fee.—The fee charged to graduates is five dollars for each one receiving a baccalaureate or higher degree, or a diploma in pharmacy, and three dollars for each one receiving a teacher's diploma. This teacher's diploma fee does not include the legal registration fee of $1 paid to that county school superintendent who first registers a teacher's diploma.*

**Student Help.—A considerable number of students who have found it necessary to support themselves, in part or wholly, while at the University, have been enabled to do so by securing occupation of various sorts. There is an employment bureau conducted by the Y. M. C. A. to secure work for men who have to make their own expenses. There is also a faculty committee which lends its assistance in securing aid for such students. The Y. M. C. A. in co-operation with the dean of women, renders a similar service for women.**

Students who expect to earn a portion of their support are advised not to register for a full schedule of studies.

Every effort is made on the part of the officials of the University to aid students in their efforts to secure employment, but it is not
deemed advisable for any one to register unless he has in hand or in immediate prospect sufficient funds to maintain him for the first few months.

ACADEMIC AND VOCATIONAL GUIDANCE

Dean of Men.—When entering the University, young men who have not fully decided on a vocation for life are urged to consult the Dean of Men. Through his office the University is attempting to direct men into vocations for which they are naturally adapted and to point out lines of work in which there is an insufficient supply of well trained men. The dean is always ready, also, to aid students in any of their individual or group problems.

Dean of Women.—The Dean of Women is always ready to help or advise any woman student who may need assistance. She will supply lists of approved boarding and lodging places, correspond with parents or guardians who desire to make inquiry concerning their daughters or wards, and take an interest in all the organizations for women.

Vocational Secretary.—The office of vocational secretary has been newly created to assume the responsibility of all placement work. It is desirable that every student have a conference with the vocational secretary sometime before graduation. The office is also available to undergraduates for the purpose of advisement. The vocational secretary is also the executive secretary of the alumni association of the University. A great mutual service may be rendered by reporting to this office any positions open that would be of interest to university graduates. Offices 310-312 Administration Hall.

STUDENT GOVERNMENT

As a result of action taken by the A. S. U. W. and ratified by the faculty, the plan has been adopted of having the student members of the Board of Control act as a discipline committee to deal with cases of misconduct among students. The success of this plan makes it probable that before long student government will be still further advanced.

DEGREES

It is not the policy of the University at the present time to grant honorary degrees.

Degrees With Honors.—A degree with honors may be conferred upon a student who, upon recommendation of the honors committee and upon vote of the faculty is declared worthy of unusual distinction. Early in May each head of a department brings to the attention of the committee on honors such seniors majoring in his department as
he thinks may be eligible for honors. A student is not allowed to take honors in more than one subject.

The University Normal Diplomas.—The University is authorized by law to issue teachers' diplomas, valid in all public schools of the state. Candidates for these diplomas should register in the department of education as early as possible after the beginning of the sophomore year, and should consult with the department from time to time as to their work for the diploma and their preparation for teaching. Fuller information may be found in the bulletin of the College of Education.

Fellowships, Scholarships and Aid

Graduate Fellowships.—By the will of Sarah Loretta Denny the sum of $25,000 was bequeathed to this University for the establishment of university fellowships. The income from this fund is at present $1,250, and affords three graduate fellowships of equal amount, which will be awarded by May 1st of each year by the graduate faculty.

The university honor fellowships are awarded annually, under the same scholarship qualifications as those obtaining for the Loretta Denny fellowships.

The Mars Fellowship.—A research fellowship in astronomy, given by the late Dr. Percival Lowell, of the Lowell Observatory, Flagstaff, Arizona, carrying a stipend of six hundred dollars, may be awarded annually.

University Teaching Fellowships.—The University each year provides a number of teaching fellowships in various departments. The graduate student receiving such a fellowship divides his time equally between his studies and assistance in the teaching work of the department in which he is enrolled.

Columbia University Fellowship.—Columbia University offers each year a fellowship of two hundred and fifty dollars, open to students in mining, engineering, and chemistry.

Isabella Austin Scholarship.—The Isabella Austin scholarship for entering freshmen women was established in 1916 from the income of a fund given in memory of Isabella Austin, Dean of Women, University of Washington, 1909-1915. The award is made annually to a young woman of promise on the basis of scholarship and financial need.

Chemistry Scholarship.—An anonymous donor offers a scholarship of one hundred dollars annually to the student doing the best work in chemistry.
Senior Scholars.—In June preceding their senior year, juniors who have 182 or more credits with high grade may be elected senior scholars. A senior scholar may be relieved from attendance at regular lectures or recitations, and may be granted other special privileges in order that he may devote himself to more intensive and more correlated study than the classroom system permits. His work must be in not less than two or more than four allied subjects and it must be correlated so that it will bear upon some common field.

The Rosenberg Scholarship.—Mrs. Ella S. Rosenberg of Seattle has established a scholarship in French to be known as the "Samuel Rosenberg Scholarship, endowed in loving memory by his wife, Ella S. Rosenberg." This scholarship produces two hundred dollars a year, and is to be awarded annually to the student who, in the opinion of the department, is the most worthy of it. In making this award, account will be taken of the scholarship, personality and needs of the candidates.

Prizes

For Excellence in Public Speaking and Debate.—Judge Alfred Battle offers an annual cash prize of seventy-five dollars to the Washington debating team chosen to meet representative debaters from the University of Oregon.

Each alternate year, beginning with the spring of 1908, the Seattle Bar Association gives the sum of fifty dollars to defray the expenses of a debate between the representatives of the law schools of Oregon and Washington.

For Essays.—The Philo Sherman Bennett prize of twenty-four dollars annually is "for the best essay discussing the principles of free government."

Mr. Vivian W. Carkeek, of the law class of 1901, offers an annual cash prize of twenty-five dollars for the best thesis on Washington law.

In memory of the Hon. Edwin A. Jaggard, late justice of the supreme court of Minnesota, Miss Anna Wright Jaggard offers an annual cash prize of fifty dollars for the best essay on a topic connected with courses in history of law or jurisprudence.

The University State Bank offers an annual cash prize of twenty-five dollars for the best essay on banking, submitted by a student in the College of Business Administration.

Alpha Chapter of the Chi Omega Fraternity offers a social bet-terment prize of fifteen dollars, to be given annually, for the best paper on any phase of social service presented by a student of the University of Washington.

For Scholarship in Italian.—Mr. N. Paolella, of Seattle, offers a gold medal each year, beginning with 1918, for a period of ten years, to the student doing the best work in Italian.
Men's Freshman Latin Prize.—Through the kindness of a friend of the University, a prize of fifty dollars in gold will be awarded to the man in the freshman class who passes the best examination in the Latin work of the year.

Sophomore Latin Prize.—A cash prize of twenty-five dollars, from an anonymous donor, will be awarded to that member of the sophomore class who has done the best work in Latin during the year.

For Scholarship in French.—Judge Thomas Burke offers two cash prizes, one of fifteen dollars and one of twenty-five dollars, for general excellence in French.

Student Loan Funds

Mr. Samuel H. Hedges, of Seattle, has endowed a student loan fund, known as The David Jackson Hedges Memorial Fund, in memory of the donor's son, which affords assistance by way of emergency loans to young men of the University upon application duly approved by the trustees of the fund.

Several minor loan funds have been established which help considerably in the efforts of the university authorities to assist students, both men and women, through financial emergencies. These are placed at a low rate of interest in small amounts for short periods. Young women interested in securing this assistance should consult the Dean of Women.
ASSOCIATIONS AND CLUBS

Alumni Association.—The permanent executive secretary of the Alumni Association is J. G. Fletcher, who is also vocational secretary of the University, with offices in Administration Hall.

The Associated Students.—The Associated Students of the University of Washington (incorporated) is an organization of the entire student body. The powers of government are vested by its constitution in an annually elected board of control, upon which three members of the faculty and three alumni also have seats. The board appoints a general manager, who has the financial control of all branches of athletics, musical organizations, and of contests in debate and oratory. The associated student fee of $5 a year entitles the student to a subscription to the University of Washington Daily—the official student paper—free admission to all athletic, debating and oratorical contests given under the auspices of the A. S. U. W., the annual musical concert, the discounts in the co-operative bookstore, and to all the voting and other privileges of the association.

Christian Associations.—The Young Men's and Young Women's Christian Associations each maintain an organization among the students. They are active in making the new students feel at home and in assisting them in many ways. Prospective men students are invited to address the secretary of the University of Washington Y. M. C. A., Seattle, Washington, regarding rooming needs or employment. The student handbook will be ready for distribution at registration time.

Department Clubs.—The following clubs are connected with the work of different University departments: Chemical Club, Classical Club, Deutscher Verein, English Club, Forest Club, French Club, Home Economics Club, Mathematics Club, Pharmacy Club, Political Science Club, Scandinavian Club, Spanish Club.

Debating.—There are four debating and literary societies in the University, Stevens, Badger, Athena and Sacajawea. The first two are for men, the last two for women. Membership in the clubs is limited in order that frequent practice may be afforded.

The Pacific Coast Triangular Debating League, consisting of the Universities of Washington, Oregon, and British Columbia, holds an annual triangular debate. Each institution has two teams, representing the affirmative and negative of the question under discussion.

The men of the University also have dual debate leagues with Reed College and Whitman College.
The women of the University have similar dual leagues with the University of Oregon and Whitman College.

Musical Organizations.—The musical organizations consist of the University Choral Society, Men's Glee Club, Women's Glee Club, Orchestra and Band.

Philological Association.—The Philological Association was organized to encourage scientific investigation in language and literature. Membership is open to all members of the University who are interested in philology.

Honor Societies.—The following honor societies have been established at the University: Phi Beta Kappa, Sigma Xi, Phi Delta Phi, Phi Delta Chi, Phi Delta Kappa, Phi Lambda Upsilon, Tau Kappa Alpha, Theta Sigma Phi, Sigma Delta Chi, Mim Kaph Mim, Tau Beta Pi.

Washington University State Historical Society.—The Washington University State Historical Society has for its purpose the preserving of the historical documents and records of the Northwest and of the state of Washington, and to preserve or publish the results of all investigations.
GENERAL SCHOLASTIC REGULATIONS

STUDIES

At the beginning of each quarter, the student arranges his schedule of studies with the advice and assistance of his class officer. A regular course consists of fifteen or sixteen hours of recitations per week.

All women students are required to take three hours of gymnasium work per week throughout the first and second years, twelve credits in physical culture being required of women for a degree.

A course of two years in military training is required. All able-bodied male students except those from foreign countries, not intending to become naturalized, must take the course which by regulation of the University is required during the first and second year. Furthermore, every male undergraduate student is required to take physical exercise or athletics during each week of his attendance at the University, unless excused by his dean and the physical director.

Neither the requirement of physical education for women, nor that of military science for men applies to any student entering as a junior or senior, providing the student has fulfilled the requirements in these subjects laid down by the institution from which he comes. The deans, together with the physical director, or commandant, as the case may be, have authority to allow a student to substitute the proper corresponding amount of scholastic work for gymnasium or military science when it seems advisable. Substitutions to be valid must be signed by the dean concerned and the physical director or commandant, and must be filed in the office of the Registrar.

PHYSICAL EXAMINATIONS

All students on entering the University for the first time are required to present themselves for physical examination at the call of the Department of Physical Education. Failure to be examined constitutes a delinquency on the records.

REGULATIONS FOR WITHDRAWAL

Withdrawal is the voluntary severance by a student of his connection with a course or with the University and is indicated on the registrar's books by a "W." During the first four weeks of a quarter, a student may withdraw from a course and be given a "W" with the written consent of his adviser and his instructor. If he desires to withdraw at a later period, he may do so, as above, but if his work has not been satisfactory he shall be given an "E" instead of a "W"; provided, however, that, if in either case, a withdrawal will reduce the student's hours below 12, it must be approved by his dean. A
student who drops a course without withdrawing shall be given an "E" in the course.

SCHOLARSHIP STANDING

Any student who is reported at any time during a quarter as doing unsatisfactory work in two or more of his subjects, aggregating more than one-third of his registered hours, shall be placed on probation for the remainder of said quarter. If at the end of the quarter he fail in two or more subjects, aggregating more than one-third of his registered hours, he shall not be allowed to re-register except under conditions prescribed by his dean, who shall be his registering officer.

Appeal from the decision of the dean may be taken to the board of deans.

Any student who fails in two or more subjects, aggregating more than one-third of his quarter's work shall be placed on probation for the following quarter. If in said following quarter said student fail in more than one-half of his registered hours, he shall not be allowed to register except on recommendation of the board of deans.

Any student who fails in more than one-half of his registered hours, after the first quarter of residence, will not be allowed to re-register, except by permission of the board of deans.

EXAMINATIONS

The regular quarterly examinations are held during the last four days of each quarter.

In certain courses running through two or more quarters the examination on the work of the first quarter is merely qualifying, final credit not being given until the examination for the entire course has been passed.

SYSTEM OF GRADES

1. The following is the system of grades:*  
   
   A .................................................. Honor  
   B .............................................  
   C ............................................. } Intermediate  
   D .............................................  
   E ............................................. Failed  
   I ............................................... Incomplete  

   (An incomplete is given only in case the student has been in attendance and done satisfactory work to a time within two weeks of the close of the quarter.)

2. Candidates for the bachelor's degrees in the colleges of Liberal Arts, Science, Education, Business Administration, Fine Arts, Forestry, and the Library School and the School of Journalism, must receive grades of A, B, or C in three-fourths of the credits required
for their respective degrees. This rule became operative in June, 1918, and does not apply to grades given before the year 1910-11.

FRATERNITY PLEDGING

No fraternity or sorority shall pledge any person for membership whose registration in the University is not complete.

Registration is complete when the election blank has been signed by the student and all required registering officers, when all required fees have been paid, and when all blanks have been left in the Registrar's office or other place designated by him.

No student having less than Junior standing shall be initiated into a fraternity or sorority until he or she has earned eighteen credits or provisional credits in two quarters, or fifteen in one quarter, at this University. Credits or provisional credits for work taken to remove entrance conditions may not be counted.

Candidates for initiation into either fraternities or sororities shall secure from the Registrar's office a certificate of eligibility.

* These grades correspond approximately to the old marking scheme as follows: A, 100-96; B, 95-86; C, 85-76; D, 75-70; E, 70-0.
THE BULLETIN OF THE UNIVERSITY OF WASHINGTON INCLUDES THE FOLLOWING PUBLICATIONS

ENTRANCE INFORMATION
THE CATALOGUE
Bulletins of
COLLEGE OF LIBERAL ARTS
COLLEGE OF SCIENCE
COLLEGE OF EDUCATION
LIBRARY SCHOOL
COLLEGE OF BUSINESS ADMINISTRATION
SCHOOL OF JOURNALISM
COLLEGE OF ENGINEERING
COLLEGE OF FINE ARTS
COLLEGE OF FISHERIES
COLLEGE OF FORESTRY
SCHOOL OF LAW
COLLEGE OF MINES
COLLEGE OF PHARMACY
GRADUATE SCHOOL
EXTENSION SERVICE
SUMMER SESSION
PUGET SOUND BIOLOGICAL STATION
BULLETIN OF VOCATIONAL COURSES
UNIVERSITY DIRECTORY

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
THE BOARD OF REGENTS

WINLOCK W. MILLER, President ..................................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS ..................................................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER .................................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER .................................................................Yakima
Term ends March, 1922

JOHN A. REA ...........................................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON ............................................................Seattle
Term ends March, 1923

RUTH KARR McKEE .................................................................Olympia
Term ends March, 1923
## Officers of Administration

### The University

<table>
<thead>
<tr>
<th>Name</th>
<th>Position / Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>HENRY SUZZALLO, Ph. D., LL. D.</td>
<td>President of the University</td>
</tr>
<tr>
<td>JOHN THOMAS CONDON, LL. M.</td>
<td>Dean of Faculties Administration Hall</td>
</tr>
<tr>
<td>HERBERT THOMAS CONDON, LL. B.</td>
<td>Comptroller Administration Hall</td>
</tr>
<tr>
<td>EDWARD NOBLE STONE, A. M.</td>
<td>Registrar Administration Hall</td>
</tr>
<tr>
<td>EDWIN BICKNELL STEVENS, A. M.</td>
<td>Executive Secretary Administration Hall</td>
</tr>
<tr>
<td>ARTHUR RAGAN PRIEST, A. M.</td>
<td>Dean of Men Administration Hall</td>
</tr>
<tr>
<td>ETHEL HUNLEY COLDWELL, A. M.</td>
<td>Dean of Women Administration Hall</td>
</tr>
<tr>
<td>WILLIAM ELMER HENRY, A. M.</td>
<td>Librarian, Library</td>
</tr>
<tr>
<td>FRANK STEVENS HALL</td>
<td>Director of Museum</td>
</tr>
<tr>
<td>JAMES GARFIELD FLETCHER, A. B.</td>
<td>Vocational Secretary Administration Hall</td>
</tr>
</tbody>
</table>

### The Colleges and Schools

<table>
<thead>
<tr>
<th>Name</th>
<th>Position / Institution</th>
</tr>
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<tbody>
<tr>
<td>DAVID THOMSON, B. A.</td>
<td>Dean of the College of Liberal Arts Denny Hall</td>
</tr>
<tr>
<td>HENRY LANDES, A. M.</td>
<td>Dean of the College of Science Science Hall</td>
</tr>
<tr>
<td>STEPHEN IVAN MILLER, LL. B., A.B.</td>
<td>Director of the College of Business Administration Commerce Hall</td>
</tr>
<tr>
<td>FREDERICK ELMER BOLTON, Ph. D.</td>
<td>Dean of the College of Education Home Economics Hall</td>
</tr>
<tr>
<td>CARL EDWARD MAGNUSSON, Ph. D.</td>
<td>Acting Dean of the College of Engineering Engineering Hall</td>
</tr>
<tr>
<td>IRVING MACKEY GLEN, A. M.</td>
<td>Dean of the College of Fine Arts Meany Hall</td>
</tr>
<tr>
<td>JOHN NATHAN COBB</td>
<td>Director of the College of Fisheries Commerce Hall</td>
</tr>
<tr>
<td>HUGO WINKENWERDER, M. F.</td>
<td>Dean of the College of Forestry Forestry Hall</td>
</tr>
<tr>
<td>COLIN VICTOR DYMENT, B. A.</td>
<td>Director of the School of Journalism Commerce Hall</td>
</tr>
<tr>
<td>JOHN THOMAS CONDON, LL. M.</td>
<td>Dean of the Law School Commerce Hall</td>
</tr>
<tr>
<td>WILLIAM ELMER HENRY, A. M.</td>
<td>Director of Library School Library</td>
</tr>
<tr>
<td>MILNOR ROBERTS, A. B.</td>
<td>Dean of the College of Mines Mines Hall</td>
</tr>
<tr>
<td>CHARLES WILLIS JOHNSON, Ph. C., Ph. D.</td>
<td>Dean of the College of Pharmacy Bagley Hall</td>
</tr>
<tr>
<td>FREDERICK MORGAN PADELIFORD, Ph. D.</td>
<td>Acting Dean of the Graduate School Denny Hall</td>
</tr>
<tr>
<td>J. ALLEN SMITH, Ph. D.</td>
<td>Dean of the Graduate School Denny Hall</td>
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</tbody>
</table>

### The Extension Service

<table>
<thead>
<tr>
<th>Name</th>
<th>Position / Institution</th>
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<tbody>
<tr>
<td>EDWIN AUGUSTUS START, A. M.</td>
<td>Director</td>
</tr>
<tr>
<td>EVERETT FRANCIS DAHM, A. B.</td>
<td>Assistant Director</td>
</tr>
</tbody>
</table>

1Absent on leave 1918-1919.
2Absent on leave 1918-19; resigned 1919.
3Detached on special service 1917-19.
4In charge of service 1918-1919; resigned July 31, 1919.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission .................................................. Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students ..................................... Friday and Saturday, September 26 and 27
Registration of all other students .............................................. Monday and Tuesday, September 29 and 30
Instruction begins ................................................................. Wednesday, October 1
President's annual address ..................................................... Friday, October 3, 10 a.m.
Women's assembly ................................................................. Friday, October 10, 11 a.m.
Thanksgiving recess ............................................................... Wednesday, November 26, 6 p.m., to Monday, December 1, 8 a.m.
Quarter examinations ............................................................. Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ................................................................. Friday and Saturday, January 2 and 3
Instruction begins ................................................................. Monday, January 5
Quarter examinations ............................................................. Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ................................................................. Friday and Saturday, April 2 and 3
Instruction begins ................................................................. Monday, April 5
Campus Day ....................................................................... Friday, April 23
Junior Day ......................................................................... Saturday, May 29
Quarter examinations ............................................................. Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ........................................... Saturday, June 19
Baccalaureate Sunday .............................................................. June 20
Commencement and Alumni Day ................................................. Monday, June 21

SUMMER QUARTER

Registration days ................................................................. Tuesday and Wednesday, June 22 and 23
Instruction begins ................................................................. Thursday, June 24
Quarter examinations ............................................................. Monday and Tuesday, August 30 and 31
COLLEGE OF LIBERAL ARTS

THE FACULTY

HENRY SUEZALO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M., (Northwestern), Dean of Faculties.

DAVID THOMSON, B. A., (Toronto), Professor of Latin; Dean.

EDMUND STEPHEN MEANY, M. L., (Wisconsin), Professor of History.

J. ALLEN SMITH, Ph. D. (Michigan), Professor of Political Science and Dean of the Graduate School.

CAROLINE HAVEN OBER, Professor of Spanish.

FREDERICK MORGAN PADDINGTON, Ph. D. (Yale), Professor of English and Acting Dean of the Graduate School.

WILLIAM SAYRE, Ph. D., (Harvard), Professor of Philosophy.

PETER JOSEPH FERGIN, Ph. D., (Johns Hopkins), Professor of Romanic Languages.


OLIVER HUNTINGDON RICHARDSON, Ph. D., (Heidelberg), Professor of European History.

VERNON LOUIS PAMMENTON, A. B., (Harvard), A. M., (Empera), Professor of English.

FREDERICK ELMER BOLTON, Ph. D., (Clark), Professor of Education and Dean of the College of Education.

EDWIN JOHN VICKNES, Ph. D. (Minnesota), Professor of Scandinavian Languages.

WILLIAM PERDUS GOSSTON, A. B. (Knox), Professor of Dramatic Art.

ARTHUR BAGAN FRIED, A. M., (DePauw), Professor of Debating and Dean of Men.

ALLEN ROGER BENHAM, Ph. D., (Yale), Professor of English.

STEPHENV IVAN MILLER, J. B., (Stanford), LL. B. (Michigan), Professor of Transportation, Head of the Department of Economics and Director of the College of Business Administration.

RICHARD FREDERICK SHORE, Ph. D., (Wisconsin), Professor of Ancient History.

LEONARD VINCENT Koos, Ph. D., (Chicago), Professor of Education.

FRED CARLTON AYER, Ph. D., (Chicago), Professor of Education.

ANTON DE HAAS, Ph. D., (Stanford), Professor of Business Administration.

LAWRENCE LOCKWOOD, Ph. D., (Yale), Acting Professor of English.

JAMES D. BARNETT, Ph. D., (Wisconsin), Acting Professor of Political Science.

LOREN DOUGLAS MILLMAN, A. B., (Michigan), Associate Professor of English.

THOMAS KAY SIDNEY, Ph. D., (Chicago), Associate Professor of Latin and Greek.

EDWARD McMAHON, A. M., (Wisconsin), Associate Professor of American History.

JACOBA NERDENT BOWMAN, Ph. D., (Heidelberg), Associate Professor of European History.

GEORGE WALLACE UMPHERST, Ph. D., (Harvard), Associate Professor of Romanic Languages.

OTTO PATER, Ph. D., (Wisconsin), Associate Professor of French.

VANDERBEER CUSTIS, PH. D., (Harvard), Associate Professor of Economics.

THOMAS TALBOT WATERMAN, Ph. D., (Columbia), Associate Professor of Anthropology.

EDWARD GODFREY COX, Ph. D., (Cornell), Associate Professor of English.

J. P. THOMAS, A. B., (Beloit), Associate Professor of Sociology.

OTTILIE GERTHUS BOETZKE, A. M., (Washington), Assistant Professor of German.

ROBERT MAX GARNETT, Ph. D., (Munich), Assistant Professor of English.

CHARLES MUNRO STRONG, Ph. D., (Missouri), Assistant Professor of Spanish.

WILLIAM THEODORE DABBY, A. M., (Columbia), Assistant Professor of English.

HARVEY BRUCE DENSMORE, Ph. D., (Grenoble), Assistant Professor of Romanic Languages.

JOEL MARCUS JOHANSON, A. B., (Washington), Assistant Professor of English.

ERNEST OTTO EICKELMANN, Ph. D., (Heidelberg), Assistant Professor of German and Chairman of German Faculty.

CHARLES LUCIUS RIMADING, A. M. (Washington), Assistant Professor of Romanic Languages.

THERESA SCHMID McMANUS, Ph. D., (Wisconsin), Assistant Professor of Economics.

SEBENIO BURTON CLARK, Ph. D., (Harvard), Assistant Professor of Latin and Greek.

CLAYTON WOOD, Ph. D., (Columbia), Assistant Professor of Education.

MACK M. SKINNER, Ph. D., (Harvard), Assistant Professor of Chinese, Acting Dean of Men.

RALPH HASWELL LUTZ, Ph. D. (Heidelberg), Assistant Professor of History.

CUTY JOSEPH DUCASSE, Ph. D., (Harvard), Assistant Professor of Philosophy.

LOUIS SANTANDER, A. B., LL. B., (Santiago), Assistant Professor of Spanish.

LEWIS LELLY, A. B. (Wisconsin), Assistant Professor of Accounting and Finance.
BRUCE D. MUGNETT, PH. D. (Pennsylvania), Assistant Professor of Insurance.
HEDFORD G. TUGWELL, A. M. (Pennsylvania), Assistant Professor of Marketing.
VICTOR L. O. CHITTICK, A. M., (Harvard), Assistant Professor of English.
WALTER E. ROLOWY, PH. D., (Wisconsin), Assistant Professor of German.
FREDERICK A. RUSSELL, PH. D., (Illinois), Assistant Professor of Economics and Acting Director of the School of Journalism.

EMILIO GOOGoo, PH. D., (Harvard), Assistant Professor of Romance Languages.
GEORGE E. PRUEHLE, A. M., (Clark), Assistant Professor of Education.
GEORGE HENRY JENKIN, B. S., (Valparaiso), Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.

EDWIN RAY GUTHERIE, PH. D., (Pennsylvania), Assistant Professor of Philosophy.
WALTER BELL WHITTENBERRY, A. M., (Washington), Instructor in French.
RUDOLPH HERMANN ERNST, A. M., (Harvard), Instructor in English.

JOSEPH BARNLOW HARRISON, A. B., (Oxford), Instructor in English.
CLEMENT ALDIBE, PH. D., (Harvard), Instructor in Economics.

VICTOR JOHN FARRAR, A. M., (Wisconsin), Research Assistant in History.
FRANK LARUE, A. M., (Washington), Instructor in Economics.
CHARLES ALEXANDER GURDIN, B. L., (University of France), Instructor in French in Extension Service.

MAX P. PHILLIBROOK, A. B., (Colby), Instructor in Romance Languages.
KATE GREGG, PH. D., (Washington), Instructor in English.
ELVINE SIMON, (University of Geneva), Instructor in Russian Language and Literature.
E. R. THOMA, Acting Instructor in Business Administration.
MARGARET PROSSER, A. B., (Vassar), Associate in English.
WINFRED S. HAGGETT, A. M., (Michigan), Associate in English.
VERA KELLEY, A. M., (Brown), Associate in English.
LUDDE LEE ROCHEMESTER, A. B., (Washington), Associate in English.
EDWARD H. CUSHING, Associate in Vocational Education and Assistant Supervisor of Teacher Training in the Trades and Industries.

WILLIAM E. DURANT, Associate in French.
COWVILLE F. COOLSHIRE, LL. B., (Ohio), Lecturer in charge of Debating.
PAUL A. USOFF, Lecturer in Russian for Extension Service.
J. H. PIPER, Extension Lecturer in Special Education.
MELVIN W. CASEMORE, Extension Lecturer in Business Administration.

KOSAYASHI, Extension Lecturer on the Japanese Language.

THORFIN KINNOY, A. M., (Washington), Professor of Zoology.
FREDERICK ARTHUR ORBORN, PH. D., (Michigan), Professor of Physics, and Director of the Physics Laboratories.
DAVID CONNOLLY HALL, M. D., (Chicago), University Health Officer, and Director of Physical Education for Men.
IRVING MAGGIE GLENN, A. M., (Oregon), Professor of Music and Dean of the College of Fine Arts.

ESTHER ISABEL BAYT, B. S., (Columbia), Professor and Director of the Department of Home Economics.

STEVENVON SMITH, PH. D., (Pennsylvania), Professor of Psychology.
SABRAN LADMMER BOOTHBY, M. S., (Colorado Agricultural College), Associate Professor of Astronomy.

ALLEN FULLER CAMPBELL, PH. D., (Chicago), Associate Professor of Mathematics.
EDWIN JAMES SAUNDERS, A. M., (Harvard), Assistant Professor of Geology.

GEORGE BURTON RING, PH. D., (Chicago), Assistant Professor of Botany.
FRED HARVEY HEATZ, PH. D., (Yale), Assistant Professor of Chemistry.
JAMES GEORGE AHUTEN, B. S., (Kansas State), Assistant Professor of Physical Education.
JESSIE B. MERRICK, B. S., (Columbia), Instructor in Physical Education.

Withdrawn.

Absent on leave 1919-1920.
The College of Liberal Arts provides instruction in the languages, education, economics and business administration, history, philosophy, political science, and sociology. Together with the College of Science, it affords the student an opportunity to acquire a general education which shall serve as a sure foundation for real success in whatever profession he may choose. In both these colleges the junior certificate plan is in operation, through which the work of the high school is closely articulated with that of the college. In order to obtain the degree of Bachelor of Arts, it is necessary for the student first to obtain his junior certificate. This represents the satisfactory completion of the work of the first two years in college, and leads, after two more years of work, to the degree. The details of the plan are set forth below.

It is highly desirable that students entering the College of Liberal Arts from another institution should obtain from the Registrar, as soon as possible, a statement of what they must do in order to be granted the junior certificate and later, their bachelor's degree. Otherwise, by failing to fulfill the requirements, they will find their graduation postponed for a quarter or more, despite the fact that they may have earned credits sufficient in number to entitle them to the degree.

*REQUIREMENTS FOR ADMISSION*

**Admission to Freshman Standing.**—A student must offer for admission to freshman standing in the University, fifteen units† by examination or by certificate from an accredited school from which he has graduated. The fifteen units must include the following combinations:

- 3 units of English.
- 2 units of mathematics (1 unit algebra, 1 plane geometry).
- 8 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented).
  1. (a) Latin and Greek (not less than 3 units of Latin, or 1 of Greek will be counted).
  2. (b) Modern foreign language (at least 2 units in one language; not less than one unit will be counted in any language).
  3. (c) History, civics, economics (at least one unit to form a year of consecutive work in history).
  4. (d) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit will be counted in physics, chemistry, or general biology. No science will be counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).

2 units in subjects represented in the above groups (a) to (d).
3 units selected from any subjects accepted by an approved high school for its diploma.

**Grouping of Subjects in Preparation for Admission**.—In addition to the three units of English and two units of mathematics required of all students for admission to the University, the student expecting to enter the College of Liberal Arts is advised to take as many as possible

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*More detailed in formation concerning admission is furnished in a separate section of the University Bulletin, known as Entrance Information.*

†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 school year of not less than thirty-six weeks.
of the subjects specified on a succeeding page among "Requirements of the Lower Division," under group 2, "Subjects Required Either in High School or College." He should also note paragraph 4 on the same page entitled, "Subjects Conditionally Required in College." A careful observance of these paragraphs will furnish a more complete preparation for college work, and will give the student correspondingly greater freedom of election in college.

**Admission from Normal Schools.**—Graduates of the normal schools of this state and of institutions of like standing elsewhere who are likewise graduates of accredited four year high schools, are admitted to full standing in the upper division of the College of Liberal Arts. Their courses of study are determined by the major department which they choose, subject to the approval of the dean. The presumption is that they take all of the required subjects in the lower division for which they have not had a fair equivalent elsewhere. However, this procedure may be modified in any particular case, if, in the opinion of the major department and of the dean, it is for the best interests of the student to do so.

**Requirements for the Degree of Bachelor of Arts**

To secure the degree of bachelor of arts (A. B.) the student must complete not less than a total of 192 credits and must observe the restrictions in regard to major and group requirements, scholarship requirements, and the requirements of the lower division and upper division.

1. **Major and Group Requirements**

(a) From 36 to 60 credits must be in a single department known as the major department (except that with a major in English, 10 credits in English 1-2 may be counted in addition to 60 credits in other English courses).

(b) The number of credits taken in the major and any other single department combined must not exceed a total of 96 (except that when English is combined with the major department for the purpose of this total, credits in English 1-2 may be disregarded).

(c) Not less than 72 credits must be in the group in which the major department falls. For this purpose the departments are grouped as follows:

**Group 1. Language and Literature.**—Classical languages and literature, English, German, Oriental literature, Romanic languages and literature, Russian, Scandinavian.

**Group 2. Philosophical.**—Economics and business administration, education, history, philosophy, political science, sociology.

The group requirement of 72 credits does not apply to majors in home economics.
II. SCHOLARSHIP REQUIREMENTS

Not less than three-fourths of the credits required for graduation must be earned with grades of A, B, or C.

III. REQUIREMENTS OF THE LOWER DIVISION

The work of the lower division comprises the studies of the freshman and sophomore years of the undergraduate curriculum and leads to the junior certificate. This work consists primarily of the elementary or introductory courses of the various departments.* Its aim is to supplement the work of the high school, to contribute to a broad general training in preparation for the advanced work of the upper division.

To receive the junior certificate the student must have earned not less than 90 college credits (together with required credits in military science or physical education), and must have completed, in high school and college together, the amount of work specified in the subjects mentioned below. In addition thereto, he must have satisfied the qualitative test prescribed in English composition. The object of these requirements is to secure for the student a knowledge of a wide range of subjects, to distribute his knowledge over the fundamental fields. To this end the high school and college are viewed as essentially a unit.

The required subjects are grouped as follows:

1. Subjects Required in High School.
   (a) English, 3 years (8 units).
   In addition to the completion of this amount of work in English, the student must show by a test examination proficiency in English composition, or he must take English composition in the University, as provided under requirement (a) below.
   (b) Elementary algebra, 1 year (1 unit).
   (c) Plane geometry, 1 year (1 unit).
   Subjects (a), (b), and (c) are those required of all students for admission to the University.

2. Subjects Required Either in High School or College.
   (d) A modern foreign language, 2 years (2 units or 20 credits).
   (e) U. S. history and civics, 2 quarters (1 unit or 10 credits). See note 1.
   (f) History, 2 quarters (1 unit or 10 credits). See Note 2.
   (g) Physics or chemistry, 2 quarters, (1 unit or 10 credits).
   (h) Botany or zoology, 2 quarters (1 unit or 10 credits).
   (i) Mathematics or science, 2 quarters (1 unit or 10 credits). See note 3.

   (j) Philosophy, psychology, 2 quarters, (10 credits).

* Note.—The following (or their equivalents) constitute the courses of the Lower Division:

1. Modern Foreign Language: The first two years.
2. Ancient Language: Intermediate Latin; the first two years of college work; courses in civilization and literature.
3. English: Composition; freshman and sophomore literature.
4. Mathematics and the Natural Sciences: The elementary courses (1 and 2) or equivalents.
5. History: The introductory courses in each line, e. g., medieval and modern (1 and 2).
6. American (7 and 8), English (5 and 6), ancient (17 and 18).
7. History and Psychology: Elementary or introductory course in each line, e. g., general psychology, introduction to philosophy, ethics, logic.
8. Political and Social Science: Introducing courses in economics, government, sociology.
(k) Economics, political science, sociology, 2 quarters (10 credits).
(l) Physical education or military science, 2 years (12 credits). See note 4.

4. **Subjects Conditionally Required in College.**

(m) Ancient life and literature, 2 quarters, (10 credits). See note 5.
(n) Modern foreign language, 2 or more quarters, (10 or more credits). See note 6.

**NOTES**

1. Students who do not take United States history and civics in the high school must take History 7 and 8 in the University.
2. One year of history is required in addition to requirement (e). It may be satisfied in any year (1 unit or 10 credits) of history.
3. The requirement in mathematics or science is in addition to (b), (c), (g), and (h). It may be satisfied by any of the following combinations, viz., two quarters of a science, a quarter of each of two sciences, two quarters of mathematics, or a quarter of mathematics and a quarter of science.
4. In addition to the 12 credits in military science or physical education required of students in the lower division, six quarters in physical education are required of male students in the junior and senior years.
5. Beginning with 1921, two years of one foreign language will be required for admission to the College of Liberal Arts or the College of Science. If the requirement has not been met in high school, it must be made up in college without credit.
6. Two quarters' work in ancient life and literature is required of all students who have not taken, or do not plan to take, 3 or more years of ancient language. For such students courses are offered in the University on the civilization of the ancients and on the literature in translation.
7. Beginning with 1921, two years of one foreign language will be required for admission to the College of Liberal Arts or the College of Science. If the requirement has not been met in high school, it must be made up in college without credit.
8. English composition is required for the junior certificate except in the case of those persons who show by examination proficiency in that subject. (See University calendar for dates of examination).

**Schedule Limitations of the Lower Division.**—As a rule students in the lower division must confine their elections to courses designed for such students, viz., courses numbered 1 to 99 in the catalogue. A student, however, who has had the proper prerequisite or who may be deemed in intellectual maturity sufficiently qualified, may, with the consent of the dean and the instructor concerned, register for an upper division course. (In a foreign language a student who has had the proper prerequisite may be enrolled in an upper division course merely with the consent of the class adviser.) Students who are granted this privilege should be careful not to allow it to interfere with the completion of all lower division requirements by the end of the sophomore year; otherwise, an extra quarter of residence in that division may be necessary in order to secure the junior certificate and graduation may be correspondingly postponed.

No student in the lower division shall be registered for more than 16 credit hours per quarter (exclusive of military science and physical education) or for less than 12 credit hours per quarter, except with the consent of the dean.

**IV. REQUIREMENTS OF THE UPPER DIVISION**

The upper division comprises the studies of the junior and senior years. It consists principally of the advanced work of the undergraduate curriculum, and is therefore differentiated, both in content and method, from that of the lower division.

To be enrolled in the upper division, the student must have completed all requirements for the junior certificate. The minimum amount of work to be done in the upper division will vary from 96 to 84 hours of credit (exclusive of the four credits in physical education
required of junior and senior men), according to the number of credits offered for the junior certificate. The student must earn not less than 84 hours of credit (exclusive of physical education) while enrolled in the upper division. At least 60 of the credit hours taken in the upper division must be in upper division courses (Nos. 100 to 199). Of these 60 hours a minimum of 18 must be taken in the major subject.

Schedule Limitations of the Upper Division.—No student in the upper division shall be registered for more than 16 or less than 12 credit hours per quarter, except with the consent of the dean. A maximum of 19 hours per quarter may be granted to students who have made an exceptional record in scholarship in the lower division and who maintain that record in the upper division.

Scheme of Electives

For the purpose of election, outside the major department, the College of Liberal Arts, the College of Science, the College of Education, the College of Business Administration and the School of Journalism are treated as one.

The following courses given outside the College of Liberal Arts may be counted toward a bachelor of arts degree. Not more than 24 such credits altogether shall be counted toward this degree except that from the College of Fine Arts 36 credits may be so counted.

College of Pharmacy.—Materia medica, therapeutics, toxicology. Total amount allowed, 12 credits.

College of Engineering.—Mechanical drawing, descriptive geometry, surveying, direct currents, alternating currents. Total amount allowed, 18 credits.

College of Mines.—General metallurgy.

College of Fine Arts.—A total number of 86 credits in the College of Fine Arts may be counted toward the bachelor of arts degree.

College of Forestry.—General forestry, characteristics of trees, forest economics, silviculture. The maximum number of hours elective from these subjects is 18.

School of Law.—Agency, constitutional law, contracts, general business law, equity, persons, property. From these subjects a total of 18 credits may be counted toward the bachelor of arts degree by a student majoring in the philosophical group; a total of six credits may be so counted by a student majoring in any other group.

Six-Year Arts and Law Curriculum

This combined course allows the student with a good record to obtain an A. B. and an LL. B. in six years. It is open only to those students who have maintained a uniformly good record for scholar-
ship during the first three years of collegiate work. At the end of three years, after the student has earned 147 credits, including 12 credits in military science or physical education and including all of the required work, together with a major, he may for the fourth year register in the School of Law for the first year's work in law. He must, however, earn in the College of Liberal Arts additional credits sufficient to make the total credits amount to 156. Thirty-six credits in the first year law work may apply toward the A. B. degree, thus making 192 credits required for this degree.

The last two years of this combined course are devoted to completing the rest of the required work in the School of Law.

Students are strongly advised to complete their full 147 credits in the College of Liberal Arts by the end of the third year so that they can enter the law work clear in the fourth year.

Students from other institutions entering this University with advanced standing may take advantage of this combined course, provided they are registered in the College of Liberal Arts for at least one full year of work, and earn at least 45 credits in this University before entering the School of Law.

This privilege will not be extended to normal graduates attempting to graduate in two years, nor to undergraduates of other colleges who enter this University with the rank of senior.

**Departments of Instruction**

All courses of study offered in the University are listed and briefly described in a section of the General Catalogue known as Departments of Instruction. This is also published as a separate bulletin. To it the student is referred for all information in regard to courses.

**General Note.**—Each student is to be held either for the admission and graduation requirements of the catalogue under which he enters, or for those of the catalogue under which he graduates.
COLLEGE OF SCIENCE
COLLEGE OF SCIENCE

FACULTY

HENRY SUEZALLO, Ph. D. (Columbia), LL. D. (California), President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

HARRY LANDIS, A. M. (Harvard), Professor of Geology; Dean of Physics Laboratories.

HORACE G. BYERS, Ph. D. (Johns Hopkins), Professor of Chemistry.

THOMAS KINGMANN, A. M. (Washington), Professor of Zoology.

FREDDIE R. OSBORN, Ph. D. (Michigan), Professor of Physics and Director of the Physics Laboratories.

ROBERT EDWARD MORGAN, Ph. D. (Nebraska), Ph. N. D. (Strassburg), Professor of Mathematics.

DAVID CONNOLLY HALL, Sc. M., M. D. (Chicago), Director of Physical Education for Men.

SCOTT KEENAN FORESON, Ph. D. (Columbia), Professor of Industrial Chemistry.

JOHN WEINKIRL, Ph. D. (Wisconsin), Professor of Bacteriology.

ERNST I. RAFF, B. S. (Columbia), Professor of Home Economics and Director of the Department of Home Economics.

STEVENVSON SMITH, Ph. D. (Pennsylvania), Professor of Psychology.

SAMUEL LATIMER BOOHER, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.

WILLIAM MAURICE DEHN, Ph. D. (Illinois), Associate Professor of Chemistry.

CHARLES EDWIN WATTS, Ph. D. (California), Associate Professor of Geology.

ALLAN FULLER CAMPBELL, Ph. D. (Chicago), Associate Professor of Mathematics.

EDWIN JAMES SAWDEEY, A. M. (Harvard), Assistant Professor of Geology.

GEORGE IRVING GAVITT, B. S. (C. E.) (Michigan), Assistant Professor of Mathematics.

ELA VICTOR SMITH, Ph. D. (Northwestern), Assistant Professor of Zoology.

HARRY LOUIS BALE, Ph. D. (Cornell), Assistant Professor of Physics.

GEORGE BURTON RIGGS, Ph. D. (Chicago), Assistant Professor of Botany.

GEORGE W. DENT, B. S. (Nebraska), Assistant Professor of Home Economics.

JOHN WILLIAM HORTON, Ph. D. (Harvard), Assistant Professor of Botany.

LEWIS IRVING NEWKIRK, Ph. D. (Pennsylvania), Assistant Professor of Mathematics.

HALDUR ENGLUND CULVER, Ph. M. (Wisconsin), Assistant Professor of Geology.

SAMUEL HUBERT ANDERSON, Ph. D. (Illinois), Assistant Professor of Physics.

JAMES GEORGE ASTRUP, B. S. (Kansas State College), Assistant Professor of Physical Education.

ROY MARTIN WINGS, Ph. D. (Johns Hopkins), Assistant Professor of Mathematics.

BARBARA HARRIS HARTLETT, B. S. (Columbia), Assistant Professor of Nursing and Public Health.

GEORGE RUSSELL CONNOLLY, B. S. (Columbia), Acting Assistant Professor of Home Economics.

ARTHUR WILLIS BARTON, Ph. D. (Northwestern), Acting Assistant Professor of Chemistry.

HERMAN VANCAH TAHNA, B. S. (Oregon Agricultural College), Acting Assistant Professor of Chemistry.

NELSON FITZGERALD, B. S. (Columbia), Acting Assistant Professor of Home Economics.

ERIE TEMPLE BELL, Ph. D. (Columbia), Assistant Professor of Mathematics.

FRED H. HEATH, Ph. D. (Yale), Assistant Professor of Chemistry.

JOHN L. WOOLCOTT, M. D. (Med. School, University of Alabama), Assistant Professor of Anatomy.

JULIAN L. BARTHEL, A. M. (Washington), Instructor in Zoology.

LLOYD LEBOY SMYTHE, Ph. D. (Columbia), Instructor in Mathematics.

NATHAN EASTON, Ph. D. (Wisconsin), Instructor in Zoology.

HERMAN H. HANSEN, Ph. D. (Princeton), Instructor in Physics.

MART I. PAY, B. S. (Columbia), Instructor in Physical Education.

HAROLD HAMMOND, (Wellesley), Instructor in Physical Education.

C. O. CLARK CLARK, B. S. (Teachers College, Columbia), Instructor in Home Economics.

WILLIAM WEST LOMBARD, Ph. D. (Johns Hopkins), Instructor in Psychology.

RUTLEDGE T. WILTBANK, Ph. D. (Chicago), Instructor in Psychology.

MARIA DEBLASI, M. S. (Columbia), Instructor in Home Economics.

THOMAS GORDON THOMPSON, Ph. D.: Acting Instructor in Chemistry.

ASSOCIATES

CLARENCE R. HUNT, Associate in Physical Education for Men.

OSMAN CARY, B. S. (Washington), Associate in Chemistry.

OSCAR W. B. AIRD, A. B. (Wisconsin), Associate in Physics.

LILLIAN BLOOM, Associate in Physical Education.

1Withdrawn.

2Absent on leave.
The student entering the College of Science may take up one of several curricula, general or specialized, with the emphasis upon pure or applied science. These curricula, set forth in detail in succeeding pages, are:

I. Elective curricula with a major in some one department.
II. Pre-medical curricula.
   A. Two-year curriculum preparatory to medicine.
   B. Four-year curriculum preparatory to medicine.
   C. Three-year curriculum for nurses.
III. Curriculum for prospective science teachers.
IV. Prescribed curricula in Home Economics.
V. Six-year curriculum in Science and Law.
VI. Five-year curriculum in Science and Library Economy.

Laboratories

The University of Washington has the following laboratories equipped for work in the various science departments:

Anatomy.—The laboratory for human anatomy has been arranged to secure a maximum of light and cleanliness. Besides laboratory tables, study tables have been installed. All necessary equipment in the way of skeletal, chart and model materials are available.

Astronomy.—The Observatory is housed in a substantial sandstone structure containing dome for equatorial, room for transit and clocks, office, room for lectures and laboratory work and dark-room. Part of the roof is flat, making an admirable place for evening study of the heavens. The instruments include a six-inch refracting telescope and accessories; a Bamberg transit, Riefler clock, Bond chronometer, Gaetner chronograph, Astro-Petzal objective with accessories, a barometer, sextants, etc. The clock is enclosed in a constant temperature chamber. The minor equipment consists of a good assortment of transparencies and lantern slides, globes, planetarium, and other equipment for experiments in laboratory and lecture work in astronomy.

Botany.—The botanical laboratories are on the third floor and in the basement of Science Hall. They occupy about 4,000 feet of floor space divided as follows: Two large laboratories of about 1,000 square feet each; three small laboratories, one for physiology, two for research. The laboratories are fitted with the apparatus and conveniences usual for the work.

Chemistry.—The chemical laboratories are housed in a thoroughly modern fireproof building, designed after most approved models, combining the good features of the best chemistry buildings in the coun-
try. There are fully equipped separate laboratories devoted to general chemistry, analytical chemistry, food inspection and analysis, organic chemistry, physiological chemistry, industrial chemistry, and pharmaceutical chemistry. All laboratories are equipped with hoods with forced drafts, water, gas, distilled water and air under pressure. The industrial and chemical engineering laboratories are equipped with the fundamental types of apparatus used in manufacturing processes, such as filter press, hydraulic press, stills, grinding apparatus, heating furnaces, and vacuo drying oven.

**Geology.**—The geology laboratories, four in number, are in Science Hall. Two are on the first floor, and consist of large rooms, arranged for general geology, physiography, meteorology, mineralogy, petrography and paleontology. Two laboratories are in the basement, in well-lighted rooms at the southwest end of the building. One of the laboratories is fitted with lathes, diamond saw, and grinding plates run by electric motor for the preparation of rock slides for petrographic study. The other basement laboratory is equipped with large tanks for experimental work in erosion, and with ample facilities for map modeling and the construction of relief maps.

For work in mineralogy and petrography extensive collections of minerals and rocks are supplied; and for paleontological study collections of fossils and casts represent the principal geological formations. In the study of meteorology practical work is done by the use of a complete set of weather bureau instruments. For the study of earthquake phenomena a Bosch-Omori seismograph has been installed for some years. For general laboratory and lecture work the latest model Bausch & Lomb Balopticon with reflectroscope and polariscope attachments is provided.

**Physics.**—The laboratories set apart for the use of the department consist of: (1) A general laboratory for students in arts and sciences, (2) a general laboratory for students in applied science, (3) an electrical laboratory, (4) a heat laboratory, (5) a sound and light laboratory, (6), a photometry room, (7) a battery room.

The laboratories are supplied with apparatus from the best American and European makers.

The Bureau of Testing is equipping itself as rapidly as possible to meet the demand for a bureau where scientific instruments may be accurately calibrated and tested. The standards of the bureau will be calibrated by our National Bureau of Standards at Washington, D. C.

The bureau is prepared to calibrate direct and alternating current instruments, to determine candle power of lamps, to measure temperature, both high and low, and to a limited extent standardize weights. Those desiring to have work done should address the director, Frederick A. Osborn.

**Psychology.**—The psychology laboratory occupies seven rooms on the fourth floor of Science Hall. These include an acoustics room,
an optics rooms, a shop, a dark-room, a room for time measurements, and a general laboratory for elementary psychology courses. Apparatus is annually added for undergraduate, graduate and research work.

Zoology.—The laboratory work of the department of zoology is conducted in six rooms located on the second floor of Science Hall. Here are adequate facilities for pursuing the following lines of investigation: General zoology, histology, anatomy, physiology, entomology and research.

*Admission to Freshman Standing*

A student must offer for admission to freshman standing in the University, fifteen units by examination or by certificate from an accredited school from which he has graduated. 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 school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented):
   (a) Latin and Greek (not less than two units of Latin or one of Greek counted).
   (b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).
   (c) History, civics, economics (at least one unit to form a year of consecutive work in history).
   (d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).
2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma; not more than four, however, to be in vocational subjects.

**CURRICULA**

I. ELECTIVE CURRICULA WITH A MAJOR IN ONE DEPARTMENT

In this division of the college, in order to secure the degree of bachelor of science, a student must complete a total of at least 192 credits, and must observe the restrictions in regard to a major subject, necessary scholarship, elections in other colleges and the requirements of the lower division and the upper division.

A. REQUIREMENTS IN A MAJOR SUBJECT

A student must earn from 36 to 60 credits in a single department, known as his major department. Not more than 96 credits may be counted in the major and one other department.

B. SCHOLARSHIP REQUIREMENTS

Not less than three-fourths of the credits required for graduation must be earned with grades A, B, or C.

*More detailed information concerning admission is furnished in a separate section of the University Bulletin, known as Entrance Information.*
C. ELECTIONS IN OTHER COLLEGES

In engineering, fine arts, forestry, law, mines, and pharmacy, electives will be allowed to the extent of 18 credits from any one college, and not to exceed 24 from all.

D. REQUIREMENTS OF THE LOWER DIVISION

The work of the lower division comprises in general the studies of the freshman and sophomore years of the undergraduate curriculum and leads to the junior certificate. It consists primarily of the elementary and introductory courses of the various departments.* Its aim is to give a broad general training in preparation for the advanced work in the upper division.

To receive the junior certificate the student must have earned not less than 90 university credits, together with required credits in physical education or military science, and must have completed in secondary school and university together the amount of work specified in the subjects mentioned below except (1) that subject (o) may be taken in the upper division by students who begin a modern language after entering the university; and (2) subject (l) or (m) may, in certain cases, be taken in the upper division with the consent of the dean.

   (a) English, 3 years (3 units).
      In addition to the completion of this amount of work in English, the student must show by a test examination, proficiency in English composition, or he must take English composition in the University, as provided under requirement (p) below.
   (b) Elementary algebra, 1 year (1 unit).
   (c) Plane geometry, 1 year (1 unit).

2. Subjects Required Either in a Secondary School or in the University.
   (d) A modern foreign language, which must be either German or French, 2 years (2 units or 20 credits).
   (e) United States History and civics, 1 year (1 unit or 10 credits). See Note 5.
   (f) History—ancient, medieval and modern, or English, 1 year (1 unit or 10 credits).
   (g) Mathematics, 1 year (1 unit or 10 credits). See Note 3.
   (h) Physics, 1 year (1 unit or 10 credits).
   (i) Chemistry, 1 year (1 unit or 10 credits).
   (j) Botany or zoology, 1 year (1 unit or 10 credits).
   (k) Geology, physiology, or astronomy, 1 year; or astronomy and geology, ½ year each (1 unit or 10 credits).

3. Subjects Required in the University.
   (l) Philosophy, psychology, 1 year (10 credits). See Note 6.
   (m) Economics, political science, sociology, 1 year (10 credits). See Note 7.
   (a) Physical education or military science, 2 years (12 credits). See Note 8.

4. Subjects Conditionally Required in the University.
   (o) Either French or German, 1 or more years (10 or more credits). See Note 5.
   (p) English composition, 2 to 8 credits. See Note 9.

*Note.—The following (or their equivalents) constitute the courses of the Lower Division:
1. Modern Foreign Language: The first two years.
2. Ancient Language: Intermediate Latin; the first two years of college work; courses in civilization and literature.
3. English: Freshman composition; freshman and sophomore literature.
4. Mathematics and the Natural Sciences: The elementary courses (1 and 2) or equivalents.
5. History: The introductory courses in each line, e. g., medieval and modern (1 and 2), American (7 and 8), English (5 and 9), ancient (17 and 18).
6. Philosophy and Psychology: Elementary or introductory course in each line, e. g., general psychology, introduction to philosophy, ethics, logic.
7. Political and Social Science: Introductory courses in economics, government, sociology.
(q) Ancient language and literature, or English literature, 1 year (10 credits). See Note 6.

NOTES

1. The students who do not take United States history or civics in a secondary school must take History 7 and 8 in the University.
2. One quarter of advanced algebra is required.
3. Not more than 5 credits in psychology may be counted toward the requirement in philosophy or psychology.
4. Not more than 5 hours each of economics, political science, or sociology may be counted toward satisfying the requirements in these subjects. With the approval of the Dean, the requirements listed under (m) may be waived for the junior certificate, but not for graduation.
5. In addition to the 12 credits in military science or physical education required of students in the lower division, 6 quarters physical education are required in the junior and senior years.
6. Beginning with 1921, two years of one foreign language will be required for admission to the College of Liberal Arts or the College of Science. If the requirement has not been met in high school, it must be made up in college without credit. (For the College of Science, this language must be French or German.)
7. English composition is required of all freshmen who cannot show by examination a proficiency in the subject. (See University calendar for dates of examination.)
8. Greek or Roman civilization or literature, the literature of India or of Persia, or English literature, may be taken to satisfy the requirement in literature. This subject is required of all students who have not taken, or do not plan to take, 3 or more years of ancient language.

As a rule students in the lower division must confine their elections to the courses numbered 1 to 99, in the catalogue. A student who has had the proper prerequisite, or who has attained sufficient intellectual maturity, may register for an upper division course, with the consent of the instructor concerned and of the dean.

No student in the lower division shall be registered for more than 16 credit hours per quarter (exclusive of military science and physical education), or for less than 12 hours per quarter, except with the consent of the dean.

E. REQUIREMENTS OF THE UPPER DIVISION

The upper division comprises the studies of the junior and senior years. It consists principally of the advanced work of the undergraduate curriculum, and is therefore differentiated, both in content and method, from that of the lower division.

To be enrolled in the upper division, a student must have completed all the requirements for the junior certificate. The minimum amount of work to be done in the upper division will vary from 96 to 84 hours of credit, according to the number of credits offered for the junior certificate. The student must earn not less than 84 hours of credit while enrolled in the upper division. At least 60 of the credit hours taken in the upper division must be in upper division courses (100-199). Of these 60 hours a minimum of 18 must be in the major subject.

No student of the upper division shall be registered for more than 16 or less than 12 hours per quarter, except with the consent of the dean. A maximum of 19 hours per quarter may be granted to students who have made an exceptional record in scholarship in the lower division and who maintain that record in the upper division.

II. PRE-MEDICAL CURRICULA

A AND B. TWO AND FOUR-YEAR CURRICULA PREPARATORY TO MEDICINE

The University offers two curricula preparatory to the study of medicine. One of these is for two years, and will meet the requirements of those medical schools which require no more than two years of col-
College of Science

College work for admission to their professional study. The second is for four years, and prepares students for those medical schools that require for admission the completion of a full four years college course. The curricula will not reduce the amount of work to be done by the student in the medical school but are designed to increase its efficiency.

These courses are also well adapted for pre-dental students, as the best dental schools require the same foundation work as the medical schools.

Students entering the pre-medical courses should present the following among the 15 units required for entrance to the University (see Admission to Freshman Standing):

- 3 units of English
- 1 unit of Algebra
- 1 unit of Plane Geometry
- 1 unit of United States History and Civics
- 1 unit of Medieval and Modern History
- 1 unit of Physics
- 2 units of either French or German

Below is the outline of the four-year curriculum. The first and second years constitute the two-year curriculum:

<table>
<thead>
<tr>
<th>First quarter</th>
<th>Credits</th>
<th>Second quarter</th>
<th>Credits</th>
<th>Third quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. (21 General)</td>
<td>5</td>
<td>Chem. (22 General)</td>
<td>5</td>
<td>Chem. (23 General)</td>
<td>5</td>
</tr>
<tr>
<td>Zool. (5 Pre-medical)</td>
<td>5</td>
<td>Zool. (4 Vertebrate)</td>
<td>5</td>
<td>Zool. (5 Embryology)</td>
<td>5</td>
</tr>
<tr>
<td>English (61 Composition)</td>
<td>6</td>
<td>English (62 Composition)</td>
<td>6</td>
<td>Sci. French or German</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics (92 General)</td>
</tr>
<tr>
<td>Chem. (31 Organic)</td>
</tr>
<tr>
<td>Psychology (1 General)</td>
</tr>
<tr>
<td>Mil. Sci. or Phys. Ed</td>
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<table>
<thead>
<tr>
<th>Third year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy (109 Physiology)</td>
</tr>
<tr>
<td>Anat. (105 Histology and Embryology)</td>
</tr>
<tr>
<td>Bacteriology (109 Gen.)</td>
</tr>
<tr>
<td>Zool. (109 Physiology)</td>
</tr>
<tr>
<td>Chem. (141 Physiology)</td>
</tr>
<tr>
<td>Pathology</td>
</tr>
<tr>
<td>Anat. (104 Topographical)</td>
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<table>
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<tr>
<th>Fourth year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy (102 General)</td>
</tr>
<tr>
<td>Anat. (106 Histology and Embryology)</td>
</tr>
<tr>
<td>Bacteriology (109 Med.)</td>
</tr>
<tr>
<td>Zool. (110 Physiology)</td>
</tr>
<tr>
<td>Chem. (144 Physiology)</td>
</tr>
<tr>
<td>Pathology</td>
</tr>
<tr>
<td>Anat. (104 Topographical)</td>
</tr>
</tbody>
</table>

C. THREE-YEAR CURRICULUM FOR NURSES

Believing that a broader scientific education is desired by young women entering the nursing profession, the University offers a three-year pre-hospital course which when followed by the two-year hospital course in such hospitals as may be selected by the University, leads to a degree of bachelor of science in nursing and a certificate of nursing.

For admission to this curriculum a student must present 15 units by examination or certificate from an accredited school from which she has graduated. (See Requirements for Admission to Freshman Standing). These 15 units should include the following:

- 3 units of English
- 1 unit of Algebra
- 1 unit of Plane Geometry
1 unit of United States History and Civics.
1 unit of Medieval and Modern History.
1 unit of Physics.
2 units of either French or German.

The curriculum:

<table>
<thead>
<tr>
<th>First quarter</th>
<th>Credits</th>
<th>Second quarter</th>
<th>Credits</th>
<th>Third quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (1 Composition)</td>
<td>5</td>
<td>English (2 Composition)</td>
<td>5</td>
<td>H. E. (145 Housewife)</td>
<td>3</td>
</tr>
<tr>
<td>Chem. (5 General)</td>
<td>5</td>
<td>Chem. (6 General)</td>
<td>5</td>
<td>H. E. (4 Food Prep.)</td>
<td>3</td>
</tr>
<tr>
<td>Phys. (89 Home)</td>
<td>5</td>
<td>Phys. (90 Home)</td>
<td>5</td>
<td>Sociology (1 Introductory)</td>
<td>5</td>
</tr>
<tr>
<td>Phys. Ed.</td>
<td>2</td>
<td>Phys. Ed.</td>
<td>2</td>
<td>Zoology (3 Pre-medical)</td>
<td>5</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>17</td>
<td>18</td>
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<table>
<thead>
<tr>
<th>Second Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology (1 General)</td>
<td>5</td>
</tr>
<tr>
<td>Bacteriology (108 Gen.)</td>
<td>4</td>
</tr>
<tr>
<td>Anatomy (105 Histology)</td>
<td>5</td>
</tr>
<tr>
<td>English (51 Composition)</td>
<td>5</td>
</tr>
<tr>
<td>Phys. Ed.</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>18</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zool. (109 Physiology)</td>
<td>5</td>
</tr>
<tr>
<td>Chem. (25 Organic)</td>
<td>5</td>
</tr>
<tr>
<td>H. E. (107 Dietetics)</td>
<td>5</td>
</tr>
<tr>
<td>Diet for Sick.</td>
<td>3</td>
</tr>
<tr>
<td>Hist. and Ethics of Nursing.</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstration of Nursing.</td>
</tr>
<tr>
<td>Anesthesia</td>
</tr>
<tr>
<td>Medical Nursing</td>
</tr>
<tr>
<td>Surgical Nursing</td>
</tr>
<tr>
<td>Obstetrical and Gynecological Nursing.</td>
</tr>
<tr>
<td>Neurological Nursing</td>
</tr>
<tr>
<td>Children's Nursing</td>
</tr>
<tr>
<td>Infectious and Contagious Disease Nursing.</td>
</tr>
<tr>
<td>Administration</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

**CURRICULUM TO BE FOLLOWED IN A SELECTED HOSPITAL**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstration of Nursing.</td>
</tr>
<tr>
<td>Anesthesia</td>
</tr>
<tr>
<td>Medical Nursing</td>
</tr>
<tr>
<td>Surgical Nursing</td>
</tr>
<tr>
<td>Obstetrical and Gynecological Nursing.</td>
</tr>
<tr>
<td>Neurological Nursing</td>
</tr>
<tr>
<td>Children's Nursing</td>
</tr>
<tr>
<td>Infectious and Contagious Disease Nursing.</td>
</tr>
<tr>
<td>Administration</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

**III. CURRICULUM FOR PROSPECTIVE SCIENCE TEACHERS**

Most of those science students who expect to teach must begin in a small high school. In such schools one teacher usually teaches several or all the sciences. It is therefore desirable that such students get a wide range of scientific knowledge, rather than the intensive training secured by three years' work for a major in some one department. The following course permits the student to prepare in more sciences by not requiring three years of any one science.

**FRESHMAN**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science (botany, geology, or zoology)</td>
</tr>
<tr>
<td>Science (physics or chemistry)</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>German or French</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancient Language or Literature</td>
</tr>
<tr>
<td>Philosophy and Psychology</td>
</tr>
<tr>
<td>Science</td>
</tr>
<tr>
<td>Elective</td>
</tr>
</tbody>
</table>
| 12 credits in Military Science or Physical Education are also required.)

(12 credits in Military Science or Physical Education are also required.)
(a) A student may select any three of the following sciences and must do the amount of work in any particular science, as indicated. Botany (exclusive of bacteriology), 20 credits. Chemistry, 20 credits. Geology, 20 credits. Mathematics (exclusive of astronomy), 20 credits. Physics, 20 credits. Zoology, 20 credits.

(b) Included in or in addition to the work in (a) every student must take 5 credits in mathematics, 10 credits in physics, 10 credits in chemistry, 10 credits in botany or zoology.

(c) In (a) chemistry and zoology may not be selected in a group together.

(d) If 20 credits of chemistry are taken, only 15 of geology are required.

(e) When mathematics is selected as one of the three sciences, physics must be selected also.

(f) The modern foreign language required shall be either French or German and a continuation of the language taken in high school.

(g) The work in freshman composition shall be 0 to 10 credits.

(h) Until 1919 students may fulfill the requirements for the normal diploma by electing 18 credits from the following subjects: Principles of education, educational sociology, secondary education, principles of teaching, and practice teaching. However, under Rule 64 (e), until 1919-1920 students who find it difficult to adjust their schedules to include practice work will be allowed to fulfill the previous requirements. By including history of education, instead of educational sociology, all the specific requirements can be met. It is recommended that the additional credits be made up by including childhood and adolescence as a substitute for the practice work. The department of education has authority to make any reasonable adjustments.

IV. PRESCRIBED CURRICULA IN HOME ECONOMICS

Many fields of activity other than teaching are being offered to women trained in the work given in the department of home economics. In each line of vocational work offered there is opportunity to put into practice the technical work of the laboratory. In food preparation the students work in the University Commons, in commercial establishments and in hospitals to gain practical experience. In clothing, students learn first to sew for themselves and then for customers. For those who wish to enter commercial work there is provided, through the cooperation of business houses, opportunity to work in stores.

Seniors are required to live in the practice cottage located on the campus, where they take full responsibility for the management and care of the house for a family of four during a period of one month.

Accordingly, the following grouping is arranged as a guide in selecting the work that will best satisfy the requirements of each individual.

Group I is planned for students who want a liberal college training with emphasis upon the subjects that pertain to the home and home life. Those who are interested in social betterment and who wish to enter definite welfare work may combine home economics, and sociology in this curriculum.

Group II, Food and Nutrition, is offered for those students who wish to specialize for the purpose of teaching this phase of the work in institutions of higher education, for laboratory or research workers, and for dietitians in hospitals, sanatoria or private work. Those
who intend to become sanitary and food inspectors are also advised to take the course.

Group III, Teachers' Curriculum. There is always a demand for the well-trained home economics teacher. This group combines some liberal arts subjects in other departments, chemistry, physics, bacteriology, fine arts, physiology and economics. The courses are especially arranged to meet in the most efficient manner the particular needs of home economics students. Practice teaching extending through one quarter in the Seattle schools is required. Graduates of this course qualify under the Smith-Hughes regulations.

Group IV, Institutional Management. In this course there are combined the fundamental sciences, technical and business courses, with practice work. Young women with initiative and ability find positions that offer increasingly attractive returns when trained in this line of work. Institutions operating for groups of people are seeking trained women to manage the commissary and housekeeping departments.

Group V, Textiles, Clothing and Fine Arts. This curriculum requires a minimum of science but gives ample opportunity for combining work in design with clothing and textiles for the purpose of general culture or for use in a commercial field.

A teaching major in home economics consists of: H. E. 4, 5, 6, 8, 25, 61, 62, 107, 108, 143, 145, 146 and 147.

Any one of the five lines may lead to the degree of bachelor of science. Students who fulfill all entrance requirements of the College of Liberal Arts may use home economics as a major for the degree of bachelor of arts.

Students eligible to freshman standing in any college of the university are eligible to enter any one of the above five curricula in home economics; 180 + 12 credits are required for graduation from any of these curricula.

GROUP I—GENERAL CURRICULUM

To provide a liberal college training, also for those students who wish to fit themselves for the following vocations:

1. Homemaking.
2. Social Service. (Elect economics and sociology.)

<table>
<thead>
<tr>
<th>Fourth Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>First quarter</td>
</tr>
<tr>
<td>English 1</td>
</tr>
<tr>
<td>Chemistry 5</td>
</tr>
<tr>
<td>Physical Ed.</td>
</tr>
<tr>
<td>Electives—H. E. 25, 4, 8; Fine Arts III, 3.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td>Physical Ed.</td>
</tr>
<tr>
<td>Electives—H. E. 5, 6.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy</td>
</tr>
<tr>
<td>Electives—H. E. 106, 11-62; Fine Arts II, 1-2; Physics 89-90.</td>
</tr>
</tbody>
</table>
COLLEGE OF SCIENCE

SENIOR
Electives—H. E. 144-145, 101, 146, 147; Bacteriology 101-102; Nursing, 5; Psychology 181.

GROUP II—FOOD AND NUTRITION
FRESHMAN

<table>
<thead>
<tr>
<th>First quarter</th>
<th>Credits</th>
<th>Second quarter</th>
<th>Credits</th>
<th>Third quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>3</td>
<td>English 2</td>
<td>3</td>
<td>English 3</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 5</td>
<td>5</td>
<td>Chem. 6</td>
<td>5</td>
<td>Physiology 7</td>
<td>5</td>
</tr>
<tr>
<td>Physical Ed.</td>
<td>2</td>
<td>Physical Ed.</td>
<td>2</td>
<td>Lang., Lit. or Hist.</td>
<td>5</td>
</tr>
</tbody>
</table>

Electives—H. E. 25, 4, 8; Fine Arts III, 3.

SOPHOMORE

<table>
<thead>
<tr>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. 35</td>
<td>5</td>
<td>Chem. 36</td>
<td>5</td>
<td>Chem. 44</td>
<td>5</td>
</tr>
<tr>
<td>Physical Ed.</td>
<td>2</td>
<td>Physical Ed.</td>
<td>2</td>
<td>Psychology 1</td>
<td>5</td>
</tr>
</tbody>
</table>

Electives—H. E. 5-6.

JUNIOR

<table>
<thead>
<tr>
<th>Chemistry 104</th>
<th>4</th>
<th>Economics</th>
<th>5</th>
<th>Sociology</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteriology 101</td>
<td>4</td>
<td>Bacteriology 102</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives—H. E. 107; Nursing 5; Physics 89-90.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SENIOR


GROUP III—SMITH-HUGHES TEACHER TRAINING

It is important for those who expect to teach in high school to take this course.

FRESHMAN

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1</td>
<td>3</td>
<td>English 2</td>
<td>3</td>
<td>English 3</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 5</td>
<td>5</td>
<td>Chem. 6</td>
<td>5</td>
<td>Physiology 7</td>
<td>5</td>
</tr>
<tr>
<td>Physical Ed.</td>
<td>2</td>
<td>Physical Ed.</td>
<td>2</td>
<td>Lang., Lit. or Hist.</td>
<td>5</td>
</tr>
</tbody>
</table>

Electives—H. E. 25, 4, 8; Fine Arts III—3.

SOPHOMORE

<table>
<thead>
<tr>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
<th>Lang., Lit. or Hist.</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. 35</td>
<td>5</td>
<td>Chem. 36</td>
<td>5</td>
<td>Chem. 144</td>
<td>5</td>
</tr>
<tr>
<td>Physical Ed.</td>
<td>2</td>
<td>Physical Ed.</td>
<td>2</td>
<td>Psychology 1</td>
<td>5</td>
</tr>
</tbody>
</table>

Electives—H. E. 5-6.

JUNIOR

<table>
<thead>
<tr>
<th>Ed. 99</th>
<th>5</th>
<th>Ed. 107</th>
<th>3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives—H. E. 107; Physics 89-90; F. A. II, 1-2; H. E. 148; Bacteriology 101-102; H. E. 61-62.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SENIOR

<table>
<thead>
<tr>
<th>H. E. 148</th>
<th>3</th>
<th>H. E. 147</th>
<th>3</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc. 1</td>
<td>5</td>
<td>Ed. 109</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eco. 1</td>
<td>6</td>
<td>Electives—Nursing 5; H. E. 144-145; Ed. 145; Ed. 149; Psych. 181.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GROUP IV—INSTITUTIONAL MANAGEMENT

To be taken by those students who wish to fit themselves for the following vocations:

1. Dietitians.
3. Managers of tearooms, lunchrooms, cafeterias.
4. Food service in state, municipal, or charitable institutions.

FRESHMAN

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 1</td>
<td>8</td>
<td>Eng. 2</td>
<td>8</td>
<td>Eng. 3</td>
<td>8</td>
</tr>
<tr>
<td>Chem. 5</td>
<td>6</td>
<td>Chemistry 6</td>
<td>5</td>
<td>Physiology 7</td>
<td>5</td>
</tr>
<tr>
<td>Physical Ed.</td>
<td>2</td>
<td>Physical Ed.</td>
<td>2</td>
<td>Lang., Lit. or Hist.</td>
<td>5</td>
</tr>
</tbody>
</table>

Electives—H. E. 25, 4; Fine Arts III, 3; Law 55.
V. SIX-YEAR COURSE IN SCIENCE AND LAW

This is a combination course whereby a student may obtain the degrees of bachelor of science and bachelor of laws in six years. At the end of his third year, after he has earned 135 credits, together with the required 12 credits in military service or physical education, including all of the required work, together with a major in some department, he may register in the School of Law for the first year's work in law. He will be granted the bachelor of science degree at the end of the fourth year, or whenever he completes the required work above specified, together with 9 additional credits in the College of Science and 24 credits in the School of Law; making a total of 180 plus 12 credits for graduation. The fifth and sixth years of the combined course are devoted to completing the remainder of the required work for graduation from the School of Law.

VI. FIVE-YEAR COURSE IN SCIENCE AND LIBRARY ECONOMY

This course is for students who are preparing to become professional librarians and who desire to receive degrees of bachelor of science and bachelor of library economy. Under this arrangement a student should first complete, all the required work of the course for Science Teachers (outlined above), substituting courses in Library
economy for 12 credits in education, as stipulated for the senior year. A portion of the fourth year and all of the fifth year are devoted to the required subjects in library economy. If this plan is carefully followed, a student should earn the degree of bachelor of science at the end of the fourth year, and the degree of bachelor of library economy at the end of the fifth year. (See bulletin of the Library School.)

DEPARTMENTS OF INSTRUCTIONS

All courses of study offered in the University are listed and briefly described in a section of the General Catalogue known as Departments of Instruction. This is also published as a separate bulletin. To it the student is referred for all information in regard to courses.

GENERAL NOTE.—Each student is to be held either for the admission and graduation requirements of the catalogue under which he enters, or for those of the catalogue under which he graduates.
Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ............................................. Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students ..................................................... Friday and Saturday, September 26 and 27
Registration of all other students .................................................... Monday and Tuesday, September 29 and 30
Instruction begins .................................................. Wednesday, October 1
President's annual address .................................................. Friday, October 3, 10 a. m.
Women's assembly .................................................. Friday, October 10, 11 a. m.
Thanksgiving recess .................................................. Wednesday, November 25, 6 p. m., to Monday, December 1, 8 a. m.
Quarter examinations ..................................................
	Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days .................................................. Friday and Saturday, January 2 and 3
Instruction begins .................................................. Monday, January 5
Quarter examinations ..................................................
	Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days .................................................. Friday and Saturday, April 2 and 3
Instruction begins .................................................. Monday, April 5
Campus Day .................................................. Friday, April 23
Junior Day .................................................. Saturday, May 29
Quarter examinations ..................................................
	Tuesday, Wednesday, Thursday and Friday, June 16, 16, 17 and 18
Class Day and President's reception .................................................. Saturday, June 19
Baccalaureate Sunday .................................................. June 20
Commencement and Alumni Day .................................................. Monday, June 21

SUMMER QUARTER

Registration days .................................................. Tuesday and Wednesday, June 22 and 23
Instruction begins .................................................. Thursday, June 24
Quarter examinations ..................................................
	Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President ................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS ................................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER ..................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER ..................................................Yakima
Term ends March, 1922

JOHN A. REA ........................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON ..............................................Seattle
Term ends March, 1923

RUTH KARR McKEE .................................................Olympia
Term ends March, 1923
OFFICERS OF ADMINISTRATION

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D..............President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M..................Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B..............Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M......................Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M..............Executive Secretary
Administration Hall

ARTHUR RAGAN PRIEST, A. M...................Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M..............Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M....................Librarian
Library

FRANK STEVENS HALL........................Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B............Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A......................Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M......................Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B, A. B...........Director of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D........Dean of the College of Education
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D........Acting Dean of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M..............Dean of the College of Fine Arts
Meany Hall

JOHN NATHAN COBB.........................Director of the College of Fisheries
Commerce Hall

HUGO WINKENWERDER, M. F..............Dean of the College of Forestry
Forestry Hall

COLIN VICTOR DYMENT, B. A.............Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M...........Dean of the Law School
Commerce Hall

WILLIAM ELMER HENRY, A. M...........Director of Library School
Library

MILNOR ROBERTS, A. B......................Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C, Ph. D..............Dean of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN FADELFORD, Ph. D........ Acting Dean of the Graduate School
Denny Hall

J. ALLEN SMITH, Ph. D..............Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M....................Director
Administration Hall

EVERETT FRANCIS DAHM, A. B..................Assistant Director
Administration Hall

1Absent on leave 1918-19.  2Absent on leave 1918-19; resigned 1919.
3Detached on special service 1917-19.
4In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF EDUCATION

THE FACULTY

HENRY SUEZZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

FREDERICK ELMER BOLTON, PH. D. (Clark), Professor of Education, DEAN.

LEONARD V. KOOS, PH. D. (Chicago), Professor of Education.

FRED CARLSTON AZER, PH. D. (Chicago), Professor of Education.

CLIFFORD WOODY, PH. D. (Columbia), Associate Professor of Education.

GEORGE EARL FRIEDLAND, A. M. (Clark), Assistant Professor of Education.

GEORGE HENRY JENSEN, B. S. (Valparaiso), Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.

CAROLINE HAVEN OBER, Professor of Spanish.

TREVOR KINCAID, A. M. (Washington), Professor of Zoology.

FREDERICK MORGAN PADDLEFORD, PH. D. (Yale), Professor of English; Acting Dean of the Graduate School.

FREDERICK ARTHUR OSBORN, PH. D. (Michigan), Professor of Physics; Director of the Physics Laboratories.

WILLIAM SAYREY, PH. D. (Harvard), Professor of Philosophy.

DAVID THOMSON, B. A. (Toronto), Professor of Latin; Dean of the College of Liberal Arts.

PIERRE JOSSEPH FEHIN, PH. D. (Johns Hopkins), Professor of French.

THEODORE CHRISTIAN FISHER, PH. D. (Chicago), Professor of Botany.

ROBERT EDOUARD MORITZ, PH. D. (Nebraska), PH. N. D. (Strasbourg), Professor of Mathematics.

DAVID CONNOLLY HALL, Sc. M., M. D. (Chicago), University Health Officer and Director of Physical Education for Men.

IRVING MACKETY GLEN, A. M. (Oregon), Professor of Music; Dean of the College of Fine Arts.

JOHN WHITNEIL, PH. D. (Wisconsin), Professor of Bacteriology.

EDWIN JOHN VICKNES, PH. D. (Minnesota), Professor of Scandinavian Languages.

ERNEST ISAAC RAYT, B. S. (Columbia), Professor of Home Economics; Director of the Department of Home Economics.

WILLIAM FERGUS GOWING, A. B. (Knox), Professor of Public Speaking and Debate.

STEVENSIMO SMITH, PH. D. (Pennsylvania), Professor of Psychology.

1WILLIAM FIELDING OGBURN, PH. D. (Columbia) Professor of Sociology.

STEPHEN IVAN MILDIN, JR., A. B. (Stanford), LL. B. (Michigan), Professor of Transportation; Director of the College of Business Administration and head of the Department of Economics and Business Administration.

EDWARD MCMAMON, A. M. (Wisconsin), Associate Professor of American History.

GEORGE WALLACE UMPHREY, PH. D. (Harvard), Associate Professor of Spanish.

EDWIN JAMES SAUNDERS, A. M. (Harvard), Assistant Professor of Geology.

ROBERT EVSTAFIEFF ROSS, PH. D. (Munich), Assistant Professor of Chemistry.

ROBERT MAX GARRETT, PH. D. (Munich), Assistant Professor of English.

HAROLD BRUCE DENSMORE, A. B. (Oxford), Assistant Professor of Greek.

ALLEN FULLER CARPENTIER, PH. D. (Chicago), Assistant Professor of Mathematics.

ERNEST OTTO ECKELMAN, PH. D. (Heidelberg), Assistant Professor of German.

FRANCES DICKER, A. M. (Columbia), Assistant Professor of Music.

1JESSE B. MIRROCK, B. S. (Columbia), Director of Physical Education for Women.

HELEN BALKO OYVIN, Bachelor's Diploma (Pratt), Instructor in Design.

BUTLENS T. WBTRANK, PH. D. (Chicago), Instructor in Psychology.

1Resigned.
COLLEGE OF EDUCATION

Scope and Aims.—The curriculum of the College of Education assumes that teachers should have a broad and liberal education, supplemented by professional training which gives a knowledge of the pupils to be taught, the problems to be met, and new meaning to the subjects of instruction, as well as fundamental principles of teaching; and that they should be masters of some special subject which they expect to teach.

The college is especially fitted to provide teachers of the following types: (1) High school teachers; (2) high school principals; (3) superintendents of public schools; (4) grammar school principals; (5) supervisors of primary schools; (6) supervisors and teachers of music, drawing, manual and industrial arts, home economics, physical training and other special subjects; (7) normal school and college instructors in education; (8) experts in educational research; (9) specialists in the education of defectives; (10) playground directors; (11) Y. M. C. A. and Y. W. C. A. workers; (12) juvenile court workers.

General Academic Work.—Because of the variety of work which every teacher is likely to be required to do upon beginning to teach, and because of the requirements for state certificates, elementary college courses should be taken in not less than four subjects which are taught in the high schools.

Specialized Academic Work.—Each teacher should have thorough, extended preparation in one subject and reasonable preparation in at least two additional subjects. Experience has shown that the following combinations are most frequently demanded: Latin, French; Latin, Greek; English, French; English, history, civics; English, Latin, history; Spanish, French; mathematics, physics, chemistry; botany, zoology, physiology, physiography; home economics alone or in connection with one or two other subjects; manual and industrial arts alone or in connection with one or two other subjects; commercial subjects alone or with other subjects; athletics, music, or drawing in combination with other work. One teacher is frequently required to teach all of the sciences. Public speaking is desirable as a part of the preparation for teaching English.

Professional Work.—The requirements for the academic major and minors secure a proper distribution of the academic subjects. The professional work consists (a) of the courses given in the department of education, (b) the teachers' courses given in the various academic departments, and (c) the courses in zoology, psychology, and sociology, fundamental to those in education.

Special Teachers' Courses.—Many of the academic departments have teachers' courses for the purpose of studying the problems of
teaching their subjects in the high schools. Work in special methods relating to particular subjects is given by those dealing most directly with the subject matter. Foundation principles of general method as based upon the laws of learning and teaching are developed in the department of education.

Observation and Supervised Teaching.—By an arrangement between the University and the schools of Seattle students in the department of education may observe the regular work in certain schools (at present twelve are used) and do supervised teaching under direction of the regular teachers of the school and the university professor in charge of that work. In this way students have an opportunity to observe and gain valuable experience under exceptionally favorable conditions.

Material Equipment of Department of Education.—The department of education occupies seven rooms on the second floor of Home Economics Hall, comprising four offices, two lecture rooms and a seminar room. (In addition, the offices of the Smith-Hughes work under the joint direction of the State Board of Vocational Education and the College of Education are in rooms 109-110, Commerce Hall.) The department is equipped with the standard educational works, besides many special books and monographs in English, German, and French. All the American educational journals of importance, and many English, German, and French periodicals are on file. In all, nearly sixty journals are received. The equipment is especially good for work in educational psychology, educational sociology, educational tests and measurements, philosophy of education, child study, educational organization and administration, school surveys and current school problems.

The Bailey and Babette Gatzert Foundation for child welfare is not a part of the College of Education but its work is open to the observation of students in education.

Industrial Arts.—While no separate department of industrial arts is maintained during the regular year, special attention has been devoted to this work during the summer session. A good curriculum may be secured during the regular academic year by selecting from the courses in engineering, fine arts, and education. The following courses are suggested: Carpentry and wood-turning, pattern making and cabinet work, forge and foundry, engineering drawing, public school drawing, freehand drawing, principles of design and the theory and organization of industrial arts. Because of the excellent industrial arts work in the Seattle public schools, students have unusual facilities for observing the best organization and equipment. A large number of industrial centers and pre-vocational classes are maintained in various parts of the city.

Under the terms of the Smith-Hughes act "the training of teachers for trades and industries in resident work and extension work
shall be conducted through the University of Washington, under the supervision of the State Board of Vocational Education, with the approval of the Federal Board.” In conformity with these regulations special courses will be organized to train teachers for the secondary, industrial and trade schools. One instructor in the department of education devotes his entire time to schools and to giving courses relating to the Smith-Hughes work.

**Athletics and Playground Activities.**—There is at the present time, a strong demand for teachers, both men and women, who can direct the various forms of athletics and playground activities in the high school and the grammar grades.

**Public School Music.**—Not only is there a demand for specially trained supervisors of music in the schools, but every school needs teachers who can give some assistance in the general musical activities of the school and the community. Every teacher who has any musical ability ought to secure some training in music and participate in some of the musical organizations of the University.

**Debating, Dramatics, Public Speaking.**—Every teacher will be called upon to assist in the incidental work of the school. The small towns can not afford special teachers of public speaking and debate and consequently the teacher who can assist in these lines increases his usefulness. Every student should participate in some of these lines all through the college course and definite courses in them should be taken.

**Journalism in High Schools.**—Newspaper writing is being introduced in some of the best high schools as a part of the English course. It seems to afford a valuable incentive to many pupils in their English work. The teacher who undertakes this work needs to be especially well trained professionally as well as in English and journalism. For a proper combination of courses the student should consult the departments of education, English, and journalism.

**Commercial Subjects.**—At present the demand upon the University for teachers of commercial subjects far exceeds the supply. To prepare for this line of work the student should include courses in bookkeeping, stenography, commercial law, commercial policies, commercial geography, besides courses in economics, and the professional training in education.

**Teaching of Technical Subjects in College.**—Many students of engineering, forestry, law and other technical subjects ultimately plan to teach those subjects in colleges or technical schools. An increasing number of such students desire professional training in educational theory and methods as a part of their preparation.

**The Study of Education and Citizenship.**—Courses in education are valuable, not only for those who expect to teach, but also for those
who expect to be citizens of any community. Many of the courses in education, therefore, are rightly coming to be pursued by students not expecting to become teachers.

Extension Service.—The department of education is glad to render service to the cause of education in many ways besides through the regular courses of instruction. Members frequently give addresses at teachers' institutes, parent-teachers' associations, educational associations, community centers, school dedications, school commencements, etc. They are also glad to conduct educational surveys as far as time will permit.

Saturday and Evening Classes.—To accommodate the teachers of Seattle and vicinity several classes in education are scheduled on Saturday and during the late afternoon and evening. For the courses thus arranged for the year 1919-1920, see the statement of courses in education.

Vocational Secretary.—The University maintains a vocational secretary for the purpose of assisting students to secure desirable positions. The services of this officer are entirely free to students and graduates of the University and to employers.

ORGANIZATION AND REQUIREMENTS

Lines of Work.—Three lines of work are provided in the College of Education: (a) The course leading to the degree of bachelor of education; (b) the courses leading to the degrees of master of arts in education and master of science in education; (c) work leading to the degree of master of arts or master of science with education as a major subject; (d) work leading to the normal diploma and life diploma in connection with a degree from the College of Liberal Arts, the College of Science or the College of Education.

The College of Education is so organized that the student shall begin to think of the profession of teaching immediately upon entering the University. While the main work in education does not come until the junior and senior years, the student receives guidance and counsel from the outset in selecting his courses and is helped to get in touch with the professional atmosphere that should surround a teachers' college. The foundation work in zoology and psychology will be given as far as possible with the teaching profession in mind. It is planned to give some work of a general nature in education during the first two years that will serve as vocational guidance and will assist the student to arrange his work most advantageously and to accomplish it most economically. By the more prolonged individual acquaintance between students and the faculty of the College of Education it is hoped that the student will receive greater professional help and the faculty will be better able to judge of the teaching qualities of the students.
Under the new plan the student does not take so many required courses as formerly. The specific requirements in foreign language, physical science, mathematics, history and a half year of philosophy have been omitted. The student may elect these if he chooses. By this means the curriculum will be much more flexible and the student will be given the important educational privilege of choosing largely his own courses. This is in harmony with the idea of the greater vocationalizing of education.

The work of education and allied courses has been so extended that adequate professional preparation can now be secured. The courses in zoology, psychology, and sociology are all directly contributory to knowledge and interpretation of the courses in education.

A degree may be obtained at the end of the fourth year, but the standard which the University encourages and hopes to establish for high school teaching is the five-year course, consisting of thorough professional work combined with advanced academic work. Students expecting to teach are encouraged on entering to plan their courses for the master's degree in education. While the extended combined course is preferred it is possible for students with adequate preparation to secure the master's degree in a year of graduate work. The master's degrees in education are specifically intended as teachers' degrees representing mastery of an extensive field of scholarship plus professional training, rather than intensive research in a limited field of investigation.

*Admission to Freshman Standing*

A student must offer for admission to freshman standing in the University, fifteen units† by examination or by certificate from an accredited school from which he has graduated. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented):
   (a) Latin and Greek (not less than two units of Latin or one of Greek counted).
   (b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).
   (c) History, civics, economics (at least one unit to form a year of consecutive work in history).
   (d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).
2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma; not more than four, however, to be in vocational subjects.

*More detailed information concerning admission is furnished in a separate section of the University Bulletin, known as Entrance Information. (See pages 7-11.)
†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 school year of not less than thirty-six weeks.*
In addition to the three units of English and the two units of mathematics required for admission to all colleges of the University, it is recommended that a student expecting to enter the College of Education should elect his work from the groups (a) to (d), so as to offer the following subjects:

- A foreign language........................................... at least 2 units
- A history (American preferred) or U. S. history and civics....................... 1 unit
- A science (physics, chemistry, botany, or zoology).................................. 1 unit

If he shall not have included these subjects in his high school elections, it will be necessary for him to include them among his elections in college.

REQUIREMENTS FOR GRADUATION WITH THE DEGREE OF BACHELOR OF EDUCATION

To secure the degree of bachelor of education the candidate must fulfill the following conditions:

1. Comply with the admission regulations as stated above.
2. Complete the requirements in college subjects as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Zoology</td>
<td>10</td>
</tr>
<tr>
<td>Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Physical education</td>
<td>12</td>
</tr>
<tr>
<td>†English Education</td>
<td>10</td>
</tr>
<tr>
<td>Teaching subjects:</td>
<td></td>
</tr>
<tr>
<td>(a) Two academic majors</td>
<td></td>
</tr>
<tr>
<td>(b) One academic major and two academic minors.</td>
<td></td>
</tr>
<tr>
<td>‡Free electives, depending upon the foregoing selections.</td>
<td></td>
</tr>
</tbody>
</table>

Total for graduation ........................................192

* Students who have had one year in zoology in the high school may be excused from the laboratory work in zoology in the University, but shall be required to take the courses in ethnology and evolution. The distribution of the required work in zoology shall be determined by the head of the department of zoology.

† All freshmen are required to take an examination in English on entrance to the College of Education. Those whose standings are especially high in the examination may be excused from a part of the required ten credits.

‡ The student's free electives will vary from 15 to 50 credits, according to the exemption in English and the number of credits secured in the major and minor subjects.

1. An academic major consists of from 35 to 40 credits in some subject other than education. At the option of the major professor this may include the teachers' course.

2. An academic minor consists of from 20 to 30 credits in some subject other than education.

3. The distribution of the work in the academic majors and minors is under the advice of the dean of the College of Education and the head of the department in which the academic major is selected. The distribution of the majors and minors is considered in the light of the actual calls for teachers year by year.

4. The teachers' course in the academic major is required, if offered.

5. The teaching subjects may be selected from any subjects now recognized in the Colleges of Liberal Arts, Science, Fine Arts, or Economics and Business Administration.
6. The 36 credits in education required for the degree of bachelor of education should include as foundation work the 18 credits required for the normal diploma. The work should also include a course in the history of education and one in childhood or adolescence. The remainder of the work should be selected so as to emphasize the line of special interest, as, for example, administration, secondary education, educational psychology, etc.

7. The required English must be completed during the first year. The required zoology or some other year of science must be taken during the first two years. If history or foreign languages are elected one course in the ones selected must be completed during the first two years. If mathematics is elected, five credits in it must be completed during the first two years. If the foregoing courses are not completed as specified, only half credit will be allowed.

8. Candidates for the bachelor's degree in the College of Education must receive grades of A, B, or C in at least three-fourths of the credits required for the degree. This rule does not apply to grades given before the year 1910-1911.

9. Students are allowed to combine, in preparation for teaching, courses from the departments of political science, sociology and business administration, for the academic majors or the academic minors. Such combinations must be approved by the dean and the head of the department in which the academic major is selected.

10. Courses in manual and industrial arts, or in those combined with drawing, will be accepted as a minor toward the degree of bachelor of education.

11. Students in the College of Liberal Arts have the right to major in the department of education. Students majoring in education must take at least 36 credits. Students in the Colleges of Science, Engineering, Forestry, Mines, Law, Pharmacy, Fine Arts, and Business Administration may elect courses in education according to conditions fixed by these colleges.

FRESHMAN YEAR

During the freshman year the student should aim to take approximately the following work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Zoology</td>
<td>10</td>
</tr>
<tr>
<td>Physical education</td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>5</td>
</tr>
<tr>
<td>Sociology</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to education</td>
<td>2</td>
</tr>
<tr>
<td>Probable academic major</td>
<td>15</td>
</tr>
</tbody>
</table>

ELECTIVES OPEN TO FRESHMEN

Languages: English, French, German, Greek, Italian, Latin, Public Speaking, Scandinavian, Spanish.

Sciences: Botany, chemistry, geology, home economics, mathematics, physics, zoology.

Social Sciences: History, journalism, political science, economics, sociology, commerce.

During the sophomore year the student should continue physical education. If psychology and sociology have not been taken in the freshman year they should be taken during the first quarter of the sophomore year. Principles of Education should be taken during the sophomore year, the academic major should be continued, and at least one academic minor begun. The range of electives open to sophomores is very wide. For limitations see the departmental statements.

Psychology 1 is prerequisite to all courses in Education except Education 1. In exceptional cases Psychology 1 may be taken concurrently, but only on the approval of the dean of the College of Education.

The dean of the College of Education may accept as the equivalent of such a fundamental course in psychology the incidental psychological training which may have been received by experienced teachers, with the understanding that they are eventually to take psychology as part of the professional work.

JUNIOR AND SENIOR YEARS

During the junior and senior years about five hours of work in education will be necessary each quarter. The academic major and minors should also be completed. The remainder of the work is elective.

ADMISSION OF NORMAL SCHOOL GRADUATES TO ADVANCED STANDING

Graduates of the normal schools of this state and of institutions of like standing elsewhere, who are likewise graduates of accredited four year high schools, are admitted to full junior standing in the College of Education. Their courses of study are determined by the dean of the College of Education subject to the approval of the head of the department in which the academic major is selected. The distribution of the majors and minors is considered in the light of actual calls for teachers year by year. The presumption is that they will take all the required subjects in the College of Education for which they have not had a fair equivalent elsewhere. Requests for modification of this procedure will be considered by the committee on graduation only when recommended by the dean of the college.

Graduates from approved normal schools who major in education in the College of Liberal Arts may be exempted from such portions of the work in education as they have completed satisfactorily in the normal school, such exemption to be granted only upon the recommendation of the head of the department of education.
Requirements for the Degree of Master of Arts in Education or Master of Science in Education

1. Registration in the College of Education at least one year before graduation. (The student may register in the College of Education as early as the beginning of the freshman year and is urged to do so if he plans to prepare for teaching.)

2. A bachelor's degree from this University or from some other institution of recognized standing.

3. Education, 36 credits.

4. A major academic subject, 36 to 48 credits, at the option of the major professor.

5. Two academic minors of at least 24 credits each.

6. A teachers' course in the academic major, maximum 9 credits.

7. At least 5 credits in psychology.

8. Total 287 credits, including the undergraduate credits.

9. Upon completion of the course for the degree of master of arts in education or master of science in education the candidate shall be examined in the academic major, the two academic minors and in education under regulations which apply to the examination of candidates for masters' degrees in the graduate school.

Note 1. Such of the above requirements as have been included in the work taken for the bachelor's degree need not, of course, be taken a second time.

Note 2. Upon approval of the professor in charge of the academic major a part of the work for the major may be taken in allied lines.

Requirements for Normal Diplomas and Life Diplomas

The University is authorized by law to issue teachers' diplomas, valid as teachers' licenses in all public schools of the state, as described below. Candidates for these diplomas should consult with the dean of the College of Education as early as possible regarding their work for the diploma and their preparation for teaching.

1. The University Five-Year Normal Diploma, valid for a period of five years from date of issue, is granted on the following conditions:

   1. (a) Graduation from this University from the Colleges of Liberal Arts, Science, Education, Fine Arts, or Business Administration. (b) Completion of at least 18 credits (quarter hours) in the department of education. (c) Completion of a teachers' course in the major academic subject, if offered: maximum, 9 credits. (d) General psychology, 5 credits. (e) Evidence of such general scholarship
and personal qualities as give promise of success and credit in the profession of teaching. Legible handwriting, good spelling and correct English are indispensable. Active interest in the prospective work as a teacher will be considered.

The courses in education include the following:

(a) Old Plan

Principles of Education.
History of Education or Social Foundations of Education.
Childhood and Adolescence or Secondary Education.
Observation and Teaching or Methods of Teaching.

(b) New Plan
(Effective for students entering as freshmen September, 1916, or later.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of Education</td>
<td>5</td>
</tr>
<tr>
<td>Educational Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>3</td>
</tr>
<tr>
<td>Methods of teaching</td>
<td>3</td>
</tr>
<tr>
<td>Practice of teaching</td>
<td>5</td>
</tr>
</tbody>
</table>

Students who entered before September, 1916, may have the privilege of following either plan.

The department reserves the right to adjust these requirements in education subjects to individual cases. Variations will sometimes need to be made in the case of normal school students, persons who have taken education courses in summer sessions, and teachers with considerable experience. No deviations will be permitted except on approval of the dean of the College of Education.

2. Persons who have received the master's or doctor's degree from this University are eligible to the University five-year normal diploma, provided they have fulfilled the specific requirements exacted of those with the bachelor's degree.

3. Graduates of other accredited colleges or universities than the University of Washington who desire the University five-year normal diploma are required to be in residence in this University at least one quarter subsequent to graduation and to earn not less than 15 credits in approved subjects. Of these 15 credits, 5 credits must be in courses in education approved by the dean of the College of Education, and 10 credits in teaching subjects, in courses approved by the major professor. They must have earned here or elsewhere at least 5 credits in psychology, a total of 18 credits in education, and have completed a teachers' course in an academic subject.

4. Graduates of the advanced courses of state normal schools who subsequently graduate from this University and who become candidates for the University five-year diploma must earn at least 12 credits in education in this University.

II. The University Life Diploma is granted to candidates who fulfill the requirements for the University five-year diploma and also give satisfactory evidence of having taught successfully for at least twenty-four months.
COURSES OF STUDY

Education

Sociology and zoology as well as psychology are very desirable as a foundation for the study of education. The courses in principles of education and social foundations of education are fundamental to all other courses in education. Students should take psychology during the freshman or the sophomore year, and principles of education in either the last half of the sophomore year or the first half of the junior year. This should be followed by social foundations of education, secondary education, or childhood and adolescence and methods of teaching; practice teaching should be taken in the senior year. Students who major in the department should take all of the fundamental courses required for the normal diplomas and then select enough to total 36 credits in the department. Major students in education must take course 171, Experimental Education.

Principles of education, see courses 1, 99, 221-222-223.
Educational sociology, see courses 109, 151, 161, 162, 176-177, 211-212-213, 271-272-273.
Educational administration, see courses 191, 192-193, 252-253.
Secondary education 119, 158, 154, 275, 276.
Practice teaching, see courses 145, 146, 167.
Research, see courses 190, 298, 299, 300.
Teachers' training courses in trades and industries (under Smith-Hughes Act), see courses 3, 4, 5, 6.

COURSES FOR UNDERGRADUATES

1. How to Study.—Following a consideration of how to study effectively, an attempt is made to help students to apply this knowledge in their work. Required of all freshmen in the College of Education. Open as an elective to students of other colleges. Counted toward a major in education but not toward the normal diploma. Two credits; autumn, winter, or spring. Freeland

99. Principles of Education.—An attempt to interpret the meaning of education, to understand human nature and to comprehend how environment may be utilized to promote the development of the individual and of society. Prerequisite, Psychology 1. Five credits; autumn, winter, or spring. Bolton

109. Educational Sociology I: Social Foundations.—Introductory course treating social factors in the development of the individual and in school administration, and educational functions of typical social groups. Prerequisite, Psychology 1. Three credits; autumn, winter, or spring. Ayer

119. High School Curriculum.—Secondary school curricula and
closely related problems. Prerequisite, courses 99, 109. Three credits; autumn, winter, or spring.

140. Methods of Teaching I.—The application of psychology to high school instruction. Three credits; autumn, winter, or spring. Koos

*141. Methods of Teaching II.

*162-163. History of Education.

145. Practice Teaching.—One lecture each week, conferences with the instructor, assigned readings, and one period each day during the quarter devoted to observation and practice teaching under supervision in the Seattle city schools. As far as possible the details of the course are arranged to meet individual needs. Five credits; autumn, winter, or spring. Freeland

146. Practice Teaching.—A second quarter of practice teaching may be elected. Freeland

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

To be admitted to the following group of courses students must have had at least 18 credits in education:

151. Educational Sociology II: Cooperative Agencies.—Evolution of the school curriculum with reference to social organization; the social and school survey; relation of the school to other educational agencies. Prerequisite, course 109. Three credits; spring. Ayer

153. Problems in High School Administration.—Problems in secondary education largely non-curricular in character. Prerequisite, course 119. Two credits; spring. Koos

154. The Junior High School.—History of the movement for reorganization and functions and relations of this new organization. Prerequisite, course 119. Two credits, winter; or three credits, spring. Koos

155. Childhood and Adolescence.—A study of the characteristics of the child to reveal how education is conditioned upon successive stages of development; physical, mental and moral. Prerequisite, Psychology 1. Three credits; autumn, winter, or spring. Bolton

160. Play in Education.—The psychological and biological meaning of play; values and applications. Two credits; autumn, winter, or spring. Freeland

161. History of Education; Ancient and Medieval.—Social interpretation of the historic beginnings of education, the contributions of the Greeks and Romans, the development of Christianity, medievalism, and the beginning of modern education. Three credits; autumn. Ayer
162. History of Education; Modern.—Development of educational practices since the Renaissance. The growth of democracy in and through education will be traced. European countries will be treated chiefly from the point of view of influence upon educational progress in the United States. Three credits; winter. Ayer

167. Improvement of Teaching.—This course is offered as a substitute for practice teaching for experienced teachers. (Also offered as a five-hour course in the summer.) Supervised teaching and self-supervision will be emphasized. Credits to be arranged; autumn, winter, or spring. Freeland

171. Experimental Education.—Designed to show the possibility and value of experimental work in education, to give first hand knowledge in the technique of properly conducting experiments in connection with school work. Three double periods per week. Required of all majors in College of Education. Laboratory fee, $1. Three credits; autumn or winter. Woody

173. Literature of Experimental Education.—Survey of experimental studies which furnish the basis for current methods in reading, spelling, arithmetic, penmanship, foreign languages, etc., and their bearing. Prerequisite, course 171. Three credits; spring. Woody

176-177. Vocational Guidance.—A study of the vocational guidance movement in the public schools. Two credits per quarter; winter, spring. Ayer

181-182-183. Educational Problems of Adolescence.—A critical consideration of the physical, intellectual, emotional, moral and social characteristics of adolescence, and the educative activities suited to the period of secondary school education. Two credits per quarter; autumn, winter, and spring. Bolton

184. Elementary Educational Measurements.—Marks and grading; standardization and standardized tests. Course designed for teachers with little or no experience. Others admitted on consent of the instructor. Laboratory deposit, $1. Three credits; spring.

185. Educational Statistics.—Statistics needed by the graduate student in conducting research or the teacher, principal, or superintendent in the every day problems of the school room. An introduction to the course in educational measurements and other courses in which statistics are needed. Two credits; autumn. Woody

186-187. Educational Measurements.—Lectures, discussions, reading, class experiments, and projects. Primarily for experienced teachers, principals or those preparing for such positions. Prerequisite, course 241. Two credits per quarter; winter and spring.

190. Special Problems.—A course for advanced undergraduates, especially majors in education, who wish preliminary training in in-
dividual research methods. Supervised by the instructor representing the special field selected. Credits to be arranged.

191. *Educational Administration: State and County.*—The principles of administration of school systems in states and counties, including a comparison of school laws and school systems in several states with special attention to Washington and neighboring states. Three credits; autumn. Koos

192-193. *Educational Administration: City Schools.*—For those preparing for superintendencies, principalships, and other supervisory positions, as well as those desiring an acquaintance with the larger problems of city school administration. Three credits per quarter; winter, spring. Koos

**COURSES FOR GRADUATES ONLY**

*211-212-213. Comparative Education.*

*221-222-223. Philosophy of Education.*

231-232-233. *Advanced Educational Psychology.*—A survey of the latest contributions to educational psychology, with especial emphasis upon the contributions of Thorndike. Two credits per quarter; autumn, winter, spring. Woody


271-272-273. *Seminar in Educational Surveys.*—This course will include a consideration of the purpose and method of the school survey and a study of the principles of educational practice exhibited in the reports of typical school surveys. Two credits per quarter; autumn, winter, and spring. Ayer

275-276. *Seminar in Secondary Education.*—A research course in the problems of high-school administration. Two credits per quarter; autumn, winter. Koos

293-299-300. *Individual Research or Thesis Work.*—Intensive study and original investigation of special problems. Results are usually reported in one of the seminars and when especially meritorious may be published. The special problems are directed by the members of the department representing the fields of work chosen by the students. Credits to be arranged.

**SMITH-HUGHES COURSES IN TRADES AND INDUSTRIES**

The following courses conforming to the methods of teaching trades and industries will be credited toward the bachelor's degree.

* Not offered during 1919-1920.
in education if all other requirements for admission and graduation are fulfilled:

3. Industrial Education.—The purpose, history, organization, and the promotion of industrial education and its articulation with the traditional school system, with industry and with the Smith-Hughes Law. Brief space will be devoted to the continuation school, prevocational school and vocational guidance. Three credits; autumn.

Jensen

4. Methods of Teaching Trades and Class Management.—This course will include some of the general principles of education that apply particularly to trade education and general methods in teaching trade subjects. It will include the development of lesson plans as an outgrowth of the study of methods of trade teaching. Daily preparation, including both oral and lesson sheets, will be emphasized throughout. (Thirty-six hours in class room.) Three credits; winter.

Jensen

5. Trade Analysis and Teaching Program.—Each member of the class will develop a teaching program or detailed course of study following the analysis of the trade that he expects to teach. (Thirty-six hours in class room.) Three credits; spring.

Jensen

6. Practice Teaching in Trades and Industries.—Work in practice teaching will be carried on under conditions as nearly like the conditions that the individual teachers meet in their respective trades after certification, as possible, and will be closely supervised at all times. (Thirty-six hours in class room.) This course is not a substitute for the regular required practice teaching, Education 145. Three credits; autumn, winter, or spring.

Jensen

Courses in Other Departments

For courses in other departments which may form a part of the curricula in education the student is referred to the section of the General Catalogue entitled Departments of Instruction, published also as a separate bulletin. In this all courses of study given in the University are listed and briefly described.
Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
BULLETIN
UNIVERSITY OF WASHINGTON

GENERAL SERIES
JUNE, 1919
NO. 127 SECTION 4

COLLEGE OF BUSINESS ADMINISTRATION
1919-1920

SEATTLE, WASHINGTON
PUBLISHED QUARTERLY BY THE UNIVERSITY 1919

Entered as Second Class Matter, at Seattle, Under the Act of July 16, 1894
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ................................................. Thursday, Friday and Saturday, September 26, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students ............................................................ Friday and Saturday, September 26 and 27
Registration of all other students .................................................. Monday and Tuesday, September 29 and 30
Instruction begins ................................................................. Wednesday, October 1
President's annual address .................................................. Friday, October 3, 10 a. m.
Women's assembly ............................................................. Friday, October 16, 11 a. m.
Thanksgiving recess .............................................................. Wednesday, November 26, 6 p. m., to Monday, December 1, 8 a. m.
Quarter examinations .......................................................... Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days .................................................. Friday and Saturday, January 2 and 3
Instruction begins ............................................................. Monday, January 5
Quarter examinations .............................................................. Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days .................................................. Friday and Saturday, April 2 and 3
Instruction begins ............................................................. Monday, April 5
Campus Day ................................................................. Friday, April 23
Junior Day ................................................................. Saturday, May 29
Quarter examinations .............................................................. Tuesday, Wednesday, Thursday and Friday, June 16, 16, 17 and 18
Class Day and President's reception .................................. Saturday, June 19
Baccalaureate Sunday .......................................................... June 20
Commencement and Alumni Day .................................................. Monday, June 21

SUMMER QUARTER

Registration days .................................................. Tuesday and Wednesday, June 22 and 23
Instruction begins ............................................................. Thursday, June 24
Quarter examinations .............................................................. Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President .................................. Seattle
Term ends March, 1920

WILLIAM T. PERKINS .............................................. Seattle
Term ends March, 1920

ELDRIDGE WHEELER .............................................. Montesano
Term ends March, 1921

OSCAR A. FECHTER ............................................... Yakima
Term ends March, 1922

JOHN A. REA .................................................... Tacoma
Term ends March, 1922

WILLIAM A. SHANNON ......................................... Seattle
Term ends March, 1923

RUTH KARR McKEE ............................................... Olympia
Term ends March, 1923
OFFICERS OF ADMINISTRATION
THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. .................. President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. .................. Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. .............. Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. .................... Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. ............... Executive Secretary
Administration Hall

ARTHUR RAGAN PRIEST, A. M. .................. Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ............... Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. ................... Librarian
Library

FRANK STEVENS HALL ................................ Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. ............... Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. ......................... Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M. ......................... Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. ........ Director of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. ........ Dean of the College of Education
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. ........... Acting Dean of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M. .................. Dean of the College of Fine Arts
Manny Hall

JOHN NATHAN COBB .......................... Director of the College of Fisheries
Commerce Hall

HUGO WINKENWERDER, M. F. .................. Dean of the College of Forestry
Forestry Hall

COLIN VICTOR DYMENT, B. A. ................. Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M. ............... Dean of the Law School
Commerce Hall

WILLIAM ELMER HENRY, A. M. ............... Director of Library School
Library

MILNOR ROBERTS, A. B. ....................... Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ... Dean of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN PADELFORD, Ph. D. ... Acting Dean of the Graduate School
Denny Hall

J. ALLEN SMITH, Ph. D. ....................... Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. ............... Director
Administration Hall

EVERETT FRANCIS DAIM, A. B. ............... Assistant Director
Administration Hall

*Absent on leave 1918-19.
\*Absent on leave 1918-19; resigned 1919.
\^Detached on special service 1917-19.
\&In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF BUSINESS ADMINISTRATION

THE FACULTY

HENRY SUEZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

STEPHEN IVAN MILLER, JR., A. B. (Stanford), LL. B. (Michigan), Professor of Transportation and head of the Department of Economics and Business Administration, DIRECTOR.

J. ANTON DE HAAS, A. M. (Harvard), PH. D. (Stanford), Professor of Business Administration.

VANDERBEEK CURTIS, PH. D. (Harvard), Associate Professor of Economics.

THEOBALD E. McMAHON, PH. D. (Wisconsin), Assistant Professor of Economics.

EVERETT FRANCIS DAVI, A. B. (Wisconsin), Assistant Professor of Business Administration and Assistant Director of Extension Division.

LEWIS LILLY, A. B. (Wisconsin), Assistant Professor of Accounting and Finance.

BRUCE D. MUDGE, PH. D. (Pennsylvania), Assistant Professor of Insurance.

CLEMENT AKERSMAN, A. M. (Harvard), Instructor in Economics.

FRANK J. LAUGHS, A. M. (Washington), Instructor in Political Science.

FREDERICO A. RUSSELL, PH. D. (Illinois), Assistant Professor of Advertising and Marketing.

K. R. THOMA, Acting Instructor in Business Administration.

JAMES E. GOULD, A. M. (Harvard), Lecturer in Navigation.

SAUL WILLIAM BARRHE, B. S. (Columbia), Research Associate.

HENRY LANDES, A. M. (Harvard), Professor of Geology and Dean of the College of Science.

J. ALLEN SMITH, PH. D. (Michigan), Professor of Political Science and Dean of the Graduate School.

EDMOND STEPHEN MEANY, M. L. (Wisconsin), Professor of History.

CAROLINE HAVEN OBER, Professor of Spanish.

FREDERICK MORGAN PARELFORD, PH. D. (Yale), Professor of English.

WILLIAM SAYRE, PH. D. (Harvard), Professor of Philosophy.

FREDERICK JOSEPH FISH, PH. D. (Johns Hopkins), Professor of Romanic Languages.

ROBERT EDGAR MONIZ, PH. D. (Nebraska), PH. N. D. (Strassburg), Professor of Mathematics.

HENRY KEBLER BUNSON, PH. D. (Columbia), Professor of Industrial Chemistry.

FREDERICK ELMER BOLTON, PH. D. (Clark), Professor of Education and Dean of the College of Education.

EPPS ISABEL HAY, B. S. (Columbia), Professor of Home Economics; Director of the Department of Home Economics.

STEVENVON SMITH, PH. D. (Pennsylvania), Professor of Psychology.

LESLEY JAMES AYER, B. S., J. D. (Chicago), Professor of Law.

ERNST OTTO ECKELMAN, PH. D. (Heidelberg), Assistant Professor of German.

*Absent on leave, 1919-1920.

*Withdrawn.
THE COLLEGE OF BUSINESS ADMINISTRATION

Modern business has reached that stage where internal and external economies must be realized. The industrial management of today seeks to reduce waste in materials and labor, and to promote the most effective organization of the factors of production. Such a task requires not only special knowledge, but also vision of the highest order. Accounting, statistics, labor efficiency, resources, credit, insurance, business law and organization are necessary parts of the industrial structure; psychology, sociology, government, ethics and history constitute the background of industrial stability.

The establishment of a well-ordered plant is the basis of a strong position in production; there remains the problem of successfully moving the product to the consumer. Markets are no longer local, but national and even international. Every business man has occasion to study salesmanship, advertising, transportation routes and rates, banking, exchange, tariffs and government regulation. The more extended state control of industry is especially necessitating unusual ability to cooperate.

The College of Business Administration aims to train students to meet the specific and general problems of modern industry.

ADMISSION

For admission to the College of Business Administration a student must offer fifteen units by examination or by certificate from an accredited school from which he has graduated. 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 school year of not less than thirty-six weeks. The fifteen units must include the following:

- 3 units of English.
- 1 unit of algebra.
- 1 unit of plane geometry.
- 2 units of history (American or modern history preferred).
- 8 units selected from subjects accepted by an approved high school for its diploma. (For admission to the College of Business Administration only, a maximum of 8 units in commercial subjects will be accepted. Only 4 of these will be counted if the student is transferred later to any other college of the University.)

Additional Requirements.—The faculty of the College of Business Administration reserves the right to ask for additional work from students who present such irregular or specialized credit as to constitute an insufficient basis for high standard in their college subjects.

Special Students.—Special students will be admitted to the College of Business Administration, subject to the general requirements of the University, and will be admitted to such classes as may be approved by the Director of the College of Business Administration. (See Entrance Information, page 17.)

GRADUATION

Degrees.—The College of Business Administration is a professional college, and its graduates receive the degree of bachelor of
business administration. The degree of bachelor of business administration will be conferred upon any student who has fulfilled the entrance requirements and who presents 192 credits in subjects required or approved by the faculty of the College of Business Administration.

The degree of master of business administration will be conferred upon students who continue their work for an additional year, having completed the requirements for the degree of bachelor of business administration. Students will not be advised to do graduate work unless unusual ability has been shown in their previous courses. All graduate work must be selected after a consultation with the instructor in charge of the special department in which the student is interested, and after the approval of the director of the College of Business Administration.

Students entering from other colleges and universities must satisfy not only the general requirements of the University, but also the requirements of the College of Business Administration.

Not less than three-fourths of the credits required for graduation must be earned with grades of A, B, or C.

Curricula.—All students in the College of Business Administration must have their selection of courses approved each quarter by a member of the college faculty. The college requires that the following courses shall be completed during the first and second years, and suggests the following distribution:

<table>
<thead>
<tr>
<th>FRESHMAN YEAR</th>
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<tbody>
<tr>
<td>Autumn</td>
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<tr>
<td>Credits</td>
</tr>
<tr>
<td>Winter</td>
</tr>
<tr>
<td>Spring</td>
</tr>
<tr>
<td>Credits</td>
</tr>
<tr>
<td>Accounting (B. A. 11)</td>
</tr>
<tr>
<td>Economics 1 (Gen. Econ.)</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>Elec. Sc. or Phys. Ed.</td>
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<thead>
<tr>
<th>SOPHOMORE YEAR</th>
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<tbody>
<tr>
<td>Credits</td>
</tr>
<tr>
<td>Money and Banking</td>
</tr>
<tr>
<td>Theo. &amp; Eto. of Markets</td>
</tr>
<tr>
<td>Business Law</td>
</tr>
<tr>
<td>Electives</td>
</tr>
<tr>
<td>Mil. Sc. or Phys. Ed.</td>
</tr>
</tbody>
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<thead>
<tr>
<th>JUNIOR YEAR</th>
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</thead>
<tbody>
<tr>
<td>Credits</td>
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<tr>
<td>Philosophy (Ethics)</td>
</tr>
<tr>
<td>History</td>
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<table>
<thead>
<tr>
<th>SENIOR YEAR</th>
</tr>
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<tbody>
<tr>
<td>Credits</td>
</tr>
<tr>
<td>Economic research and seminar, at least 4 credits. (Selection of courses subject to approval.)</td>
</tr>
</tbody>
</table>

The requirements of the first two years are made sufficiently broad to establish a foundation for the profession of business, regardless of the particular field in which the student may later be interested. Such a plan permits him to delay the choice of his special field until the junior year.

The program outlined above also aims to keep the student in direct touch with his college, at least one course in economics being
assigned to each quarter. It should be further observed that this program leaves a considerable freedom of selection to the student.

No student is allowed to enter the junior-senior courses of the College of Business Administration unless he has (a) reached at least junior standing and (b) satisfied the prerequisites to these courses.

The prerequisites to the junior-senior courses have been established after the most careful consideration of (a) the standard of efficiency and performance aimed at in the course, and (b) the educational value which the course might deliver to the student. It has been decided that to admit students who have not completed the carefully arranged prerequisites would imperil not only the quality of the work of the instructor, but also would make it impossible for the students to gain the full benefit of the course. But the college realizes that certain just claims to exceptions from the above rules could be presented, and has decided that exceptions can be granted to those students whose maturity and extended experience in economic affairs of a suitable nature make it just and reasonable. Proof of these experiences and qualifications will be passed upon by the director of the College of Business Administration.

The junior and senior years are, in large part, open to the student's selected field of business interest. This does not mean that the student will be free to elect courses regardless of their relation to his field of work. The especial interest of each student or group of students will be under the control of the instructor designated to that department of work, subject to the approval of the director of the College of Business Administration.

Fields of Training—The following fields of business training are suggested:

1. Accounting.
2. Money and Banking.
3. Teaching of Commercial Subjects.
4. Teaching of Economics.
6. Real Estate.
7. Bond and Brokerage.
8. Industrial Management.
10. Transportation.
11. Insurance.
15. Retail Store Service.

Modern Language.—Any student selecting the field of foreign trade or foreign banking will be required to present a satisfactory reading knowledge of at least one modern language.

Law.—Students selecting their specialty in accounting, business organization, foreign trade, or transportation may be required to take:

Law of Public Utilities.
International Law.
Law of Bankruptcy.
Law of Contracts.
• Education.—Students desiring to teach commercial subjects must fulfill the requirements of the College of Education relative to the teaching certificate.

Geology.—The department of geology offers several courses in geography which are of direct interest to students interested in foreign and domestic trade. Such students may be required to elect one or more of the following courses:

- Physical Geography.
- Geography of South America.
- Economic Geography of Washington.

General Information

Textbooks—Syllabus Fees.—Many courses in the College of Business Administration require a textbook, and in a few instances more than one. It is the aim of the faculty to keep the textbook expense as low as is consistent with a high standard of class work.

In courses where a syllabus is used the College of Business Administration may ask from each student a fee sufficient to cover the expense of material, printing or mimeographing. Under no circumstances will this fee be more than $1 per student for each course.

Library Facilities.—The college is placing in the library a large number of supplementary books. For many years government reports, containing a vast amount of material for the student of business, have been filed in the library. Most of the domestic journals in economics and commerce, as well as many foreign ones, are received by the college. Each student is expected to make use of the material and to report from time to time on current topics of interest.

Student Organizations.—Two professional societies with national affiliations have been established at the College of Business Administration. Beta Gamma Sigma is a professional fraternity for men which at present counts chapters in many eastern institutions. Membership is based upon high scholarship. Its aim is to further serious study of business problems. Phi Sigma Chi is a similar organization among the women majoring in business administration. Its purpose is not social, but professional, and membership is restricted to candidates for the B. B. A. degree. A number of prominent business women in Seattle and eastern cities are counted among its honorary members.

Required Military Science and Physical Education.—The University requirements in military science, physical education and hygiene are satisfied as follows:

- Men students—Freshmen and sophomores, five hours of military science per week; juniors and seniors, two hours of physical education per week.
- Women students—Physical education, three times per week for two years.
Correspondence.—Inquiries in regard to the College of Business Administration may be addressed to the director of the college. All correspondence regarding admission should be sent to the registrar of the University.

Contact with Actual Business.—The business men of the state and especially of the city of Seattle are cooperating in a most genuine way with the College of Business Administration. Students are encouraged to avail themselves of the many opportunities to do part-time work in local concerns along their chosen lines, thereby combining practical experience with scientific training. The result of the investigation into the cost of living in Seattle has formed the basis of wage payment in many of the local industries, including a number of public utilities. In cooperation with the Chamber of Commerce, the students have made an exhaustive investigation of some sixty industries to determine the possibility of locating them in the Puget Sound region. The data collected have led to concrete results. The students are thus brought face to face with the problems of actual business.

Advisory Boards.—In order that the courses offered may contribute more effectively toward greater efficiency in business, advisory boards are now being formed for each study group. These boards consist of prominent business men, and offer an opportunity to the members of the faculty to secure practical advice in regard to the training best adapted to certain specific business pursuits.

International Relations.—Plans are now being completed to establish exchange scholarships with China and with some of the South American republics. The opportunities which are thus offered for American students to study abroad and for foreign students to gain a better understanding of American life and thought will be of great educational value.

One of the members of the faculty of the College of Business Administration has been granted leave of absence to enable him to fill a position at the University of Rotterdam (Holland).

Outside Lecturers.—It is the policy of the College of Business Administration to supplement as far as possible the work given with practical lectures and discussions by business men. Many of the leading business men of Seattle and the state have already expressed their willingness to deliver lectures and participate in discussions with the classes of the school.
COURSES OF STUDY

The courses of study offered in all departments of the University are listed and briefly described in a section of the General Catalogue entitled Departments of Instruction, also printed as a separate bulletin. The courses in the department of economics and business administration are listed by title below:

1. General Economics.—Five credits; autumn, winter, or spring.
4. Economics of Consumption.—Two credits; autumn.
7. Economic Resources of the World.—Three credits; autumn or spring.
8. Economic Resources of the Northwest.—Three credits; winter.
9. History of Commerce and Commercial Policies.—Two credits; winter.
10. Business Principles.—Three credits; winter.
11-12-13. Elementary Accounting.—Three credits per quarter; autumn, winter, spring.
14-15-16. Second Year Accounting.—Three credits per quarter; autumn, winter, spring.
21. Money and Banking.—Five credits; autumn or spring.
24. Banking Practice.—Two credits; winter.
41. Risk and Insurance.—Three credits; autumn or spring.
42. Elements of Statistics.—Three credits; winter.
51. Economics of Transportation.—Three credits; autumn or spring.
53. Water Transportation.—Three credits; winter.
61. Social and Economic Standards of Living.—Two credits; winter.
62. Social and Economic Standards of Living.—Prerequisite, course 61.
63. Immigration and Labor.—Two credits; spring.
71. Evolution of the Market.—Three credits; autumn.
72. Marketing of Manufactured Products.—Three credits; winter.
73. Sales Management.—Three credits; spring.
76-77-78. Advertising.
81-82-83. Typewriting.—One credit per quarter; autumn, winter, spring.
84-85-86. Shorthand.—Two credits per quarter; autumn, winter, spring.
87. Secretarial Accounts.—Two credits; autumn.
88. Office Management.—Two credits; winter.
89. Secretarial Training.—Three credits; spring.
90. Business Correspondence.
101. The Teaching of Economics.—Three credits; spring.
103. Advanced Economics.—Three credits; autumn.
105. Trusts and Combinations.—Three credits; autumn.

(12)
106. Fair and Unfair Competition.—Three credits; winter.
107. The Regulation of Industry.—Three credits; winter.
109. Research Course in Combinations and Trusts.—Two credits per quarter; autumn, winter, spring.
110. Research Course in Economic Theory.—Two credits per quarter; autumn, winter, spring.
111. Auditing.—Three credits; autumn.
114. C. P. A. Problems.—Three credits; spring.
*116. Municipal Accounting.—Two credits; winter.
117. Cost Accounting. Three credits; winter.
118. Practice Work in Accounting.—Credits 3-6; autumn, winter, spring.
121. Corporation Finance.—Three credits; winter.
122. Investments.—Three credits; spring.
*138. Stock Exchange Operations.—Two credits; spring.
136. Real Estate Problems.—Two credits; spring.
138. Foreign Exchange and Foreign Banking.—Two credits; winter.
141. Property Insurance.—Three credits; autumn.
142. Life Insurance.—Three credits; winter.
145. Business Statistics.—Two credits; spring.
147. Social Insurance.—Three credits; spring.
149. Marine Insurance.—Three credits; winter.
150. Research Course in Insurance and Statistics.—Two credits per quarter; autumn, winter.
151. Rail and Marine Rates.—Three credits; spring.
153. Railroad Administration.—Three credits; autumn.
*154. State Railroad Commissions.—Three credits; winter.
157. Railroad Finance.—Three credits; winter.
159. Research Course in Transportation.—Two credits per quarter; autumn, winter, spring.
161. History of the American Labor Movement.—Three credits; autumn.
162. Modern Labor Problems.—Three credits; winter.
*163. European Labor Problems.
*165. Labor Legislation.
166. Women in Industry.—Three credits; autumn.
167. Employment Management.—Three credits; spring.
168-169-170. Seminar in Labor.—Three credits per quarter; autumn, winter, spring.
171. Organisation of Foreign Trade.—Three credits; autumn.
172. Technique of Foreign Trade.—Three credits; winter.
173. Ports and Terminals.—Three credits; spring.
174. The Trade of the Pacific.—Three credits; spring.
175. The Trade of Latin America.—Three credits; winter.
176. The Trade of Europe.—Three credits; autumn.
177. Oriental Institutions—China.—Two credits; autumn.
178. Oriental Institutions—Japan.—Two credits; winter.
179. Oriental Institutions—Russia.—Two credits; spring.
180. Research Course in Foreign Trade.—Two credits per quar-
ter; autumn, winter, spring.
182-183-184. Teachers' Course in Commerce.—Two credits per quarter; autumn, winter, spring.
185-186-187. Department Store Training.—Autumn, winter, spring.
188-189-190. Practice Selling.—Autumn, winter, spring.
191. Business Management.—Three credits; autumn or spring.
195. Industrial Management.—Three credits; autumn.
196. Research Course in Management.—Two credits per quar-
ter; autumn, winter, spring.
201. Seminar in Economics and Business Administration.
THE BULLETIN OF THE UNIVERSITY OF WASHINGTON INCLUDES THE FOLLOWING PUBLICATIONS

ENTRANCE INFORMATION
THE CATALOGUE
Bulletins of
COLLEGE OF LIBERAL ARTS
COLLEGE OF SCIENCE
COLLEGE OF EDUCATION
LIBRARY SCHOOL
COLLEGE OF BUSINESS ADMINISTRATION
SCHOOL OF JOURNALISM
COLLEGE OF ENGINEERING
COLLEGE OF FINE ARTS
COLLEGE OF FISHERIES
COLLEGE OF FORESTRY
SCHOOL OF LAW
COLLEGE OF MINES
COLLEGE OF PHARMACY
GRADUATE SCHOOL
EXTENSION SERVICE
SUMMER SESSION
PUGET SOUND BIOLOGICAL STATION
BULLETIN OF VOCATIONAL COURSES
UNIVERSITY DIRECTORY

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
BULLETIN
UNIVERSITY OF WASHINGTON

GENERAL SERIES JULY, 1919 NO. 127 SECTION 9

SCHOOL OF JOURNALISM
1919-1920

SEATTLE, WASHINGTON
PUBLISHED QUARTERLY BY THE UNIVERSITY 1919

Entered as Second Class Matter, at Seattle, Under the Act of July 16, 1894
UNIVERSITY CALENDAR
1919-1920

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Women's assembly ................................................................. Friday, October 10, 11 a. m.
Thanksgiving recess .............................................................. Wednesday, November 26, 6 p. m., to Monday, December 1, 8 a. m.
Quarter examinations ............................................................. Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

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Registration days ......................................................... Friday and Saturday, January 2 and 3
Instruction begins ............................................................... Monday, January 5
Quarter examinations .......................................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

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THE BOARD OF REGENTS

WINLOCK W. MILLER, President ..................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS ..............................................Seattle
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RUTH KARR McKEE ..............................................Olympia
Term ends March, 1923

OFFICERS OF ADMINISTRATION.

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. ..........................President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. .............................Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. .............................Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. ..............................Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. .........................Executive Secretary
Administration Hall

'ARTHUR RAGAN PRIEST, A. M. .........................Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ...................Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. .........................Librarian
Library

FRANK STEVENS HALL .............................................Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. .........................Vocational Secretary
Administration Hall

1Absent on leave 1918-1919.
THE SCHOOL AND ITS EQUIPMENT

The first courses in journalism in the University of Washington were given in 1907. A department of journalism was established in 1909. In March, 1918, the department was formally made a school. The professional courses during junior and senior years, in combination with many prescribed courses in other departments of the Colleges of Liberal Arts and Science, are intended to equip the student for practical journalism:

1. By giving him training on (a) the editorial side of publishing, with its several occupations; on (b) the business and administrative side; in (c) the mechanics of publishing; in (d) short story.

2. By developing the broader scholarship that is almost indispensable in modern journalism in addition to mere technical knowledge.

3. By building up character for journalism.

Journalism graduates have always been in demand among the newspapers of the state. The demand to date has exceeded the supply to such an extent that it has been a practice to send out students before they had completed their course. Ultimately it is hoped the school may meet the demand with graduates only.
Equipment.—Journalism and printing take up the entire lower floor of Commerce Hall, 208 x 70 feet, which was first occupied in September, 1917. Classrooms, exchange room, journalism library, faculty offices, University of Washington Daily quarters, newswriting room, Tyee quarters, all the mechanical equipment for teaching practical journalism, and the printing stockroom, are on this floor. The department of printing does nearly all the university work.

Frederick A. Churchill Junior Memorial Library.—In March, 1918, a separate journalism library was opened, to be known as the Frederick A. Churchill Junior Memorial Library, in memory of a brilliant student of the school, who died in 1916 while doing newspaper work in New York. The memorial library contains works relating to all phases of the editorial side of the newspaper, to advertising, to printing, to short story, and to current events.

University of Washington Daily.—The editorial and business offices of the University of Washington Daily are in Commerce Hall adjoining the university printing department. Ownership of the University of Washington Daily is vested in the student body. It is not supervised by the School of Journalism, but most of the staff, however, are majors in journalism. An editor is elected by the Associated Students twice each year, and he selects his own staff; a business manager is appointed by the student board of control and selects his staff.

Admission and Graduation

Admission.—For entrance to the School of Journalism as majors, students must present a minimum of 102 quarter credits from the University of Washington, or an equivalent amount from some other institution of accredited standing, covering the requirements of the junior certificate. In a few cases, persons of maturity and with practical experience, who do not have this foundation, may be admitted as special students on complying with the regulations for the admission of special students. (See Entrance Information, page 17.)

Graduation.—The curriculum of the School of Journalism leads to the degree of bachelor of arts (A. B.), for which degree 180 credits must be obtained, plus 12 hours in physical training or military science. Sixty of these hours must be in journalism, and a minimum of 90 plus 12 hours must have been earned before the student is enrolled in the School of Journalism, and a minimum of 84 after the student has been given junior standing.
The requirements for the degree of bachelor of arts from journalism majors are (inclusive of the work required for admission to the School of Journalism) as follows:

The required subjects of the College of Liberal Arts, which total 102 hours, but which are in most cases covered in part in high school, the estimated average remaining for the University being:

- A minimum of nine hours of advanced work in English or Oriental literature (in excess of the requirement in freshman composition) ........................................................................... 9
- A minimum of 12 hours of advanced work (i.e., in excess of the Junior certificate requirements) in each of three of the following: accounting, economics, history, philosophy, political science, psychology, sociology ......................................................... 36
- Provided, however, that four courses in addition to the Junior certificate requirements in either a modern foreign language, an ancient language, both in the original, or a science, will be accepted in lieu of the 12 hours in any of the seven subjects described in the preceding paragraph.)

A minimum of three hours in business law ........................................................................ 3

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journalism</td>
<td>60</td>
</tr>
<tr>
<td>Unprescribed electives</td>
<td>19</td>
</tr>
<tr>
<td>Physical training and military science</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>204</td>
</tr>
</tbody>
</table>

Note.—Business law counts one credit toward the required 60 in journalism because it includes the law of the newspaper. Freehand drawing counts three credits toward the 60 in the cases of students who are preparing for illustrating or cartooning.

In certain journalism courses a laboratory fee of $2 or less is charged. This fee goes toward the purchase of the community journalism typewriters, of which the school now has twelve; toward newspaper and periodical subscriptions, of which the school annually takes about fifty, in addition to the large number of weeklies that come to the desk on exchange; toward the purchase of textbooks; and toward the purchase of student materials. The number of courses carrying these fees varies from year to year. In 1917-1918 the maximum laboratory fees to all or any student were $4, regardless of the number of courses taken. In addition, the regular university fees are charged.

COURSES OF STUDY

The courses of study offered in all departments of the University are listed and briefly described in a section of the General Catalogue entitled Departments of Instruction, also printed as a separate bulletin. The courses in the School of Journalism are described below. They are subject to change.

THIRD YEAR COURSES

101-102-108. Elements of Journalism.—A general introduction to the newspaper business, and a course in practical reporting. The year course is required of all majors. Non-majors of junior or senior standing, particularly home economics students, may take two quarters. The emphasis is on actual reporting. Three credits per quarter; autumn, winter, spring. Laboratory deposit, $2.
104-105-106. Mechanics of Publishing.—Heads; practice in the journalism laboratory; proofreading; modern appliances; history of printing, with thesis. Required of all majors. One credit per quarter; autumn, winter, spring. One lecture and two laboratory periods per week. Laboratory deposit, $2. Assistant Professor Kennedy

General Advertising.—See Economics and Business Administration 76-77-78.


FOURTH YEAR COURSES

151-152-153. Editing and Advanced Newswriting.—Copyreading, headwriting, and other desk work, with a study of types of newswriting and practice in getting and writing news stories involving difficulties. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2.

154-155-156. Features, Exchanges, Syndicates.—Study of the writing, illustrating, and arranging of advanced feature stories, with special reference to Sunday sections; study of contemporary newspapers; handling of exchanges; syndicated stories. Writing assignments; research among newspapers; readings. Credits and hours to be arranged. Laboratory deposit.

157-158-159. History of Journalism, Editorial Writing, Newspaper Policy.—A course that covers the allied fields of editorial writing (with practice); the history of journalism with especial reference to newspapers that have been made or unmade by their editorial policies; a general study of newspaper policy, with emphasis on the ethics of journalism, and the history of newspaper ethics; newspaper campaigns; a study of current tendencies through the editorial page. Credits and hours to be arranged. Laboratory deposit.

160-161-162. Short Story.—A critical appreciation of the composition, human aspects, and tendencies of the short story, and its place in literature. Short stories must be produced throughout the year at regular intervals, and are graded in proportion to their probable marketability. Open to non-majors above sophomore rank who bring a recommendation from the department of English. (English 101-102.) Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2, which covers prescribed textbooks, short story periodicals, library facilities, and use of typewriters. Miss Edgington
163-164-165. The Business Office.—Cost finding; estimating; simplified accounting for newspaper plants; business office management; buying and selling; efficiency; plant hygiene; letter composition. This course is intended primarily for students who aspire to ultimate ownership or management of newspaper or job plants. Open to students in the School of Business Administration who have had prerequisite training. Compulsory for majors on the business side. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2. Kennedy

166-167-168. Advanced Advertising and Publicity.—An intensive study of mediums and markets is made, campaigns are prepared and copy is written. Two credits per quarter; autumn, winter, spring. One lecture and one discussion per week. Laboratory deposit, $2.

169-170-171. Country Journalism and Circulation Management.—Study of successful country newspapers; methods of handling local advertising, and of securing and handling foreign business; circulation; scientific management as applied to a newspaper plant; office systems and simple front office accounting. Compulsory for majors on the business side. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2.

175. Senior Conference.—A course in practical newspaper problems and procedure in all departments. One credit; autumn, winter, or spring. One recitation per week. Required of all senior majors. Journalism faculty

Subjects Presented by Other Departments

54-55-56. Business Law.—The law of libel, with copyright, postal, advertising, circulation, and state and federal statues generally as they relate to the publishing industry, will be covered in the first quarter of this course. Majors are advised to take all three quarters, however. Open to journalism majors of sophomore standing. For detailed description see curriculum of the College of Law. Three credits per quarter; autumn, winter, spring. Professor Ayer

179-180-181. Freehand Drawing.—A foundation course for newspaper and magazine illustrating and cartooning. For further description, see curriculum of the College of Fine Arts.

54. Newspaper Photography.—The course aims to give a familiarity with the construction and use of cameras, with the technique of picture-taking for still and moving objects, and with methods of developing and printing. Some attention will be given to the making of halftones, three color work, and newspaper reproduction. Class limit, 16. Credits and hours to be arranged. Laboratory deposit.

* Not offered in 1919-1920.
UNIVERSITY OF WASHINGTON

UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ................................................ Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students ........................................ Wednesday, October 1
Registration of all other students ........................................... Monday and Tuesday, September 29 and 30
Instruction begins ........................................................................ President's annual address .................................................. Friday, October 3, 10 a. m.
Women's assembly ........................................................................ Friday, October 10, 11 a. m.
Thanksgiving recess .................................................................. Wednesday, November 26, 6 p. m., to Monday, December 1, 8 a. m.
Quarter examinations .............................................................. Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ............................................................... Friday and Saturday, January 2 and 3
Instruction begins ................................................................. Monday, January 5
Quarter examinations ................................................................ Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ............................................................... Friday and Saturday, April 2 and 3
Instruction begins ................................................................. Monday, April 5
Campus Day ............................................................................. Friday, April 23
Junior Day ................................................................................ Saturday, May 29
Quarter examinations ..................................................................
Class Day and President's reception ...................................... Saturday, June 19
Baccalaureate Sunday ............................................................. June 20
Commencement and Alumni Day ................................................. Monday, June 21

SUMMER QUARTER

Registration days ............................................................... Tuesday and Wednesday, June 22 and 23
Instruction begins ................................................................. Thursday, June 24
Quarter examinations ............................................................. Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President........................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS....................................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER ....................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER....................................................Yakima
Term ends March, 1922

JOHN A. REA............................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON................................................Seattle
Term ends March, 1923

RUTH KARR McKEE....................................................Olympia
Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
OFFICERS OF ADMINISTRATION
THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. .................. President of the University Administration Hall
JOHN THOMAS CONDON, LL. M. ................... Dean of Faculties Administration Hall
HERBERT THOMAS CONDON, LL. B. ............... Comptroller Administration Hall
EDWARD NOBLE STONE, A. M. ..................... Registrar Administration Hall
EDWIN BICKNELL STEVENS, A. M. ................ Executive Secretary Administration Hall

ARTHUR RAGAN PRIEST, A. M. ..................... Dean of Men Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ................. Dean of Women Administration Hall
WILLIAM ELMER HENRY, A. M. ................. Librarian Library
FRANK STEVENS HALL .................... Director of Museum Museum
JAMES GARFIELD FLETCHER, A. B. ............ Vocational Secretary Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. .................. Dean of the College of Liberal Arts Denny Hall
HENRY LANDES, A. M. .................. Dean of the College of Science Science Hall
STEPHEN IVAN MILLER, LL. B., A. B. ........ Director of the College of Business Administration Commerce Hall
FREDERICK ELMER BOLTON, Ph. D. ........ Dean of the College of Education Home Economics Hall
CARL EDWARD MAGNUSSON, Ph. D. ........ Director of the College of Engineering Engineering Hall

IRVING MACKEY GLEN, A. M. .................. Dean of the College of Fine Arts Meany Hall
JOHN NATHAN COBB .................. Director of the College of Fisheries Commerce Hall
HUGO WINKENWERDER, M. F. .................. Dean of the College of Forestry Forestry Hall
COLIN VICTOR DYMENT, B. A. ........ Director of the School of Journalism Commerce Hall

JOHN THOMAS CONDON, LL. M. ........... Dean of the Law School Commerce Hall
WILLIAM ELMER HENRY, A. M. ........ Director of Library School Library
MILNOR ROBERTS, A. B. .................. Dean of the College of Mines Mines Hall
CHARLES WILLIS JOHNSON, Ph. C., Ph. D.  Dean of the College of Pharmacy Bagley Hall
FREDERICK MORGAN PADELFORD, Ph. D. .... Acting Dean of the Graduate School Denny Hall

J. ALLEN SMITH, Ph. D. .................. Dean of the Graduate School Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. .................. Director

EVERETT FRANCIS DAHM, A. B. .................. Assistant Director Administration Hall

1Absent on leave 1918-19.
2Detached on special service 1917-19.
3In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF ENGINEERING

THE FACULTY

HENRY SCESSALLO, PH. D. (Columbia), LL. D. (California), President

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

CARL EDWARD MAGNUSON, PH. D. (Wisconsin), E. E. (Minnesota), Professor of Electrical Engineering; Acting Dean.

EVERETT OWEN EASTWOOD, C. E. M. A. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

CHARLES CHURCH MOHR, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

WILLIAM FRANKLIN ALLISON, B. S., C. E. (Purdue), C. E. (Cornell), Professor of Municipal and Highway Engineering.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

CHARLES WILLIAM HARRIS, C. E. (Cornell), Associate Professor of Civil Engineering.

EDGAR ALLEN LOW, B. S. (E. E.) (Wisconsin), Associate Professor of Electrical Engineering.

HORACE JAMES MCGINTHY, B. S. (Massachusetts Institute of Technology), M. M. E. (Harvard), Assistant Professor of Mechanical Engineering.

JOHN WILLIAM MILLER, B. S. (C. E.), (Nebraska), Assistant Professor of Aeronautical Engineering.

FREDERICK KURT KIRSTMANN, B. S., E. E. (Washington), Assistant Professor of Electrical Engineering.

LESLIE FORREST CURTIS, B. S. (Tufts), M. S. (E. E.) (Washington), Assistant Professor of Electrical Engineering.

WILLIAM ELMOIST DUCKERSON, A. B., C. E. (Washington), Assistant Professor of Civil Engineering.

FRANK DEMETRIUS HAYDEN, B. S. (Massachusetts Institute of Technology), Assistant Professor of Civil Engineering.

ARTHUR MELVIN WINSLOW, PH. B. (Brown), B. S. (Massachusetts Institute of Technology), Assistant Professor of Mechanical Engineering.

SAMUEL THOMAS BRATZ, Instructor in Woodwork.

SANDY MORROW KANE, Instructor in Metal Work.

CLARENCE LESTER WHITE, C. E. (Iowa), Instructor in Civil Engineering.

GORDON RUSSELL SCHUCK, E. E. (Minnesota), Instructor in Electrical Engineering.

LEON W. MOORE, C. E. (Cornell College), Acting Instructor in Civil Engineering.

PAUL NEWCOMB FOARD, C. E. (Cornell College), Acting Instructor in Civil Engineering.

FRED FALCONER WELD, C. E. (Pennsylvania State College), Acting Instructor in Civil Engineering.

JAMES DOUGLAS MURDOCH, M. E. (Cornell University), Acting Instructor in Mechanical Engineering.

HOBART G. BYERS, PH. D. (Johns Hopkins), Professor of Chemistry.

FREDERICK MORGAN PADERFORD, PH. D., (Yale), Professor of English.

FREDERICK ARTHUR OSBORN, PH. D. (Michigan, Professor of Physics and Director of the Physics Laboratories.

ROBERT EDWARD MORITZ, PH. D. (Nebraska), PH. N.D. (Strassburg), Professor of Mathematics.

HENRY KRIETZER BENSON, PH. D. (Columbia), Professor of Industrial Chemistry.

JOHN WENZEL, PH. D. (Wisconsin), Professor of Bacteriology.

LESLIE JAMES ATHER, B. S. (Upper Iowa), J. D. (Chicago), Professor of Law.

SAMPSON LUMBERT ZETTBERGT, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.

JOSEPH DANIELS, S. B. (Massachusetts Institute of Technology), M. S. (Lehigh), Associate Professor of Mining Engineering and Metallurgy.

HENRY LOUIS BRIEDEL, PH. D. (Cornell), Assistant Professor of Physics.

GEORGE IVERING GAYTT, B. S. (C. E.), (Michigan), Assistant Professor of Mathematics.

LINDSAY IRVING NICKKIN, PH. D. (Pennsylvania), Assistant Professor of Mathematics.

SAMPSON HERBERT ANDERSON, PH. D. (Illinois), Assistant Professor of Physics.

1 Absent on leave 1919-1920.
THE COLLEGE OF ENGINEERING

Curricula and Degrees.—The College of Engineering offers two four-year curricula in each of the departments of chemical, civil, electrical and mechanical engineering. One of these leads to the degree of bachelor of science in the respective branches of engineering, as B. S. in civil engineering. The other is offered to meet the need for a broader foundation of general training than is possible in the regular four-year curricula. This curriculum in each department leads to the degree of bachelor of science (B. S.), and is followed by a year of graduate work which, under the university regulations for advanced degrees, leads to the degree of master of science (M. S.) in the respective lines.

In arranging the curricula the aim has been: To keep the work fundamental in character; to introduce the student into an engineering atmosphere as soon as possible; to direct the methods of work and study and to provide for a certain amount of flexibility in the selection of subjects.

A distinctive feature is the engineering problems (C. E. 11, 12, 13) given by engineering instructors in two three-hour periods a week and consisting chiefly of problems taken from engineering work, analyzed from an engineering standpoint and solved by using mathematics as a means rather than an end.

The freshman work in the departments of chemical, civil, electrical and mechanical engineering, is identical, thus making it possible for a student to delay the definite choice until the beginning of the sophomore year.

All freshman and much sophomore work is repeated each quarter. Additional courses will be repeated whenever practicable, provided the demand is sufficient to warrant full sections, but not for less than six students. Thus freshmen may enter at the opening of any quarter with the assurance of continuity of work for at least two years. The plan provides a possibility for taking desirable elective courses, or for engaging in practical work for one or more quarters before completing the curriculum.

Degree with Honors.—A degree with honors in engineering may be conferred upon any student of the College of Engineering who, upon recommendation of the engineering faculty of the honors committee and upon vote of the university faculty, may be declared worthy of unusual distinction.

Advanced Degrees.—The degrees of master of science in civil engineering (M. S. in C. E.), master of science in electrical engineering (M. S. in E. E.), master of science in mechanical engineering (M. S. in M. E.), and master of science in chemical engineering (M. S. in Ch. E.), respectively, will be conferred upon graduates of this college, or other engineering colleges of recognized standing, who
complete a year (45 credit hours) of graduate work, including a satisfac-
tory thesis, with the grade of A, B or C. The candidate must also pass a formal examination open to all members of the faculty. The selection of work for this degree must, in each case, be approved by the head of the department in which the student majors.

The professional degrees, chemical engineer (Ch. E.), civil engineer (C. E.), electrical engineer (E. E.), and mechanical engineer (M. E.), will be conferred in two years on graduates of this college holding the degree (M. S.) and in three years on those with (B. S.) in their respective lines, who give evidence of having been engaged continuously in acceptable engineering work and who present satisfactory theses.

*Thesis.*—The graduating thesis will consist of research or design in some branch of engineering, or the review of some existing con-
struction. The subject must be approved by the professor in charge of the department under which it is classified.

**The Engineering Laboratories**

*Civil Engineering.*—The hydraulic laboratory is being trans-
ferred to its new location on the shore of Lake Union, where facilities are available for both medium and high head experiments. For medium head, a free water surface, one acre in extent, is provided at an elevation of 100 feet above the laboratory floor. For high heads, connection is made with an 8" pipe leading from an elevated tank 300 feet above the floor.

The materials testing laboratory contains five universal testing machines with capacities from 80,000 to 800,000 pounds, two impact machines with various hammers ranging in weight from 550 to 1500 pounds, with the necessary auxiliary apparatus for general work.

The equipment for testing hydraulic cement is complete for all the ordinary tests as specified by the American Society of Civil En-

The road laboratory is equipped for testing materials used in the construction of roads. The machines for the abrasion and tough-
ness tests are of the standard designs adopted by the American Society for Testing Materials; other machines are similar to those used by the United States Office of Public Roads.

The surveying equipment consists of an ample supply of all the necessary instruments for plane and topographic surveying.

*Electrical Engineering.*—The dynamo laboratory contains seven-
teen alternating and thirty-two direct current generators and motors. The machines are of modern design and have a combined capacity of 300 kilowatts in direct current machines and 225 kilowatts in alter-
nating current machines. Most of the machines are of five- or ten-
kilowatt capacity. Power from a storage battery of 130 cells is avail-
able at a separate switchboard in the dynamo laboratory. The university power house, containing two steam-driven units of 200 and 100 kilowatts, serves as a commercial laboratory for operating and testing purposes.

Nine smaller rooms are devoted to the following: (a) Instrument making and repairing, (b) grinding room and shop, (c) instrument and stock room, (d) telephone laboratory, (e) electrolysis and special thesis problems, (f) storage battery rooms, (g) three dark rooms for photometry work. The instrument room contains a large collection of standard indicating and recording ammeters, voltmeters and wattmeters, a three-element G. E. oscillograph, and a Tinsley A. C. potentiometer.

Mechanical Engineering.—The steam and experimental laboratory is fully equipped with steam apparatus, including engines aggregating 800 H.P., of simple and compound, high speed and Corliss types; steam turbine; jet and surface condensers; injector; centrifugal pump; steam calorimeters; indicators; calibrating appliances; oil testing machine; gas engine of stationary and automobile types; gas producer plant; refrigerating apparatus; compressed air machinery for two stage compression and Westinghouse full train equipment; fuel testing facilities, including Mahler Bomb, Junkers and other calorimeters, with accessories for determining heating value and analysis of solid, liquid and gaseous fuels.

There is a thoroughly modern woodworking shop, machine shop, foundry and forge shop. The wood shop is equipped with benches, lathes, band saws, circular saws, planer, and trimmer. The forge and foundry are equipped with down-draft forges, power hammer, punch and shears, cupola, moulding machines, shakers, rattler, riddles, brass furnace, core ovens, and traveling crane. Machine shop is equipped with small and large lathes, drill press, milling machine, planer, sharper, metal saw, grinding machine and complete equipment for bench and vise work.

Admission to Freshman Standing

A student must offer for admission to freshman standing in the university fifteen units by examination or by certificate from an accredited school from which he has graduated. To count as a "unit" a subject must be taught the equivalent of five times a week, in periods of not less than forty-five minutes, for a school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented):
(a) Latin and Greek (not less than two units of Latin or one of Greek counted).
(b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).
(c) History, civics, economics (at least one unit to form a year of consecutive work in history).
(d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).

2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma, not more than four, however, to be in vocational subjects.

In addition to the three units of English and the two units of mathematics required for admission to all colleges of the university, all students expecting to enter the College of Engineering should elect their work from the groups (a) to (d), so as to offer the following subjects:

- Advanced algebra .................................... ½ unit
- Solid geometry ...................................... ½ unit
- Physics .............................................. 1 unit

If the student shall not have included these subjects in his high school elections, it will be necessary for him to take them in the University in addition to the prescribed curriculum.

Students entering the College of Engineering must have a working knowledge of the fundamentals of arithmetic, algebra and geometry. It is therefore desirable for the student to review his preparatory mathematics just before entering college. By such a step much time will be saved and the work of the college will be rendered more valuable to him.

Detailed information concerning entrance to the University is contained in a special section of the General Catalogue, also published as a separate bulletin.

CURRICULA OF THE COLLEGE OF ENGINEERING
FOR THE FRESHMAN YEAR IN ALL DEPARTMENTS

<table>
<thead>
<tr>
<th>Freshman</th>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Chem. 1 or 21</td>
<td>5</td>
<td>Gen. Chem. 2 or 22</td>
<td>5</td>
<td>Gen. Chem. 3 or 23</td>
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<td>Drawing, C. E. 1</td>
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<td>Mil. Sci. 1</td>
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<td>Mil. Sci. 2</td>
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<td>Mil. Sci. 3</td>
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<tr>
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<td>Mil. Sci. 4</td>
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<td>Mil. Sci. 4</td>
<td>2</td>
<td>Mil. Sci. 5</td>
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</tbody>
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17 17 17

IN CHEMICAL ENGINEERING

Leading to the degree of Bachelor of Science in Chemical Engineering

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<tr>
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<th>Credits</th>
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<th>Third Quarter</th>
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<tr>
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<td>Physics 98</td>
<td>5</td>
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<td>Mil. Sci. 7</td>
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</tbody>
</table>

16 16 18
Electives must in all cases be approved by the head of the department.

### IN CIVIL ENGINEERING

Leading to the degree of Bachelor of Science in Civil Engineering

**FRESHMAN**

The name for all curricula. See page 10.

#### SOPHOMORE

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
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<td>Steam Lab. M. E. 83</td>
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<td>Hydraulics, C. E. 142</td>
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<td>Str. Mil., C. E. 167</td>
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<td>History of Eng., C. E. 41</td>
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<td>Mechanics, C. E. 131</td>
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<tr>
<td>Reinforced Conc. C. E. 133</td>
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<tr>
<td>Frams Struc., C. E. 134</td>
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<tr>
<td>Business Law 54</td>
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Electives must in all cases be approved by the head of the department.

### IN ELECTRICAL ENGINEERING

Leading to the degree of Bachelor of Science in Electrical Engineering

**FRESHMAN**

The name for all curricula. See page 10.

#### SOPHOMORE

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
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<td>Physics 114</td>
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Electives must in all cases be approved by the head of the department.
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<tr>
<td>IN NAVAL ARCHITECTURE AND MARINE ENGINEERING</td>
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### College of Engineering

**Senior**

<table>
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<th>Course</th>
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<tr>
<td>Transients, E. E. 196, 197</td>
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<tr>
<td>or Thesis 195</td>
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<tr>
<td>Hydraulics, C. E. 142</td>
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Electives must in all cases be approved by the head of the department.
Electives must in all cases be approved by the head of the department.

FOR BACHELOR OF SCIENCE DEGREE

The student must register in one of the departments of the College of Engineering.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Math 51, 52, 53, 61, 62, 63</td>
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</tr>
<tr>
<td>Physics 97, 98, 99</td>
<td>15</td>
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<tr>
<td>Chemistry 1, 2, 3, or 21, 22, 23</td>
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<tr>
<td>English 5</td>
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<tr>
<td>Civil Engineering 11, 12, 13, 21, 121</td>
<td>21</td>
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<tr>
<td>Electrical Engineering 95, 100, 121, 122 or 161, 162</td>
<td>12</td>
</tr>
<tr>
<td>Mechanical Engineering 1, 2, 3, 51, 52, 53, 60, 140</td>
<td>15</td>
</tr>
<tr>
<td>Military Science or Physical Education 1, 2, 3, 4, 5, 6</td>
<td>12</td>
</tr>
<tr>
<td>Technical electives in major department, at least</td>
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<tr>
<td>General electives</td>
<td>60</td>
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</tbody>
</table>

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Electives must in all cases be approved by the head of the department in which the student majors.

IN AERONAUTICAL ENGINEERING

Students who desire to major in aeronautical engineering should include the following courses in the technical and general electives of the curriculum for the bachelor of science degree. These courses may also be taken as electives in the curricula for the bachelor of science degree in chemical, civil, electrical and mechanical engineering.

101. Aerodynamics.—Use of the wind tunnel in the determination of the characteristics of aerofoils; selection of aerofoils for a given purpose. Prerequisite, C. E. 11, 12, and Math. 63. Three credits; autumn, winter, spring. Assistant Professor Miller

111. Aerial Propellers.—A study of the theory and design of airscrews including a review of the methods of calculating thrust and efficiency. Prerequisite, Math. 63. Three credits; autumn. Miller

121. Airplane Design.—Selection of the type and construction of an airplane for a given purpose; computation of performance from aerodynamic data; design of flying boats and seaplanes; the distribution of weights and the proportioning of parts. Prerequisite, A. E. 101. Three credits; winter. Miller
141. Airships.—Aerostatics, including a detailed study of lighter-than-air machines. Prerequisite, 101, 121. Three credits; spring. Miller

161. Aerial Transportation.—The design and layout of landing fields and aircraft terminals. Aerial transportation as an industrial factor and as an instrument of warfare. Prerequisite, A. E. 101, 111, 121, 141. Will be given provided at least six students apply for course. One credit; spring. Miller

Chemical Engineering

The fee for each laboratory course is five dollars. This deposit covers the cost of materials furnished by the laboratory and provides the student for a full quarter's work. The student is required to purchase a breakage ticket when he obtains his locker key. The cost of the ticket is five dollars and any portion of it unused will be refunded.

1-2-3. General Chemistry.—The first two quarters are devoted to general chemistry and the chemistry of the non-metals; the third quarter to the chemistry of the metals. The laboratory work of the third quarter is qualitative. Open only to students who have had no high school chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring.

Assistant Professor Tartar and assistants

21-22-23. General Chemistry.—For students who have had a high school course in chemistry, and especially for students in the Colleges of Science and Engineering. The third quarter is devoted to elementary qualitative analysis. Prerequisite, an accredited high school course in chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring.

Professor Byers, Dr. Thompson and assistants

31-32-33. Organic Chemistry.—The fundamentals of organic chemistry, especially for major students in chemistry and those preparing for medicine. Prerequisite, Chem. 3 or its equivalent. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring. Associate Professor Dehn

48. Qualitative Analysis.—For students of chemistry and chemical engineering. The theory of qualitative operatives forms an important part of the class work. Prerequisite, Chem. 23 or its equivalent. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, spring. Byers

51. Engineering Chemistry.—Chemistry of fuels and construction materials. Elective for engineering students. Prerequisite, Chem. 3 or 23. Two lectures and one laboratory period per week. Three credits; spring. Professor Benson and associate
101-102-103. Quantitative Analysis.—Elements of quantitative methods. Prerequisite, Chem. 23 or its equivalent. Four laboratory periods per week. Four credits per quarter; autumn, winter, spring.

Assistant Professor Heath

121-122-123. Industrial Chemistry.—Three lectures and two laboratory periods per week. Prerequisite, Chem. 102. Five credits per quarter; autumn, winter, spring.

Benson and associate

201-202. Physical Chemistry.—An elementary course dealing with the fundamental theories of chemistry based upon physical measurements. Prerequisites, Physics 2 and Chem. 26 and 102. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter.

Tartar and assistants

204. Electro Chemistry.—The elements of electro-chemical processes. Prerequisite, Chem. 202. Three lectures and two laboratory periods per week. Five credits; spring.

Byers and Tartar

CIVIL ENGINEERING

1. Engineering Drawing.—The use of instruments, free-hand lettering, fundamental principles of making working drawings, plotting of traverse from field notes. Laboratory deposit, $1. Three credits; autumn, winter, spring.

White

2. Engineering Drawing.—Reading of working drawings, conventional symbols and standards, tracing. Prerequisite, course 1. Three credits; autumn, winter, spring.

White

5. Cartography.—Making of maps and charts, with topographical symbols, U. S. G. S. standards. Three credits; spring.

White

11. Engineering Problems.—The investigation of simple structures as to loadings, weights and stresses in members by algebraic and graphic methods. Three credits; autumn, winter, or spring.

Assistant Professor Duckering

12. Engineering Problems.—Elementary problems dealing with the movement of bodies, work, energy and power. Three credits; autumn, winter, or spring.

Ford

13. Engineering Problems.—The problems of dimensioned objects, graphic solution. Three credits; autumn, winter, or spring.

White

21. Plane Surveying.—Instruments, computations, mapping, and an introduction to the U. S. system for the survey of the public lands. Prerequisite, course 1 and Math. 51. All freshman engineers. Laboratory deposit, $3. Three credits; autumn, winter, spring.

Assistant Professor Hayden

22. Railroad Surveying.—Elementary railroad engineering. Prerequisite, course 21. Laboratory deposit, $3. Four credits; autumn.

Hayden
23. Higher Surveying.—Meridian observations; triangulation and base line measurements; computations and adjustment of measurements; plane table surveying. Prerequisite, course 21. Four credits; winter. Hayden

24. Field Engineering.—Field practice in the survey and construction of highways, railroads, canals, etc. Prerequisite, course 22. Four credits; spring. Hayden

27. Mine Surveying.—Surface and underground practice; observation for meridian; topography; mining claim survey; tunnels and vertical shaft work and connections; mapping. Prerequisite, course 21. Sophomore mining engineers. Laboratory deposit, $8. Three credits; winter. Hayden

30. Surveying.—(Short session in Forestry). Laboratory deposit, $6. Five credits. Hayden

38. Surveying.—(Short session in Mining). Laboratory deposit, $8. Five credits. Hayden

41. History of Civil Engineering.—A general survey of monumental structures from the standpoint of utility, design, construction and maintenance. Three credits; spring. White

56. Forest Surveying.—Chain, compass, transit and level surveying, with reference to work in forestry. Laboratory deposit, $6. Five credits; spring. Hayden

112. Railway Construction.—Railway construction methods, machinery and tools; details of track, and terminal structures. Prerequisite, course 24. Five credits; winter. Hayden

115. Railway Economics.—The economic theory of railway location, operation, and maintenance. Prerequisite, course 24. Five credits; spring. Hayden

122. Highways.—Location, methods, and types of construction, with local application. Prerequisite, C. E. 22. Three credits; winter. Professor Allison

126. Roads and Pavements.—Surface materials and maintenance, including comparative laboratory study of properties of local materials. Prerequisite, C. E. 122. Five credits; autumn. Allison, Ford

131. Mechanics.—Statics, stresses in structures, beams, columns, flexible cords; theorem of least work; theorem of three moments; combined stresses. Prerequisite, Math. 62. Three credits; autumn, winter, or spring. Professor More

132. Mechanics.—Dynamics; translation and rotation; work, energy and power; friction; torsion; inertia of rigid bodies. Prerequisite, C. E. 181. Three credits; autumn, winter, or spring. Duckering

183. Reinforced Concrete.—The mechanics of reinforced concrete beams, girders, columns and retaining walls and introduction to reinforced arch bridges. Prerequisite, C. E. 181. Three credits; spring. More
134. **Framed Structures.**—Complete problems presenting structural engineering, cranes, roof trusses, highway bridges and simple railroad spans. Prerequisite, course 181. Three credits; autumn.

Duckering

142. **Hydraulics.**—Flow of water through pipes, orifices, over weirs and in open channels; energy, impulse and reaction of jets with application to impulse wheels; review of hydrostatics. Prerequisite, C. E. 181. Laboratory deposit, $8. Five credits; spring.

Associate Professor Harris

143. **Hydraulic Engineering.**—Complete problems presenting hydraulic engineering. Prerequisite, C. E. 142. Three credits; winter.

Harris

144. **Hydraulic Mining.**—A course of two lectures per week on theory and practice of hydraulic mining. Two credits; winter.

Allison

145. **Hydraulic Machinery.**—Development and theory of water wheels and turbine pumps; design of a reaction turbine; reference to hydrostatic machinery and dredging equipment. Prerequisite, C. E. 12. Senior and graduate E. E. and M. E. Three credits; winter.

Harris

147. **Hydraulic Power.**—Generation of power; penstock and turbines; types of installations. Prerequisite, C. E. 142; senior and graduate C. E. Five credits; autumn.

Harris

153. **Water Supply.**—The principal engineering operations necessary to secure suitable water supplies for cities and towns; purification of water. Prerequisite, C. E. 148; senior and graduate C. E. Five credits; winter.

Allison

154. **Sanitary Engineering.**—The design and construction of sewage systems, sewage treatment, and disposal; garbage collection and destruction. Senior and graduate C. E. Prerequisite, C. E. 153. Five credits; spring.

Allison

161. **Bridges.**—Stresses, design and deflection of simple trusses; detail drawings; estimates. Prerequisite, C. E. 184. Senior and graduate C. E. Five credits; winter.

Allison

164. **Higher Structures.**—Primary and secondary stresses and design. Prerequisite, C. E. 161. Senior and graduate C. E. Five credits; spring.

More

167. **Strength of Materials.**—An experimental study of the physical properties of materials used in engineering. Prerequisite, C. E. 181. Senior and graduate C. E. and M. E and graduate E. E. Laboratory deposit, $8. Three credits; spring.

More

169. **Materials of Construction.**—Selection, handling and inspection of builders’ materials; critical investigations in laboratory and field. Prerequisite, junior standing. Five credits; winter.

Ford
171. Engineering Astronomy.—A course designed to give the student ability to determine time, latitude and azimuth from observations of the sun or stars with the surveyor's transit. Prerequisites, Math. 52, C. E. 21 or its equivalent, and must be preceded or accompanied by Astronomy 1 or its equivalent. Four laboratory hours per week. Laboratory deposit, $2. Two credits, autumn.

Associate Professor Boothroyd

172. Geodetic Astronomy.—Problems for the precise determination of time, latitude and azimuth. Prerequisites, C. E. 171, and Math. 62. Ten hours laboratory work per week. Laboratory deposit, $5. Five credits; winter quarter, alternating with 173. Boothroyd

173. Geodesy.—Figure of the earth, geodetic positions, adjustment of triangulation systems, gravity determination and isostacy, mapping and map projection. Prerequisites, C. E. 171 and Math. 62. Five lecture and recitation periods per week with outside assignments of problems and readings. Five credits; spring. Boothroyd

ELECTRICAL ENGINEERING

99. Direct Currents.—Theory of the electric and magnetic circuits; construction, operation and characteristics of direct current generators and motors. Prerequisite, Physics 98. Four credits; autumn, winter, spring.

Associate Professor Loew, Assistant Professors Kirsten and Curtis

100. Direct Currents Laboratory.—Laboratory work on direct current machinery. Prerequisite, Physics 98. Laboratory deposit, $3. Two credits; autumn, winter, spring. Loew, Kirsten, Curtis

103. Direct Currents.—Continuation of 99 in direct current machinery. Storage batteries. Regulation and control of direct current systems. To be taken in connection with course 104. Prerequisite, course 99. Five credits; autumn, winter, spring. Kirsten, Loew

104. Direct Currents Laboratory.—Experimental work on direct current dynamo machinery and on storage batteries. Prerequisite, course 99. Five credits; autumn, winter, spring. Kirsten, Loew

16. Elementary Direct Currents.—(Night Class).1 The laws of the electric and magnetic circuits with application to direct current machinery without the aid of advanced mathematics. For electricians having at least two years of practical experience with electrical machinery. Laboratory deposit, $4. Four credits per quarter.

20. Elementary Alternating Currents.—(Night Class).1 An introduction to alternating current theory with experimental work on

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1Will be offered, provided six students apply for course.
alternating current machinery. Prerequisite, course 15. Laboratory deposit, $4. Four credits per quarter.

121. Alternating Currents.—A short course in alternating currents for non-electrical students. To be taken in connection with course 122. Prerequisite, course 99. Four credits; autumn, winter. Loew

122. Alternating Currents Laboratory.—Experimental work on alternating current machinery. Prerequisite, course 100. Laboratory deposit, $8. Two credits; autumn, winter. Loew, Kirsten

131. Telephones.—Theory, construction and operation of telephone systems. Central telephone station practice. Prerequisite, courses 99, 100. Junior or senior elective. Three credits; autumn, spring. Curtis

132. Telephones and Telegraphs.—Details of automatic and manual switchboards; testing and locating faults; multiplex telegraphy; railway signal systems. Junior or senior elective. Prerequisite, course 131. Laboratory deposit, $2. Three credits.

141. Electric Lighting.—Electric lamps; commercial photometry; adaptation of electric lighting to commercial requirements. Junior or senior elective. Prerequisite, courses 99, 100. Laboratory deposit, $2. Four credits; winter. Kirsten

151. Electrical Machine Design.—Complete design of one direct current generator or motor. Prerequisite, courses 103, 104. Five credits; autumn, spring. Kirsten, Loew

*152. Design of Electrical Apparatus.—Switchboards, transformers, alternators or alternating current motors. Prerequisite, course 151. Four credits.

161. Alternating Currents.—The theory of singlephase and polyphase system; energy-storage in magnetic and dielectric fields; vector diagrams and the symbolic method of analysis; power factor and power measurements; hysteresis and eddy currents; theory of the transformer, singlephase and polyphase induction motors and alternators. Prerequisite, course 103. Five credits; autumn, spring. Professor Magnusson

162. Alternating Currents Laboratory.—Experimental work with alternating current machinery. Prerequisite, course 104. To be taken in connection with course 161. Laboratory deposit, $4. Four credits; autumn, spring. Curtis

163. Alternating Currents.—The theory of rotary converters, synchronous and commutator motors and transmission lines; high tension phenomena; corona; commercial wave forms; unbalanced and interlinked systems. Prerequisite, course 161. Five credits; winter. Magnusson

164. Alternating Current Laboratory.—Prerequisite, course 162. Laboratory deposit, $4. Winter. Curtis
1170. Electric Railways.—Equipment, roadbed, construction and operation. Prerequisite, courses 99, 100. Four credits; autumn. Curtis

1174. Central Stations.—Location, design and operation of electric central stations. Prerequisite, courses 161, 162. Three credits; winter. Curtis

1176. Power Transmission.—Theory, design and operation of electric power transmission lines. Prerequisite, courses 163, 164. Four credits; spring. Kirsten

181, 182. Radio.—Radio systems; lineal, open and complex oscillations; coupled circuits; resonance; transmitters; receivers; vacuum tubes in radio work; quenched and undamped oscillations. Prerequisites, calculus, physics, and direct and alternating currents. Laboratory deposit, $8. Five credits per quarter; winter, spring. Curtis

195. Thesis.—After consultation with the head of the department each student selects a suitable topic for investigation. Reports of progress are made weekly to the instructor in charge of the work selected. A complete report of the work is typewritten and bound and a copy deposited in the University library. Five credits; autumn, winter, spring. Magnusson, Loew, Kirsten, Curtis

196. Electric Transients.—The exponential law of simple transients; single and double energy transients; current oscillations and traveling waves; natural period of transmission lines; short circuit transients; surges; corona; lighting phenomena. Prerequisite, courses 161, 162. Three credits; autumn, spring. Magnusson

197. Electric Transients Laboratory.—To be taken in connection with course 196. Prerequisite, courses 161, 162. Laboratory deposit, $2. Two credits; winter. Magnusson

200, 201, 202. Research.—Five credits per quarter; autumn, winter, spring. Magnusson, Loew, Kirsten, Curtis

MECHANICAL ENGINEERING

1, 2, 3. Woodwork.—Bench work; cabinet work; pattern making. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring. Mr. Beattie

4. Woodwork.—Mine timber framing. Prerequisite, Mining 50. Laboratory deposit, $2. One credit; spring. Associate Professor Daniels, Mr. Beattie

53, 54, 55. Metalwork.—Foundry; forge; machine work. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring. Mr. Kane

81. Mechanism.—The operation of machines involving the transmission of forces and the production of determinate motions. Prere-
quisite, C. E. 2, Math. 52. Three credits; autumn, winter or spring.

Associate Professor Wilson

82. Steam Engineering.—The various forms of steam apparatus used in modern steam plants; their construction, use, and reason for their installation. Not open to freshmen. Prerequisite, C. E. 2. Three credits; autumn, winter, or spring. Professor Eastwood

83. Steam Engineering Laboratory.—Calibrations of thermometers, gages, indicator springs, etc.; tests of the simple steam engine; one complete engine and boiler test with report. Preceded or accompanied by course 82. Laboratory deposit, $2. Three credits; autumn, winter, or spring. Wilson

90, 91. Machine Design.—The design of machine details. Preceded or accompanied by course 81. Prerequisite, C. E. 2. Three credits per quarter; autumn, winter or spring.

Assistant Professor Macintire

101-102-103. Machine Design.—The design of hoisting and pumping machinery; special machines. Prerequisite, course 90, C. E. 181, 182. Three credits per quarter; autumn, winter, spring.

Macintire

105-106-107. Metalwork.—Advanced machine shop practice. Prerequisite, course 55. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring.

Kane

108. Metalwork.—Manual arts for teachers. Prerequisite, course 107. One credit; autumn, winter, or spring.

Beattie

109. Woodwork.—Manual arts for teachers. Prerequisite, course 3. One credit; autumn.

Beattie

115. Machine Design.—Special problems in the design of chemical machinery. Prerequisite, course 90, C. E. 181. Three credits; autumn.

Macintire

123-124-125. Engines and Boilers.—The generation and use of steam in various types of boilers and engines. Three lectures per week first quarter; one lecture and six laboratory periods per week second and third quarter. Prerequisite, courses 82, 91, C. E. 181. Three credits per quarter; autumn, winter, spring.

Macintire

151-152-153. Experimental Engineering.—A continuation of M. E. 83, involving more extended and complete investigations. Prerequisite, M. E. 83. Laboratory deposit, $2. Three credits per quarter, autumn, winter, spring.

Wilson

179. Steam Turbines.—The theory, construction and design of steam turbines. Prerequisite, course 82. Three credits; autumn.

Eastwood
180. Refrigeration.—The theory and application of mechanical refrigeration. Prerequisite, physics 98. Two credits; spring. Macintire

182. Heating and Ventilation.—The various systems of heating and ventilating, methods of design and tests. Prerequisite, course 82. Three credits; winter. Eastwood

183. Thermodynamics.—The fundamental principles underlying the transformation of heat into work, with special application to engineering. Prerequisite, M. E. 82. Three credits; autumn. Eastwood

184. Power Plants.—The design of steam power plants, involving their location, buildings, prime movers, power transmission, etc. Prerequisite, courses 123, 140. Three credits; spring. Eastwood

185-186-187. Naval Architecture.—The theory of naval architecture, as pertains to displacement, stability and strength, and the usual calculations involved in construction. Not open to freshmen. Three credits per quarter; autumn, winter, spring. Eastwood

188, 189. Ship Design.—Application of the principles of naval architecture to the design of a ship for a definite purpose. Prerequisite, M. E. 186. Two credits per quarter; autumn and winter. Eastwood

190. Marine Engineering.—The power plant equipment of ships, including boilers, engines, auxiliaries and propellers. Prerequisite, courses 82, 185. Three credits; spring. Eastwood

198. Gas Engineering.—The development of gas engineering, including stationary, marine, automobile and airplane motors, and gas producer plants. Prerequisite, course 82. Three credits; winter. Wilson

199. Gas Engine Design.—Calculations and plans for the design of a given type of motor. Prerequisite, course 198. Three credits; spring. Wilson

Subjects Presented by Departments of Other Colleges

Courses which form a part of the engineering curricula, either as required subjects or electives, are given in the departments of

- Bacteriology
- Economics
- English
- Geology
- History
- Law
- Mathematics
- Mining Engineering
- Germanic or Romanic Languages
- Physics
- Zoology

Descriptions of these courses, with all those offered in any school or college of the university, will be found in the section of the catalogue known as Departments of Instruction (also published separately).
Military Science and Tactics.—Military training is required of freshmen and sophomores. All able-bodied male students except those from foreign countries, not intending to become naturalized, must take the course which by regulation of the university is required during the first and second years. Infantry and coast artillery units of the Reserve Officers Training Corps are maintained at the university and students so electing and passing the required examination may continue the work as candidates for commissions in the Officers' Reserve Corps of the United States Army. Furthermore, every male undergraduate student is required to take physical exercise or athletics during each week of his attendance at the university, unless excused by his dean and the physical director.

ENGINEERING EXPERIMENT STATION

THE STAFF

HENRY SIEZALLO, Ph. D. (Columbia), LL. D. (California), President.
JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.
CARL EDWARD MAGNUSON, Ph. D. (Wisconsin), E. E. (Minnesota), Acting Director.
HUGO WINKENWEDER, M. F. (Yale), Forest Products.
MILNE ROBERTS, A. B. (Stanford), Mining and Metallurgy.
HENRY KARLTON BEHSON, Ph. D. (Columbia), Chemical Engineering and Industrial Chemistry.
CHARLES WILLIAM HARRIS, B. S. (C. E.) (Washington), C. E. (Cornell), Civil Engineering.
EVERETT OWEN EASTWOOD, C. E., A. M. (Virginia), S. B. (Massachusetts Institute of Technology), Mechanical Engineering.
FREDERICK ARTHUR OSBORN, Ph. D. (Michigan), Physics Standards and Tests.

The Engineering Experiment Station was formally organized in December, 1917, in order to coordinate the engineering investigations in progress and to facilitate the development of industrial research in the University.

A large number of investigations in the industrial field have been in progress for many years in the University, either by the efforts of individual faculty members and students or through organized groups, such as the Timber Testing Laboratory, the Bureau of Testing, Radio Experiment Station, and especially the Bureau of Industrial Research. As an indication of the research already accomplished, reference is made to the important papers already published.

The Engineering Experiment Station includes all the bureaus and departmental groups previously active in engineering and industrial research, as well as the field occupied by individual investigators.

The scope of the work is twofold:

(a) To investigate and to publish information concerning engineering problems of a more or less general nature that would be helpful in municipal, rural and industrial affairs;

(b) To undertake extended research and to publish reports on engineering and scientific problems.

The purpose of the station is to aid in the industrial development of the state and nation by scientific research and by furnishing infor-
mation for the solution of engineering problems. Every effort will be made to cooperate effectively with professional engineers and the industrial organizations in the state. Investigations of primary interest to the individual or corporation proposing them, as well as those of general interest, will be undertaken through the establishment of fellowships.

The control of the Engineering Experiment Station is vested in an administrative staff consisting of the president of the University, the dean of the College of Engineering, as ex-officio director, and seven members of the faculty. For administrative purposes, the work of the station is organized into seven divisions:

1. **Forest Products.**
   This division covers the field of the College of Forestry, and includes wood distillation, wood preservation and cooperative work with the Seattle Station of the United States Timber Testing Laboratory.

2. **Mining and Metallurgy.**
   This division represents the field of the College of Mines, and includes cooperative work of the Pacific Northwest Station of the United States Bureau of Mines.

3. **Chemical Engineering and Industrial Chemistry.**
   This division represents the application of chemistry to engineering and industrial problems.

4. **Civil Engineering.**
   This division covers the field of the Department of Civil Engineering, with emphasis on hydraulic and sanitary engineering and the testing of road and structural materials.

5. **Electrical Engineering.**
   This division includes the several branches of electrical engineering: electric railways, telephones, telegraphs, radio, illumination, and electric power.

6. **Physics Standards and Tests.**
   This division is equipped with reliable physical standards, and the work is largely calibrating and testing of instruments and other physical apparatus.

7. **Mechanical Engineering.** This division includes mechanical engineering, marine engineering, and aeronautics.

Inquiries in regard to the work of the Engineering Experiment Station should be addressed to the Director.
THE BOARD OF REGENTS

WINLOCK W. MILLER, President .............................. Seattle
Term ends March, 1920

WILLIAM T. PERKINS ....................................... Seattle
Term ends March, 1920

ELDRIDGE WHEELER ......................................... Montesano
Term ends March, 1921

OSCAR A. FECHTER ........................................... Yakima
Term ends March, 1922

JOHN A. REA .................................................. Tacoma
Term ends March, 1922

WILLIAM A. SHANNON ...................................... Seattle
Term ends March, 1923

RUTH KARR McKEE ........................................... Olympia
Term ends March, 1923
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER
Examinations for admission ........................................... Thursday,
Friday and Saturday, September 25, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students .......................... Friday and Saturday, September 26 and 27
Registration of all other students .................................. Monday and Tuesday, September 29 and 30
Instruction begins .................................................. Wednesday, October 1
President's annual address ....................................... Friday, October 3, 10 a.m.
Women's assembly.................................................. Friday, October 10, 11 a.m.
Thanksgiving recess ............................................. Wednesday, November 25, 6 p.m., to Monday, December 1, 8 a.m.
Quarter examinations ............................................. Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER
Registration days ........................................... Friday and Saturday, January 2 and 3
Instruction begins ................................................ Monday, January 6
Quarter examinations ............................................. Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER
Registration days ........................................... Friday and Saturday, April 2 and 3
Instruction begins ................................................ Monday, April 6
Campus Day ....................................................... Friday, April 23
Junior Day ......................................................... Saturday, May 29
Quarter examinations ............................................. Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ......................... Saturday, June 19
Baccalaureate Sunday ............................................. June 20
Commencement and Alumni Day ................................ Monday, June 21

SUMMER QUARTER
Registration days ........................................... Tuesday and Wednesday, June 22 and 23
Instruction begins ................................................ Thursday, June 24
Quarter examinations ............................................. Monday and Tuesday, August 30 and 31
# OFFICERS OF ADMINISTRATION

**THE UNIVERSITY**

HENRY SUZZALLO, Ph. D., LL. D. .................. President of the University  
Administration Hall

JOHN THOMAS CONDON, LL. M. ........................ Dean of Faculties  
Administration Hall

HERBERT THOMAS CONDON, LL. B. ............................ Comptroller  
Administration Hall

EDWARD NOBLE STONE, A. M. ........................... Registrar  
Administration Hall

EDWIN BICKNELL STEVENS, A. M. ....................... Executive Secretary  
Administration Hall

'ARTHUR RAGAN' PRIEST, A. M. ...................... Dean of Men  
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ...................... Dean of Women  
Administration Hall

WILLIAM ELMER HENRY, A. M. ............................ Librarian  
Library

FRANK STEVENS HALL .................................. Director of Museum  
Museum

JAMES GARFIELD FLETCHER, A. B. ..................... Vocational Secretary  
Administration Hall

**THE COLLEGES AND SCHOOLS**

DAVID THOMSON, B. A. ............................. Dean of the College of Liberal Arts  
Denny Hall

HENRY LANDES, A. M. .................................. Dean of the College of Science  
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. .............................. Director of the College of Business Administration  
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. ........................ Dean of the College of Education  
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. ............................ Acting Dean of the College of Engineering  
Engineering Hall

IRVING MACKEY GLEN, A. M. ............................ Dean of the College of Fine Arts  
Meany Hall

JOHN NATHAN COBB ................................. Director of the College of Fisheries  
Commerce Hall

HUGO WINKENWERDER, M. F. ............................ Dean of the College of Forestry  
Forestry Hall

'COLIN VICTOR DYMENT, B. A. .......................... Director of the School of Journalism  
Commerce Hall

JOHN THOMAS CONDON, LL. M. ............................. Dean of the Law School  
Commerce Hall

WILLIAM ELMER HENRY, A. M. ............................ Director of Library School  
Library

MILNOR ROBERTS, A. B. ............................... Dean of the College of Mines  
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ............................... Dean of the College of Pharmacy  
Bagley Hall

FREDERICK MORGAN PADELJORD, Ph. D. ............................ Acting Dean of the Graduate School  
Denny Hall

'J. ALLEN SMITH, Ph. D. ............................ Dean of the Graduate School  
Denny Hall

**THE EXTENSION SERVICE**

'EDWIN AUGUSTUS START, A. M. ............................ Director  
Administration Hall

'EVERETT FRANCIS DAHM, A. B. .......................... Assistant Director  
Administration Hall

---

1 Absent on leave 1918-19.
2 Absent on leave 1918-19; resigned 1919.
3 Detached on special service 1917-19.
4 In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF FINE ARTS

THE FACULTY

HENRY SUEZALLO, Ph. D. (Columbia), LL. D. California, President.

JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.

IRVING MACKET GLENN, A. M. (Oregon), Professor of Music, Dean.

WILLIAM FREDERICK GORSUCH, A. B. (Knox), Professor of Dramatic Art.

CARL PAIGE WOOD, A. M. (Harvard), Assistant Professor of Music.

MORRIS ROSEN, Graduate (Warsaw Conservatory), Assistant Professor of Music.

ALBERT FRANZ VENINO (New York College, Stuttgart Conservatory, Leschetizky, Assistant Professor of Music.

FRANCES DIIONEY, A. M. (Columbia), Assistant Professor of Music.

CARL FIELDINGHUSEN GOUUL, A. B. (Harvard), Associate Professor of Architecture.

ROBERT PUTSON MCCLELLAND (Massachusetts Institute of Technology), Instructor in Architecture.

MRS. IRVING BOGARDUS, B. L. (Mills), Instructor in Music.

MRS. LOUIS VAN GILE, Instructor in Music.

HAROLD ODON SEESMITH (Armour Institute), Instructor in Architecture.

ALBERT PORTER ADAMS, Instructor in Music.

HELEN FARKISMAN, Bsc. Mus. (Washington), Assistant in Music.

ANTHETTE REINES (New York School of Fine and Applied Arts, Columbia), Instructor in Design.

ELSIE ZINER, B. S. (Columbia), Instructor in Design.

MRS. EUGENIA WORMAN, Associate in Fine Arts.

PAUL GUSTIN, Associate in Fine Arts.

J. C. WEHN, Instructor in Sculpture.


EVERETT OWEN EASTWOOD, C. E., A. M. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.


THOMAS TALBOT WATERMAN, Ph. D. (Columbia), Associate Professor of Anthropology.

DAVID CONWOLY HALL, M. D. (Chicago), University Health Officer and Professor of Physical Education and Hygiene.

CHARLES CHURCH MORE, C. E., M. S. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

THOMAS K. SIDST, Ph. D. (Chicago), Associate Professor of Latin and Greek.

GEORGE EARL FREELAND, A. M. (Clark), Assistant Professor of Education.

HARVY BRUCE DEMING, A. B. (Oxford), Assistant Professor of Greek.

GINO ANITRO RATTI, Ph. D. (Grenoble), Assistant Professor of French.

JULI MARCUS JOHANSON, A. B. (Washington), Assistant Professor of English.

ERNST OTTO ECKELMAN, Ph. D. (Heidelberg), Assistant Professor of German.

SAMUEL HERBERT ANDERSON, Ph. D. (Illinois), Assistant Professor of Physics.

MARY EMMA GROSS, A. M. (Teachers' College, Columbia), Assistant Professor of Physical Education.

EMIL T I M P L E N BELL, Ph. D. (Columbia), Assistant Professor of Mathematics.

OCR JOHN DUGARD, Ph. D. (Harvard), Assistant Professor of Philosophy.

COLLEGE OF FINE ARTS

This college comprises the departments of architecture, dramatic art, music, and sculpture, painting and design. In the department of architecture a curriculum of four years is offered leading to the degree of bachelor of architecture; in music there are curricula of four years leading to the degree of bachelor of music, with major in applied music, composition, or public school music, and to the degree of bachelor of arts in music. Curricula of four years are offered leading to the degree of bachelor of fine arts, with a major in painting and design, public school drawing, or music and drawing. Two-year curricula lead to certificates of proficiency for supervisors of art and music. The department of dramatic art offers major courses in the study of the drama and dramatic interpretation.

Normal Diploma.—Graduates in music may receive in addition to their bachelor of music degree a normal diploma, entitling them to teach music in the public schools, by meeting the requirements of the department of education and such departmental requirements as the department of music may see fit to institute. This will necessitate a total of at least 192 credits.

Certificates of Proficiency for Music Supervisors.—These may be issued by the head of this college to students who may not have completed the requirements for the degree, but who have satisfactorily completed certain stipulated courses at the discretion of the department. These courses include history of music, elementary harmony, public school music, ear training and melody writing, school music and music education, vocal music, education and drawing or some other approved elective. Only students of advanced standing can complete this course in less than two years.

Requirements for Admission

A student must offer for admission to freshman standing in the University fifteen units by examination or by certificate from an accredited school from which he has graduated. 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 school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented): (a) Latin and Greek (not less than two units of Latin or one of Greek counted). (b) Modern foreign language (at least two units in one language; not less than one unit counted in any language). (c) History, civics, economics (at least one unit to form a year of consecutive work in history). (d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.)
2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma; not more than four, however, to be in vocational subjects.
In addition to the three units of English and the two units of mathematics required for admission to all colleges of the University, it is recommended that a student expecting to enter the College of Fine Arts should elect his work from the groups (a) to (d), so as to offer the following subjects:

2 units in one foreign language.
1 unit in science (physics, chemistry, botany, or zoology).
1 unit in a history (or United States history and civics).

If he shall not have included these subjects in his high school elections, it will be necessary for him to include them among his elections in college.

Since all the courses in fine arts leading to a degree require forty hours or eight quarters of foreign language before graduation, it is advisable to elect as much of this work in preparatory years as possible. It is also advisable that students intending to enter the course in architecture present credits for preparatory work in trigonometry and freehand drawing. After 1921, two years of modern foreign language will be included among entrance requirements.

More detailed information concerning admission is furnished in a separate section of the University Bulletin, known as Entrance Information.

Students intending to enter any of the music courses leading to a degree must satisfy the head of the department that they have completed in addition to the usual high school preparation the equivalent of four years' work in piano, showing that they are familiar with the rudiments and can play well scales and chords in all positions, the smaller sonatas of Haydn, Mozart and Beethoven, and easier compositions representative of the best literature for the piano.

**CURRICULA**

**FOR THE BACHELOR OF MUSIC DEGREE WITH A MAJOR IN APPLIED MUSIC (Piano, Violin, Voice)**

**FRESHMAN**

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
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<tr>
<td>Music 1 (Apprec.)</td>
<td>2</td>
<td>Music 2</td>
<td>2</td>
<td>Music 3</td>
<td>2</td>
</tr>
<tr>
<td>4 (History)</td>
<td>2</td>
<td>5</td>
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<td>5</td>
<td>2</td>
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<tr>
<td>7 (Sight S.)</td>
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<td>2</td>
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<tr>
<td>14 (Ear Tr.)</td>
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<td>15</td>
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<tr>
<td>10 (Chorus) elective</td>
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<td>English Comp.</td>
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**SOPHOMORE**

| Music 10 or elective | 1 | Music 10 (or elective) | 1 | Music 10 (or elective) | 1 |
| 68 (Applied)         | 3 | 69 (Applied)          | 3 | 70              | 3       |
| 51 (Harmony)         | 3 | 52             | 3 | 53             | 3       |
| Pol. Sci.            | 5 | Physics 51      | 5 | Physics 51     | 5       |
| Mod. Lang.           | 5 | Mod. Lang.       | 5 | Mod. Lang.     | 5       |
| **10**               |   | **19**          |   |                | 19      |

7
### Junior

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<tr>
<th>Autumn Quarter</th>
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<td>Music 10 or elective</td>
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<td>118 (Applied)</td>
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<td>120</td>
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<td>101 (Adv. Har.)</td>
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<td>103</td>
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<td>108</td>
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<td>104 (Adv. Hist.)</td>
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<td>105</td>
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<td>107 (Counterpoint)</td>
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<td>2</td>
<td>105</td>
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<td>110 (Instr. Form.)</td>
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### Senior

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<td>157 (Compos.)</td>
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### For the Bachelor of Music Degree with a Major in Composition

#### Freshman

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<tr>
<th>Autumn Quarter</th>
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<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>Music 1 (Appr.)</td>
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<td>Music 2</td>
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<td>4 (History)</td>
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<td>7 (Sight S.)</td>
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<td>14 (Ear Tr.)</td>
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#### Sophomore

<table>
<thead>
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<td>Music 10 (Chor.) or Elect.</td>
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<td>Physics 63</td>
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#### Junior

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<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
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#### Senior

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FOR THE BACHELOR OF MUSIC DEGREE WITH A MAJOR IN PUBLIC SCHOOL

MUSIC

FRESHMAN

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SOPHOMORE

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JUNIOR

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| TOTAL | 45 |

FOR THE DEGREE OF BACHELOR OF ARTS IN MUSIC

FRESHMAN

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SOPHOMORE

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FOR THE BACHELOR OF ARTS DEGREE IN MUSIC
### JUNIOR

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### SENIOR

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- (1) Among the music courses indicated above the following are required: 1-2-3, 4-5-6, 7-8-9, 31-32-33, 101-102-103.
- (2) Liberal Arts electives for junior and senior years must be chosen from courses in the senior college, except with the consent of the dean.

A total of forty hours of modern foreign language pursued either in the high school or in the University is required for a degree in the College of Fine Arts. If a student has finished this work in the high school, he shall substitute approved electives in the University. If he presents no foreign language for admission to the University, he must supply the deficiency in addition to the hours demanded by the respective curricula, without credit. If he presents on entrance two years of Latin, he may be excused from ten hours of the modern language requirement at the discretion of the dean.

Students of the public school music course are required to take Education 165 in the senior year. This practice teaching substitutes for the senior thesis.

### CURRICULUM IN ARCHITECTURE LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE

#### FRESHMAN

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<td>Archt. Design 5</td>
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#### SOPHOMORE

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#### JUNIOR

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### College of Fine Arts

#### Senior

**(Design Option)**

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<td>Heat. &amp; Vent. (M. E.) 183</td>
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**(Architectural Engineering Option)**

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#### Freshman

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#### Sophomore

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<td>Greek Art Φ &amp; Ψ</td>
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<td>Political Science</td>
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*The courses in art structure comprise the following: Freshman, principles of design; sophomore, needle designing, woodblock printing, design; junior, pottery, interior decorating, posters; senior, jewelry, landscape composition, design.*
### FOR THE DEGREE OF BACHELOR OF FINE ARTS WITH A MAJOR IN PUBLIC SCHOOL DRAWING

#### FRESHMAN

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#### SOPHOMORE

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#### JUNIOR

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#### SENIOR

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### FOR THE DEGREE OF BACHELOR OF FINE ARTS WITH A MAJOR IN MUSIC AND DRAWING

#### FRESHMAN

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<tr>
<td>Music 7 (sight singing)</td>
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#### SOPHOMORE

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<tr>
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<td>Music 15 (ear. tr. or elect.)</td>
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<tr>
<td>Music 34 (school music)</td>
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<td>Music 35 (school music)</td>
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<td>P. D. 9 (art struc.)</td>
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#### JUNIOR

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COLLEGE OF FINE ARTS

SENIOR

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<td>Music 121 (music sp.)</td>
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*Among the courses in education, Practice Teaching must be included in the senior year.

CURRICULUM IN ART LEADING TO CERTIFICATES OF PROFICIENCY FOR SUPERVISORS OF ART

FIRST YEAR

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SECOND YEAR

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DEPARTMENTS OF INSTRUCTION

The University reserves the right to withdraw temporarily any course which is not justified by the demand.

I. MUSIC

1-2-3. Music Appreciation.—This course is planned to aid not only music students but also all interested in music to become intelligent and discriminating listeners. Musical masterpieces, both instrumental and vocal, of different periods and forms, will be presented and discussed. Two credits per quarter; autumn, winter, spring.

Mrs. Van Ogle

4-5-6. History of Music.—The progress of musical development from the primitive period to the modern. Two credits per quarter; autumn, winter, spring.

Professor Glen

7-8-9. Sight Singing.—For prospective grade supervisors and for music students. Two sections—one for beginners and the other for students who have had some experience in sight singing. Two credits per quarter; autumn, winter, spring.

Assistant Professor Dickey

10. Choral Study.—The university chorus provides the opportunity, for those qualified, to study the more serious as well as the lighter forms of choral composition. Candidates must satisfy the
director as to the extent of their musical ability. One credit; autumn or winter.

14-15-16. Ear Training and Melody Writing.—Principles of melodic invention and training in hearing accurately; study in notation. Two credits per quarter; autumn, winter, spring. Dickey

17. Choral Study.—Part songs for men's voices. Candidates admitted only upon examination. Two credits; autumn. Glen

31-32-33. Applied Music (Freshman).
118-119-120. Applied Music (Junior).

Students of other colleges and schools may earn one or two credits per quarter in the applied music courses. Students of the College of Fine Arts carry a larger number of credits—one and one-half to three—as indicated in the set courses. Students enrolled in these courses will be given opportunity, upon demonstration of the required ability, to participate in the public recitals of the department.

Unless excused by reason of advanced standing upon entrance, students who major in courses in applied music will require two lessons a week, ordinarily, in order to cover the work necessary for a degree. One to three credits per quarter.

Piano—Venino, Van Ogle, Ferryman
Violin—Rosen
Voice—Glen, Bogardus

19-20-21. University Orchestra.—The University orchestra affords to the qualified students an unusual opportunity for the study of the better grades of orchestral composition. None is eligible to enter the course unless the director is satisfied of the ability of the applicant. One credit per quarter; autumn, winter, spring. Glen

22-23-24. University Band.—Competent players of band instruments are admitted to the band upon consent of the bandmaster. Two credits per quarter; autumn, winter, spring. Mr. Adams

25-26-27. Chamber Music.—Advanced study of the musical literature for string trios, quartets and quintets. One credit per quarter; autumn, winter, spring. Assistant Professor Rosen

28-29-30. Ensemble Singing.—A choral course for women. Only advanced students will be admitted. One credit per quarter; autumn, winter, spring. Glen

51-52-53. Harmony.—Ear training, analysis, and keyboard practice. Prerequisite, courses 7-8-9 and 14-15-16. Three credits per quarter; autumn, winter, spring. Assistant Professor Wood

54-55-56. School Music.—A course for supervisors. Two credits per quarter; autumn, winter, spring. Dickey

101-102-103. Advanced Harmony.—Prerequisite, courses 51-52-53. Three credits per quarter; autumn, winter, spring. Wood
104-105-106. History of Music, Advanced.—A detailed study of important periods and composers of modern music. Two credits per quarter; autumn, winter, spring. Van Ogle

107-108-109. Counterpoint.—Prequisite, courses 51-52-58. Two credits per quarter; autumn, winter, spring. Wood

110-111-112. Instrumental Form.—Analysis of many examples and simple exercises in composition. Prerequisite, courses 51-52-58. Two credits per quarter; autumn, winter, spring. Wood

118, 114, 115. Music Education.—Psychological and pedagogical principles and their application to the teaching of music. Two credits per quarter; autumn, winter, spring. Dickey

151, 152, 153. Musical Appreciation.—An appreciative study of some modern composers and schools. Two credits per quarter; autumn, winter, spring. Van Ogle

154, 155, 156. Music Education and Supervision.—This course is for seniors and students of experience. High school, normal school and institute music. Two credits per quarter; autumn, winter, spring. Dickey

157-158-159. Free Composition.—Choral work, piano accompaniment idioms, vocal and instrumental solos and pieces in the smaller forms. Prerequisite, courses 101-102-108. Two credits per quarter; autumn, winter, spring. Wood

160-161-162. Polyphonic Forms.—Free counterpoint applied to the invention, canon, fugue, etc. Analysis and composition. Prerequisite, courses 107-108-109. Two credits per quarter; autumn, winter, spring. Wood

College Courses in Applied Music

The courses outlined are not arbitrary. They indicate the amount and character of the work that the student is expected to cover for his musical degree. Credit will be given for equivalent courses pursued elsewhere prior to entering the University.

Students not wishing to offer work in applied music as a major, may receive credit for applied music work done under the supervision of others than the instructional staff of the department, upon satisfying departmental and University requirements by examination. Approved equivalents of applied music courses in piano, voice, and violin may also be credited.

Piano

Freshman and Sophomore Years.—Major and minor scales and arpeggios; studies selected from Czerny, Cramer, Loeschorn, Kullak, Hiller and Krause; sonatas by Scarlatti, Haydn, Clementi, Mozart and Beethoven; shorter compositions and inventions by Bach; and works from the classic and romantic schools.

Junior and Senior Years.—Scales in thirds, sixths and tenths; studies by Czerny, Clementi, Chopin, Brahms, MacDowell and Moszkowski; Well-tempered Clavichord and suites by Bach; sonatas, pieces including at least one concerto, taken from the classic, romantic or mod-
ern composers. At least one recital program must be played from memory from the repertoire studied.

**VOCAL MUSIC**

The course in vocal music is even more flexible than that outlined for piano study. The purpose is to develop the voice and musical understanding so that the best in vocal music may be faithfully interpreted. The fact of having studied vocal music for four years will not necessarily entitle a student to graduation.

**Freshman.**—Practical work in voice placing, breathing studies, from among the following: Concone, Op. 9; Marchesi, Op. 1; Panofka, Op. 85; Vaccai, Book I; simple Italian and English songs.

**Sophomore.**—Progressive tone work; Bordogni, Concone, Marchesi, Panofka, simple Italian arias, Italian and English songs.

**Junior.**—Tone work; advanced technique. Arias from Italian, French and German operas. German song classics; modern French and English songs.

**Senior.**—Tone work and technique. Repertoire in opera and oratorio; recitals; senior program.

**VIOLIN**


**Sophomore.**—Scales, Hrimaly; Studies, Blumenstengel Op. 38, Mazas, Books I and II; Concerto, Accoly; Scene de Ballet, De Beriot.

**Junior.**—Scales, Book II, Baillot; Exercises, Books I and II, Schraedieck; Etudes, Kreutzer, Fiorillo, Rode, Rovelli; Concerto, 9 and 7, De Beriot; Concerto, 2 and 8, Spohr, also one sonata by Handel.

**Senior.**—Scales, Rosen; Etudes, Dancla; Op. 78, Gavini; Op. 35, Dont; Sonata for violin alone, Bach; Concerto, Bruch, Mendelssohn, D-Minor, Wieniaski and No. 4 Vieuxtemps.

In the last semester the student is obliged to memorize one sonata by Bach for violin alone and one of the concertos given in the fourth year.

**FEES**

Since most of the work in the courses in applied music must necessarily be of the character of individual instruction, the student will be required to pay tuition fees for this work in addition to the general University tuition fee.

All fees are payable in advance to the Comptroller of the University. The following quotations of regular fees are based on one lesson per week. More than one lesson per week will be charged for at the same rate. All lessons are one-half hour in length.

**Piano.**—Mr. Venino, $17 per quarter; Mrs. Van Ogle, $17 per quarter; Miss Ferryman, $12 per quarter.

**Vocal Music.**—$17 per quarter.

Dean Glen will give individual instruction in singing and repertoire to a maximum number of ten students. The fee will be at the rate of $27 per quarter for one lesson weekly.
Violin.—Mr. Rosen, $17 per quarter.

Band and Orchestra Instruments.—Mr. Adams, $12 per quarter.

Arrangements may be made for individual instruction in other musical courses if necessary or desirable.

Piano for practice may be rented at the music department at the following rates:

One hour daily, $3 per quarter.
Two hours daily, $5 per quarter.

All rental charges must be paid in advance. No rebate in these charges will be allowed. Lessons lost through enforced absence may not be made up unless the teacher in charge has been previously notified of the intended absence and is willing to accept the excuse for the absence.

II. ARCHITECTURE

A student should have some previous training in free hand drawing and he will be required to confer with the head of the department as to his special qualifications for taking the subject. It is desirable that a student have credits in plane geometry, algebra through quadratics, trigonometry, physics, and at least two years of modern language. Forty hours of modern language will be required before graduation. Twenty hours are provided for in the curriculum.

Methods of Instruction.—The plan of study recognizes that architecture is essentially a fine art, the practice of which must be based upon a thorough knowledge of construction and of the practical requirements of buildings. Technical training which has not recognized the importance of the knowledge of the principles of design has failed notably to raise the skilled draughtsman to the position of an architect.

The University recognizes that its function in teaching the profession is to equip men to obtain not only a general knowledge of the subject of architecture, but that they may become able to cope with the problems that occur in actual practice.

It must be recognized, however, that knowledge of design is the most essential subject in a course preparing students for the profession of architecture.

Design.—The program of studies is so arranged as to allow students to give the greater part of their afternoons to the work in the draughting room. This work will be largely problems in architectural design presented as far as possible with the object of developing technical skill without hindering individually in expression. The problems after the freshman year will be judged by a visiting committee of architects appointed by the dean and the head of the department. All drawings made by the students are the property of the department until returned by the department to the students.

Construction.—The theory and practice of construction is taught as a necessary basis for and in connection with architectural design and is such as to prepare students in the best way for architectural practice.
It is strongly recommended that the student supplement his university training by working in an architect's office and three months of office work at least will be required of a student before a degree may be obtained. This three months of office work may be substituted for a thesis but only upon the approval of the head of the department of architecture.

Engineering.—At the beginning of the fourth year a student, upon the approval of the head of the department, may elect a fourth year course in architectural engineering. This course is distinct from that in fourth year design and meets a practical need for added training in the engineering and administrative problems of the practice of architecture.

Prizes and Competitions.—An annual prize of twenty dollars in gold, donated by William W. Kellogg for the best designs for tile or faience, is awarded to the successful competitor among juniors and seniors in architecture and design. The program for the competition is arranged by the department of architecture each year. A committee of visiting architects will act as judges.

COURSES

1-2-3. History and Elements of Architecture.—Illustrated lectures and exercises in drawing and simpler elements of buildings. Excursions will be made to buildings and to builders' supply houses. In second and third quarters a general course in the history of architecture. Juniors in department of home economics and majors in painting and design take first and second quarters consecutively, receiving three credits first quarter. In the first quarter one two-hour laboratory period per week is required of juniors in home economics and juniors majoring in painting and design. One credit is added for this work. Two credits per quarter; autumn, winter, spring.

Associate Professor Gould

4-5-6. Architectural Design.—Practical methods of presenting an architectural problem by means of plan, section and elevation. Individual instruction with occasional conferences. Recommended to students in engineering. Three credits per quarter; autumn, winter, spring.

Mr. Sexsmith

7. Descriptive Geometry.—Training in draftsmanship and the ability to read drawings. Two three-hour laboratory periods per week. Three credits; autumn.

Sexsmith

8. Shades and Shadows.—Construction by descriptive geometry of shades and shadows found in architectural renderings. Prerequisite, course 7. Two three-hour laboratory periods per week. Three credits; winter.

Sexsmith

9. Perspective Drawing.—The theory of architectural perspective from simple problems in single point perspective up to and including the more complicated problems. Office methods and short-cut methods will be studied and compared with the theory. Two three-hour laboratory periods. Three credits; spring.
10-11-12. *Free Hand Drawing.*—The fundamentals of free hand drawing and free hand perspective. Drawing in charcoal or crayon from cast or architectural ornament and from still life. One credit per quarter; autumn, winter, spring.

47-48. *Mechanics.*—Statics; mechanics of building materials. No prerequisites. Five credits per quarter; autumn, winter. Sexsmith

51-52-53. *History and Elements of Architecture.*—First quarter, Egyptian, Greek and Roman architecture; second and third, Byzantine, Romanesque and Gothic, with concurrent study of outlines of general history. Illustrated lectures. Sophomore course, but may be taken the autumn quarter as a part course. Required of all students in the department and open to all students in the University. Two credits per quarter; autumn, winter, spring. Gould

54-55-56. *Architectural Design.*—Problems in design and planning. Society in Beaux Arts Architects program will be used and work sent to New York City for judgment in competition with work from leading architectural schools. Laboratory fee, $2. Five credits per quarter; autumn, winter, spring. Gould

60-61-62. *Building Construction and Inspection.*—Lectures on methods employed in building construction, supplemented by detail drawing of various parts of buildings of all types. Visits will be made to the manufacturing plants of building materials and to all types of buildings under construction. Two credits per quarter; autumn, winter, spring. Mr. McClelland

72. *Modeling.*—Studies in clay of architectural ornament. One credit; autumn. Mr. Wehn

78-79. *Free Hand Drawing.*—Studies of architectural ornament and cast of the human figure. One credit per quarter; winter, spring.

101-108-103. *History of Architecture.*—The architecture of the Renaissance; problems in ornamental design and planning. Two credits per quarter; autumn, winter, spring. McClelland

104-105-106. *Architectural Design.*—Advanced problems in ornamental design and planning as applied to different materials. Problems of industrial layouts, city squares, playgrounds, etc. Laboratory fee, $2. Three credits per quarter; autumn, winter, spring. McClelland

112. *Modeling.*—Design of simple architectural forms. One credit; autumn. Wehn

113-114. *Water Color.*—Still life studies, out-door subjects and architectural rendering. One credit per quarter; autumn, spring. McClelland

115-116. *Sanitation and Plumbing.*—Methods of sewage disposal and water supply in modern buildings; modern appliances and office practice; specifications. One credit per quarter; autumn, winter. Sexsmith

151-152-153. *History of Architecture.*—Modern architecture; city and industrial planning. Prerequisite Architecture 108. Two credits per quarter; autumn, winter, spring. Gould
164-165-166. Architectural Design.—Beaux Arts Class A projects first two quarters; third quarter, thesis. Five credits per quarter; autumn, winter, spring. McClelland

167-168-169. Free Hand Drawing.—Studies from life. Two credits per quarter; autumn, winter, spring.

166-167-168. Art Appreciation.—A survey of the history of art, principles of composition and arrangement. One credit per quarter; autumn, winter, spring.

Electives.—Electives may be chosen from among the following subjects: Analytical geometry, calculus, modern language, music, economics, naval architecture, psychology, public speaking, geology 5, public speaking and debate 1.

In addition students who elect design in their fourth year may select from the following subjects: Bridges, higher structures, structural materials (C. E. 167), frame structures (C. E. 184), electrical engineering 11.

These two courses are suggested as electives in the spring quarter of the junior year in architecture: Engineering geology (Geology 5), and practical public speaking (Dramatic Art 81).

III. SCULPTURE, PAINTING AND DESIGN

Advanced students applying for credit must present work to head of the department.

3. Principles of Design.—The principles of design in line, dark and light, and color. For students in home economics. Three credits; winter. Miss Ziese

5-6-7. Freehand Still Life and Cast.—The technique of drawing from elementary forms, with all mediums—water color, oil, pen, etc. Prerequisite for any subsequent course in drawing and painting; cast drawing from models of antique and modern sculpture, preparatory to drawing from living model. Three credits per quarter; autumn, winter, spring.

9-10-11. Art Structure.—A study of the principles of design in line, dark and light, and color, to develop power of appreciation and creation of good design. Prerequisite for any subsequent course in art structure. Laboratory deposit, $1. Four credits per quarter; autumn, winter, spring. Ziese

16-17-18. Art Appreciation.—Historical development, from the art of primitive man to the present day, including the anatomical structure and function of the human body as related to artistic construction. One credit per quarter; autumn, winter, spring.

53. Art Structure.—Working out simple units, borders, and all-over patterns with needle and cloth as medium. Four credits; autumn, winter, spring. Ziese

54. Art Structure.—Bookbinding and woodblock printing. Four credits; winter. Ziese

55. Art Structure.—Woodblock printing and furniture decoration. Designing of woodblocks and printing on textiles. Four credits; spring. Ziese
56-57-58. Illustration and Life Study.—Drawing and painting, from the model in various mediums, for reproductive processes such as magazines, newspapers and commercial work, including a study of the anatomy of the human figure. Prerequisite, freshman freehand. Laboratory deposit, $8. Three credits per quarter; autumn, winter, spring.

72. Clay Modeling.—Construction of plaster moulds, elementary construction; modeling in clay and wax. Three credits; autumn.

101. Public School Drawing.—For drawing supervisors. The working out of such drawings as would be used in the public schools. Three credits; spring.

108-104. Art Structure. Pottery.—Advanced students will be allowed to work for advanced credits. Laboratory deposit, $2. Three credits per quarter; autumn, winter.

105. Art Structure.—Design as applied to lettering, advertising, and cartooning. Three credits; autumn.

106. Art Structure.—Posters. Advanced

107-108-109. Portrait.—Portraiture in all mediums. Prerequisite, freshman freehand. Laboratory deposit, $8. Three credits per quarter; autumn, winter, spring.

111-112. Art Structure.—Interior decoration. Three credits per quarter.

*151-152. Landscape.—Design.

153. Methods of Teaching Art.—Courses of study, methods and material. Five credits; autumn.

154. Practice Teaching.—Teaching under supervision in city schools. Five credits; winter.

157. Art Structure.—Simple metal work—etching, sawing, and hammering of copper and brass. Laboratory deposit, $2. Three credits; autumn.

158. Art Structure.—Jewelry. Three credits; winter.

159. Art Structure.—Landscape composition. Three credits; spring.

160-161-162. Portrait and Life.—Three credits per quarter; autumn, winter, spring.

163-164-165. Mural Decoration.—Decorative compositions done in oil, applied to the beautifying of wall spaces, in harmony with the scheme of architecture. Prerequisite, junior standing. Four credits per quarter; autumn, winter, spring.

166. Landscape.

169-170-171. Textile and Costume Drawing.—Two credits per quarter; autumn, winter, spring.

*Not offered in 1919-1920.

IV. DRAMATIC ART

The work in this department is planned for three classes of students: (a) those who desire some knowledge of dramatic art as part of a liberal education; (b) those who need some knowledge of dramatic
art as part of their technical training; and (c) those who wish to pursue the subject more intensively than either of the former groups.

For a major the department requires 38 to 60 credits, of which 24 must be in the department, including courses 1-2-3 and 21-22-23.

Courses 1-31 (inclusive) may be entered at the beginning of the first, second or third quarters.

COURSES

1-2-3. Dramatic Literature.—Introductory course. Selected plays of the great dramatists are studied with the purpose of increasing the students' power of analysis and appreciation. Three credits per quarter; autumn, winter, spring. Professor Gorsuch

21-22-23. Shakespeare.—Dramatic reading and interpretation of selected plays. Courses 21-22-23 have as their general purpose the interpretation of the drama. Selected plays are used as exercises in dramatic delivery and for the study of effectiveness in the reading of lines. The special aims are to correct personal mannerisms of vocal expression and to encourage habits of speech that are right and natural; to cultivate proper instinctive expression, and the use of imagination in conceiving the situation, relation and characterization as these are manifested in utterance. Three credits per quarter; autumn, winter, spring. Gorsuch

27-28-29. Contemporary Drama.—Dramatic reading and interpretation of selected plays. For further information see courses 21-22-23. Three credits per quarter; autumn, winter, spring. Gorsuch

Work to be announced later will include courses in Dramatic Composition, Producing, General Stagecraft, Acting.

31. Practical Public Speaking.—An introductory course. Principles of public speaking are studied and short, original talks are prepared and delivered. Prerequisite, English 1. Three credits per quarter; autumn, winter, spring. Gorsuch

COURSES IN ALLIED DEPARTMENTS

Courses in other departments listed below may be counted towards a major in dramatic art. These courses are to be taken in the order given, which may not be changed except with the consent of the head of the department of dramatic art. For fuller information regarding these courses the student is referred to the section Departments of Instruction.

ENGLISH

78-74-75. Contemporary Literature.—Three credits per quarter; autumn, winter, spring.

103-104-105. Contemporary Literature.—Three credits per quarter; autumn, winter, spring.

123. Philosophy in English Literature of the Nineteenth Century. —Five credits; spring.
180-181-182. The English Drama.
187. Philosophy in Contemporary Drama.—Five credits; spring.

**Physical Education**

104-105-106. Methods of Folk Dancing.—Two credits per quarter.

**Philosophy**

129. Esthetics.—Five credits; spring.

**Classical Languages and Literature**

**Latin**

70. Plautus and Terence.—Three credits; spring.

**Romantic Languages and Literature**

**French**

41. Phonetics.—Three credits; any quarter.

*141-142-143. The French Drama.

**Germanic Languages and Literature**

*100-102. Schiller and Goethe.

103-104-105. Recent Writers.—Three credits; autumn, winter, spring.

*152. Goethe's Faust.

*Not offered in 1919-1920.

**Scandinavian Languages and Literature**

109-110-111. Modern Scandinavian Authors in English Translation.—One credit per quarter; autumn, winter, spring.

The following are suggested as elective that may be counted toward the degree.

**Classical Languages and Literature**

8-9-10. Greek Art.—One credit per quarter; autumn, winter, spring.


**English**

141-142-143. Social Ideals in English Literature.—Three credits per quarter; autumn, winter, spring.

The Georgian Poets.

174-175-176. Romantic and Victorian Poets.—Three credits per quarter; autumn, winter, spring.

183-184-185. General Literature.—Three credits per quarter; autumn, winter, spring.

**Law**

103-104-105. Contracts.—Four, two, and three credits, respectively for autumn, winter, and spring quarters.
PSYCHOLOGY

1. General Psychology.—Five credits; any quarter.
121. Applied Psychology.—Five credits; winter.
126. Abnormal Psychology.—Five credits; winter.

SOCIOLOGY

Social Psychology.

MUSIC

151, 152, 153. Musical Appreciation—Two credits per quarter; autumn, winter, spring.

ARCHITECTURE

1-2-3. History and Elements of Architecture.—Two credits per quarter; autumn, winter, spring.

SCULPTURE, PAINTING, AND DESIGN

8. Principles of Design.—Three credits; winter.
6-6-7. Freehands Still life and cast.—Three credits per quarter; autumn, winter, spring.
16-17-18. Art Appreciation.—One credit per quarter; autumn, winter, spring.

SUBJECTS PRESENTED BY DEPARTMENTS OF OTHER COLLEGES

The following subjects, given in departments of other colleges of the University, are included in the required curricula, or are useful electives for different lines of work in fine arts. They are described in the section of the General Catalogue entitled “Departments of Instruction” (also published as a separate bulletin, Section 15).

Education.—For courses in education see Departments of Instruction.

Civil Engineering.—Plane surveying, mechanics, reinforced concrete, frame structures, structural materials.

Electrical Engineering—Electricians’ course.

Mechanical Engineering—Steam engineering, heating and ventilation.

English.—Composition.

Forestry—Wood analysis.

Law—Business Law.

Mathematics.—Mathematics 57-58-59 (for architects).

Military Science.—Required for two years. Elective R. O. T. C. course thereafter.

Modern Language.—See descriptions of modern language departments in Departments of Instruction.

Philosophy.—Esthetics.

Physical Education.—Required of all women and of men not taking military science, for two years. Twelve credits.

Physics.—General physics, acoustics, and illumination.

Political Science.—See description in Departments of Instruction.

Psychology.—General psychology.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ...................................... Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students .......................... Friday and Saturday, September 26 and 27
Registration of all other students ................................ Monday and Tuesday, September 29 and 30
Instruction begins .............................................. Wednesday, October 1
President's annual address ........................................... Friday, October 3, 10 a. m.
Women's assembly ................................................. Friday, October 10, 11 a. m.
Thanksgiving-recess .............................................. Wednesday, November 26, 6 p. m. to Monday, December 1, 8 a. m.
Quarter examinations ............................................ Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days .............................................. Friday and Saturday, January 2 and 3
Instruction begins ................................................. Monday, January 5
Quarter examinations ............................................ Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days .............................................. Friday and Saturday, April 2 and 3
Instruction begins ................................................. Monday, April 5
Campus Day ...................................................... Friday, April 23
Junior Day ....................................................... Saturday, May 29
Quarter examinations ..........................................
... Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ................................ Saturday, June 19
Baccalaureate Sunday ............................................. Saturday, June 20
Commencement and Alumni Day ................................... Monday, June 21

SUMMER QUARTER

Registration days .............................................. Tuesday and Wednesday, June 22 and 23
Instruction begins ................................................. Thursday, June 24
Quarter examinations ........................................... Monday and Tuesday, August 30 and 31
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Term ends March, 1920

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Term ends March, 1920

ELDRIDGE WHEELER ....................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER....................................................Yakima
Term ends March, 1922

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Term ends March, 1922

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Term ends March, 1923

RUTH KARR McKEE....................................................Olympia
Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
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DAVID THOMSON, B. A. Dean of the College of Liberal Arts Denny Hall
HENRY LANDES, A. M. Dean of the College of Science Science Hall
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WILLIAM ELMER HENRY, A. M. Director of Library School
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FREDERICK MORGAN PADELFORD, Ph. D. Acting Dean of the Graduate School Denny Hall
J. ALLEN SMITH, Ph. D. Dean of the Graduate School Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. Director Administration Hall
EVERETT FRANCIS DAHM, A. B. Assistant Director Administration Hall

1Absent on leave 1918-19.
2Absent on leave 1918-19; resigned 1919.
3Detached on special service 1917-19.
4In charge of service 1918-1919; resigned July 31, 1919.
THE COLLEGE OF FISHERIES

Faculty

Henry Suzallo, Ph. D. (Columbia), LL. D. (California), President.
John Thomas Condon, LL. M. (Northwestern), Dean of Faculties.
John N. Cobb, Professor of Fisheries, Director.

Edmond Stephen Meany, M. L. (Wisconsin), Professor of History.
Trevor Kingbird, A. M. (Washington), Professor of Zoology.
Frederick Morgan Fabelford, Ph. D. (Yale), Professor of English.
Frederick Arthur Osborne, Ph. D. (Michigan), Professor of Physics and Director of the Physics Laboratories.
Charles Willis Johnson, Ph. C., Ph. D. (Michigan), Professor of Pharmaceutical Chemistry, and State Chemist.
Theodore Christian Faye, Ph. D. (Chicago), Professor of Botany.
Robert Endouard Moritz, Ph. D. (Nebraska), Ph. n. D. (Strassburg), Professor of Mathematics.
Harvey Lantz, A. M. (De Pauw), LL. B. (Kent), Professor of Law.
Everett Owen Eastwood, C. E., M. A. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.
Henny Krutzer Benson, Ph. D. (Columbia), Professor of Industrial Chemistry.
John Wninzel, Ph. D. (Wisconsin), Professor of Bacteriology.
Stevenson Smith, Ph. D. (Pennsylvania), Professor of Psychology.
Stephen Ivan Miller, A. B. (Stanford), LL. B. (Michigan), Professor of Transportation and Director of the College of Business Administration.
Samuel Latimer Boothbott, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.
William Mathias Dine, Ph. D. (Illinois), Associate Professor of Chemistry.
George Samuel Wilson, B. S. (Nebraska), Associate Professor of Mechanical Engineering.
J. Anton de Haas, A. M. (Harvard), Ph. D. (Stanford), Professor of Business Administration.
Edwin James Saunders, A. M. (Harvard), Assistant Professor of Geology.
Eli Victor Smith, Ph. D. (Northwestern), Assistant Professor of Zoology.
Horace James Macintire, S. B. (Massachusetts Institute of Technology), M. M. E. (Harvard), Assistant Professor of Mechanical Engineering.
Fred Harvey Heath, Ph. D. (Yale), Assistant Professor of Chemistry.
John Locke Worcester, M. D. (Medical School, University of Alabama), Assistant Professor of Zoology.
Hiram Vang Tantah, B. S. (Oregon Agricultural College), Acting Assistant Professor of Chemistry.
Frances Ethel Hindman, Ph. C., M. S. (Washington), Instructor in Pharmacy, and Assistant State Chemist and Bacteriologist.
Nathan Fasten, Ph. D. (Wisconsin), Instructor in Zoology.
Butledge Wilfank, Ph. D. (Chicago), Instructor in Psychology.
PURPOSE AND LOCATION

The College of Fisheries was established in 1919. It has a two-fold purpose: First, to afford instruction in the principles and practices of fishery; second, to promote the interest of fisheries in the state of Washington and on the Pacific coast by encouraging the right use of fishery resources.

The college has exceptional advantages in its location. The university campus is located on the shores of Lakes Washington and Union, which bodies of water are connected by canals with each other and with Puget Sound. In the latter are carried on extensive commercial fisheries for fishes, oysters, clams, crabs, etc., while fleets of vessels with headquarters at Seattle and other cities on the Sound, carry on extensive fisheries in the ocean adjacent to the Washington coast, and on the fishing banks along the Alaska coast. Numerous canneries, smokehouses, cold storage plants, fertilizer plants, etc., are to be found in Seattle and other places on the Sound. A number of fish hatcheries are owned and operated in the state of Washington by the federal and state governments. At Friday Harbor the University owns and operates an excellent marine biological laboratory. These many advantages present unrivaled opportunities for the studying of the fisheries, aquatic life and fish culture.

Degrees.—The four-year curricula in the College of Fisheries lead to the degree of bachelor of science (B. S.) in fisheries.

The degree of master of science (M. S.) in fisheries will be conferred upon any graduate of the four-year curricula who has completed at least one year of graduate work and has presented a satisfactory thesis with the grade of A, B, or C. A graduate of any other institution of equal rank will be given full graduate standing. The selection of work for this degree must, in each case, be approved by the Director of the College.

ADMISSION

Freshman Standing.—A student must offer for admission to freshman standing in the University fifteen units by examination or by certificate from an accredited school from which he has graduated. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented).
(a) Latin and Greek (not less than two units of Latin or one of Greek counted).
(b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).
(c) History, civics, economics (at least one unit to form a year of consecutive work in history).
(d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).
2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma; not more than four, however, to be in vocational subjects.
Advanced Standing.—Credit will be given for subjects pursued at other colleges of recognized rank upon presentation to the Registrar of certificates that such subjects have been satisfactorily completed. Graduates of this institution and others of similar rank are admitted to graduate standing. (See Entrance Information, page 18).

Special Students.—Persons twenty-one years of age, or over, who are not regularly qualified for admission, but who have pursued special lines of study related to fishery, may be admitted as special students, on giving satisfactory evidence of their ability to pursue the work and conforming with the regulations regarding the admission of special students. (See Entrance Information, page 17).

Short Courses for Fishermen and Fish Culturists.—These courses will be given during 1920, providing there are a sufficient number of applicants. Applicants must be at least twenty years old and show ability to carry the work with profit to themselves. Admission to courses is without examination.

Laboratories and Facilities for Study

As the College of Fisheries was established in 1919, its laboratory equipment is not at present as complete as it is hoped to make it eventually. In the list noted below the laboratories are described as they will be when completed.

Ichthyology Laboratory.—The ichthyology laboratory contains an extensive collection of named fishes, particularly rich in species from Puget Sound and Alaska. By exchange and other means it is hoped to build up a representative series of the fishes found in American waters, with particular reference to forms of economic importance. The foundation has also been established for a collection to illustrate the species of shellfish, crustaceans, and other invertebrate animals constituting the bases for the corresponding industries.

Fisheries Laboratories.—This is equipped with working models of the larger forms, and fully rigged types of the smaller forms of fishery apparatus, also detailed plans for the construction of same; equipment for the manufacture, repair, care and preservation of nets; models of fishing vessels and boats, and samples of various fishery products prepared for market in the United States.

The curing laboratory contains all the necessary equipment for the pickling, dry-salting, and mild-curing of fishery products.

It is expected that eventually a fully equipped cannery will be installed in Fisheries Hall, where, in addition to practical instruction in canning methods, tests may be made of various species, while research in food canning will be carried on under conditions similar to those prevailing in commercial plants.
Ultimately a small refrigeration and cold storage plant will be installed for the purpose of economic study of the various methods of freezing and keeping fishery products in cold storage.

A smokehouse will be built for the purpose of carrying on experiments in the smoking of various species and their utilization as food either in this condition or canned.

The drying laboratory will be equipped with hot-air blowers and other devices for the artificial drying of fishery products.

The testing room will have a constant temperature of approximately 98° Fahrenheit, and in it samples of canned fishery products may be incubated, by means of which swells may be separated from the other cans and the sufficiency of the process used in the cannery determined. Various vacuum gauges and can testers will also be available.

Fish Hatchery.—The fish hatchery will occupy about one thousand square feet of floor space in the fisheries building. It will be furnished with hatching troughs, baskets, and other essential equipment for the care of 500,000 salmon or trout eggs. A complete equipment consisting of batteries of open-top and closed-top jars is provided for the care of several millions of semi-buoyant eggs. Feeding tanks and aquaria are also provided in which experimental work in fish culture may be carried on.

Within easy reach of the university are located state and federal fish hatcheries where a study may be made of the actual conditions under which fish culture is carried on. A model hatchery with feeding tanks and aquaria is located in the office building of the State Fish Commissioner in the city. This is open at all times for inspection.

Shellfish Culture.—On Puget Sound and in Hood Canal are located numerous private oyster beds where cultivation has been practiced for some years. The state also owns certain oyster reserves which could be utilized for experimental purposes. These are all within reasonable distance of Seattle and are available for study purposes by the students of the college.

Fishery Operations.—Trap netting, purse and haul seining, gill netting, trolling, hand and long-line fishing, oyster gathering, clam digging, kelp harvesting, and other forms of commercial fishing, are carried on either in the harbor of Seattle, or waters adjacent, during the proper seasons, and can be observed and studied on the ground.

Commercial Plants.—In or near Seattle and available for study are plants for the canning of salmon, pilchards, clams, etc.; the milt-curing of salmon; the pickling of salmon, herring, sablefish, etc.; the freezing and cold storage of salmon, halibut, sablefish, herring, steelhead trout, and smelt; the smoking of salmon, sablefish, herring, sturgeon, etc.; the extraction of oils from fishery products and the prep-
aration of fish meal and fertilizer from the residue; and the extraction of chemical products from kelp and other aquatic plants. Two large can-making establishments, several plants manufacturing canning machinery, and a number of others supplying various machines and supplies for the fisheries, are also located in Seattle. Such of these industries as are not in Seattle are conveniently situated on Puget Sound, and the transportation costs to them would be very low.

Aquarium.—In the Fisheries building of the State Fish and Game Commission, at Fourth avenue and University street, Seattle, a working aquarium is available for study purposes.

Field Excursions.—Much of the instruction in fish culture and fisheries technology is given in the field, necessitating frequent excursions to nearby hatcheries, fishing camps, oyster beds, and industrial plants. The expenses of these excursions will be comparatively small.

Summer Work.—Students of fisheries are urged to spend their summer vacation in some line of practical work connected with the fishery industry. As the college is convenient to the more important fisheries and hatcheries of the Northwest coast, ample opportunity is offered for summer employment. Students not only acquire valuable experience in this way, but earn a considerable portion of their university expenses.

CURRICULA

I. FISH CULTURE

FRESHMAN

<table>
<thead>
<tr>
<th>First Quarter</th>
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<tr>
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<td>Economics 1.</td>
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SOPHOMORES

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<tr>
<td>Zoology</td>
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<td>Zoology 2</td>
<td>5</td>
<td>Aquatic Botany 55</td>
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<td>Ichthyology</td>
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<td>Ichthyology 5.</td>
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<td>Physics 2 or 48</td>
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<tr>
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<td>2</td>
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<td>2</td>
<td>Elective</td>
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<tr>
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JUNIORS

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<td>Fish Culture 102</td>
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<td>Fish Culture 103</td>
<td>5</td>
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<td>Plankton (Zool. 106)</td>
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<td>Elective</td>
<td>5</td>
<td>Parasitology (Zool. 107)</td>
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<tr>
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SENIORS

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<td>Culture Problems 109</td>
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<tr>
<td>Fish Diseases (Zool. 109)</td>
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II. FISHERIES TECHNOLOGY

FRESHMAN

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<tbody>
<tr>
<td>Zoology 1</td>
<td>5</td>
<td>Zoology 2</td>
<td>5</td>
<td>Parasitology (Zool. 107)</td>
<td>5</td>
</tr>
<tr>
<td>Intro. to Fisheries 1</td>
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<td>Intro. to Fisheries 2</td>
<td>2</td>
<td>Chemistry 3</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry 5</td>
<td>8</td>
<td>Chemistry 6</td>
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<td>Electives</td>
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<tr>
<td>English</td>
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<td>English</td>
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<td>Military Science</td>
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</table>
While no regular fishing curriculum has been tabulated, students desiring it can, by means of electives given, easily arrange one. Courses in navigation, meteorology, oceanography and gas engineering are available, and these, in conjunction with either fish culture or fisheries technology curriculum, will amply answer the purpose.

DEPARTMENTS OF INSTRUCTION

FISHERIES

1-2. Introduction to Fisheries.—A general review and history of the world's fisheries. Two credits per quarter; autumn, winter.

Professor Cobb

3-4-5. Ichthyology.—The structure, classification and habits of economic fishes. Course 5 will also include other economic marine animals. Prerequisite, Zoology 1, 2. Laboratory deposit, $2. Five credits per quarter; autumn, winter, spring.

Professor Kincaid

6. Pacific Fisheries.—A general review and history of the fisheries of the Pacific. Prerequisite, course 1-2. Two credits; spring.

Cobb

101-102-103. Fish Culture.—The developmental history and artificial propagation of economic fishes. Prerequisite, courses 3-5, and Zoology 5. Laboratory deposit, $2. Five credits per quarter; autumn, winter, spring.

Cobb

104-105. Fishery Methods.—The construction and uses of apparatus; handling and transportation of products, etc. Prerequisite, courses 1-2, 6. Three lectures and two laboratory periods. Laboratory deposit, $2. Five credits; winter, spring.

Cobb

106. Preparation of Fishery Products.—The curing and preservation of fishery products. Prerequisite, courses 2-5. Three lectures and two laboratory periods. Laboratory deposit, $2. Five credits; autumn.

Cobb

107, 108, 109. Problems in Fish or Shellfish Culture.—Students with the proper preparation, which should include at least 15 hours work in fish culture or 15 hours work in shellfish culture and course
will be assigned special topics to be worked upon under the direction of one of the instructors. Five credits per quarter; autumn, winter, spring.

110, 111, 112. Problems in Fisheries.—Students with the proper preparation, which should include at least 15 hours work in fishery methods and preparation of fishery products, will be assigned special topics to be worked upon under the direction of the instructor. Five credits per quarter; autumn, winter, spring.

*112-118. Shellfish Culture.—The development and propagation of shellfish and crustaceans. Elective. Prerequisites, junior standing and course 5. Laboratory deposit, $2. Five credits per quarter; autumn, winter.

*114. Terrapin, Turtle, Frog, Etc., Culture.—The developmental history and propagation of terrapins, turtles, frogs, etc. Elective. Prerequisite, course 5. Laboratory deposit, $2. Five credits; spring.

Courses Given by Other Departments

Fuller descriptions of these courses may be found in the section of the General Catalogue entitled "Departments of Instruction" (also published as a separate bulletin, Section 18).

Astronomy 1.—Navigation. Five credits; winter.

Bacteriology 101.—General bacteriology. Four credits; autumn or summer.

102.—Sanitary bacteriology. Four credits; winter or summer.

Botany 53.—Aquatic botany. Five credits; spring.

130.—Economic marine botany. Four credits. autumn.

Chemistry 1, 2, 3.—General Chemistry. Five credits per quarter; autumn, winter, spring.

3, 1, 2.—A repetition of the above; spring, autumn, winter.

5, 6.—General Chemistry. Five credits per quarter; autumn, winter.

21, 22, 23.—General Chemistry. Five credits per quarter; autumn, winter spring.

22, 23, 21.—A repetition of the above; spring, autumn, winter.

27, 28.—Organic Chemistry.—Five credits per quarter; autumn, winter.

51.—Engineering Chemistry. Three credits; spring.

101-102-103.—Quantitative Analysis. Four credits per quarter; autumn, winter, spring.

121-122-123.—Industrial Chemistry. Five credits per quarter; autumn, winter, spring.

133.—Sanitary Chemistry. Three credits; autumn.

*These courses will not be given in 1919-20.
141, 142, 143.—Physiological Chemistry. Five credits per quarter; autumn, winter, spring.

Economics and Business Administration 4.—General Economics. Five credits; autumn, winter, or spring.

10.—Business Principles. Three credits; winter.

42.—Introduction to Statistics. Three credits; winter.

145.—Business Statistics. Two credits; spring.

171.—Organization of Foreign Trade. Three credits; autumn.

191.—Business Management. Three credits; autumn or spring.

195.—Industrial Management. Three credits; autumn.

English 1, 2, 3.—Composition and Literature. Three credits per quarter; autumn, winter.

Geology 11.—Meteorology and Elementary Climatology. Three to five credits; autumn or winter.

114.—Oceanography. Two credits; spring.

History 154.—Development of the Pacific. Three credits; winter.

Law 165.—Admiralty. Three credits; autumn.

Mechanical Engineering 88.—Steam engineering. Three credits; autumn, winter, or spring.

140.—Steam Engineering laboratory. Three credits; autumn; winter, or spring.

180.—Refrigeration. Two credits; spring.

199.—Gas Engineering. Three credits; winter.

Mathematics 4.—Plane Trigonometry. Five credits; autumn, winter, or spring.

Military Science.—Required of all freshmen and sophomores; advanced R. O. T. C. course elective for qualified juniors and seniors.

Modern Language.—For modern language courses open to election see the statement of the modern language department in the Departments of Instruction bulletin.

Pharmacy 16.—Food Laws. One credit; winter.

105, 106, 107.—Chemistry and Analysis of Food. Five credits per quarter; autumn, winter, spring.

Physics 1, 2.—General Physics. Five credits per quarter; autumn, winter.

47, 48, 49.—Elementary Physics. Five credits; autumn, winter, spring.

Psychology 1.—General Psychology. Five credits; autumn, winter, or spring.

121.—Applied Psychology. Three credits; winter.
Zoology. 1, 2.—Elements of Zoology. Five credits per quarter; autumn and winter; repeated winter and spring.

5.—General Embryology. Five credits; spring.

106.—Plankton. Five credits; autumn.

107.—Parasitology. Five credits; spring.

108.—Biology of the Seas. Three credits; spring.

109.—Diseases of Fishes. Five credits; autumn.

CORRESPONDENCE

Inquiries in regard to the College of Fisheries may be addressed to the Director of the College. All correspondence regarding admission should be sent to the Registrar of the University.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ................................................................. Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students .............................................. Friday and Saturday, September 26 and 27
Registration of all other students .......................................................... Monday and Tuesday, September 29 and 30
Instruction begins ................................................................. Wednesday, October 1
President's annual address ..................................................... Friday, October 3, 10 a.m.
Women's assembly ................................................................. Friday, October 10, 11 a.m.
Thanksgiving recess ................................................................. Wednesday, November 26, 6 p.m., to Monday, December 1, 8 a.m.
Quarter examinations ....................................................................... Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ................................................................. Friday and Saturday, January 2 and 3
Instruction begins ................................................................. Monday, January 6
Quarter examinations ....................................................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ................................................................. Friday and Saturday, April 2 and 3
Instruction begins ................................................................. Monday, April 5
Campus Day ................................................................. Friday, April 28
Junior Day ................................................................. Saturday, May 29
Quarter examinations ....................................................................... Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ................................................. Saturday, June 19
Baccalaureate Sunday ................................................................. June 20
Commencement and Alumni Day ........................................................ Monday, June 21

SUMMER QUARTER

Registration days ................................................................. Tuesday and Wednesday, June 22 and 23
Instruction begins ................................................................. Thursday, June 24
Quarter examinations ................................................................. Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President ..................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS ...........................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER ...........................................Montesano
Term ends March, 1921

OSCAR A. FECHTER ...........................................Yakima
Term ends March, 1922

JOHN A. REA ....................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON .........................................Seattle
Term ends March, 1923

RUTH KARR McKEE ...........................................Olympia
Term ends March, 1923
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JOHN THOMAS CONDON, LL. M. .................... Dean of Faculties Administration Hall
HERBERT THOMAS CONDON, LL. B. .................. Comptroller Administration Hall
EDWARD NOBLE STONE, A. M. ...................... Registrar Administration Hall
EDWIN BICKNELL STEVENS, A. M. .................. Executive Secretary Administration Hall
ARTHUR RAGAN PRIEST, A. M. ...................... Dean of Men Administration Hall
ETHEL HUNLEY COLDWELL, A. M. ................... Dean of Women Administration Hall
WILLIAM ELMER HENRY, A. M. ...................... Librarian Library
FRANK STEVENS HALL ................................ Director of Museum Museum
JAMES GARFIELD FLETCHER, A. B. ................ Vocational Secretary Administration Hall

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DAVID THOMSON, B. A. ...................... Dean of the College of Liberal Arts Denny Hall
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JOHN THOMAS CONDON, LL. M. .................... Dean of the Law School Commerce Hall
WILLIAM ELMER HENRY, A. M. ...................... Director of Library School Library
MILNOR ROBERTS, A. B. ...................... Dean of the College of Mines Mines Hall
CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ........... Dean of the College of Pharmacy Bagley Hall
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J. ALLEN SMITH, Ph. D. ...................... Dean of the Graduate School Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. .................. Director
EVERETT FRANCIS DAHM, A. B. .................. Assistant Director Administration Hall

1Absent on leave 1918-19.
2Detached on special service 1917-19.
3In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF FORESTRY

THE FACULTY

HENRY SUZZALLO, Ph. D. (Columbia), LL. D. (California), President.
JOHN THOMAS CONDON, LL. M. (Northwestern), Dean of Faculties.
HUGO WINKINWISHER, M. F. (Yale), Professor of Forestry, Dean.
BURT PILSON KIRKLAND, A. B. (Cornell), Associate Professor of Forestry.
ELIAS TREAT CLARK, M. F. (Yale), Assistant Professor of Forestry.
BEAR LEONARD GEONDA, M. S. F. (Washington), Assistant Professor of Forestry.
CONRAD W. ZIMMERMANN, A. B. (Washington), Lecturer in Timber Physics.

TREVOR KINCAID, A. M. (Washington), Professor of Zoology.
HENRY KINETZEN BENSON, Ph. D. (Columbia), Professor of Industrial Chemistry.
GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.
GEORGE IRVING GAVETT, B. S. (C. E.) (Michigan), Assistant Professor of Mathematics.
ABRAHAM BINGAULD, Ph. D. (Columbia), Associate Professor of Economics.
JOHN WILLIAM HOTSON, Ph. D. (Harvard), Assistant Professor of Botany.
HAROLD EMIL CULVER, Ph. M. (Wisconsin), Assistant Professor of Geology.
DAVID CONNOLLY HALL, M. D. (Chicago), University Health Officer; Director of Physical Education for Men.
WALTER EDWARD ROLLOFF, Ph. D. (Wisconsin), Assistant Professor of German.
HOWARD HARDY LOCKER, Ph. D. (Princeton), Instructor in Physics.
FRANK DEMETRIUS HAYDEN, B. S. (Massachusetts Institute of Technology), Instructor in Civil Engineering.

ADVISORY BOARD

J. J. DONOVAN, Bloedel-Donovan Lumber Mills, Bellingham.
GEORGE S. LONG, Weyerhaeuser Timber Company, Tacoma.
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W. E. CROSBY, Editor, West Coast Lumberman, Seattle.

PACIFIC LOGGING CONGRESS REPRESENTATIVE

R. W. VINNEDGE, North Bend Lumber Company, Edgewick.

PURPOSE AND LOCATION

The College of Forestry was established in 1907. It has a twofold purpose: first, to afford instruction in the principles and practice of forestry; second, to promote the interests of forestry in the state of Washington by encouraging the right use of forest resources.

The college has exceptional advantages in its location. The university campus comprises 355 acres, a portion of which is in timber, and offers splendid opportunities for field work in silviculture and forest measurements. Other excellent forests are within walking distance of the campus. The University also owns large forest tracts in various parts of the state, where students may conduct extensive research work. The immense national forests within a few hours' ride of Seattle afford practical object lessons in the art of forest.
management. The city of Seattle is in the center of the timber industry of Washington and the Northwest. In its many sawmills and wood-working industries, the student has unrivaled opportunities for studying wood utilization.

**Forest and Lumbering Laboratories**

*Dendrology.*—Individual lockers. Extensive collections of tree seeds, cones and bark specimens. An arboretum is under way and a large number of the less common tree species are to be found on the campus.

*Lumbering.*—Field work is given at logging camps and sawmills about Seattle. A complete equipment of instruments and tools is available for work in logging engineering. One room contains a complete collection of lumber, showing grades and patterns, charts of lumber grades, exhibits of sawmill and wood saws, logging equipment, such as wire ropes, axes, hooks, blocks, special appliances for donkey engines, sawmill belts, a model of high lead logging, and other tools or equipment used in logging and milling.

*Mensuration.*—Equipment selected to show all principal types of instruments in use. Those particularly adapted for use in the Northwest are provided in quantities sufficient for all practice work by students in cruising, surveying, volume, growth and yield studies.

*Silviculture.*—Forests in and near Seattle offer wide opportunities for practical studies and demonstrations. An extensive forest tree nursery maintained by the College of Forestry affords an excellent opportunity for demonstrations and practice in modern nursery methods.

*Timber Physics.*—Laboratory work in timber physics is carried on in the U. S. Forest Service Timber Testing Laboratory, operated in cooperation with the University. The laboratory is magnificently equipped with seven large testing machines for static and impact loading, circular and band saws, planer and other shop equipment for wood-working.

*Wood Technology.*—Elementary work in wood technology is carried on in the same room as the work in dendrology. Individual lockers, gas, water, compound microscopes and all apparatus for preparing and sectioning wood for the microscopic study of woody tissues are provided. Hand specimens and planks of domestic and foreign commercial timbers are provided in large quantities. These include extensive collections of South American and Philippine hardwoods. Microscopic slides of nearly all American woods are kept on hand for check specimens.
Forest Products Laboratories.—A movement is now on foot for the establishment of a completely equipped Forest Products Laboratory to cost approximately $60,000. The laboratories for work in forest products now ready on the campus consist of four distinct units, as follows:

1. General Laboratory.—This is equipped with microtome, water baths, drying ovens, microscopes, chemical and pulp balances, all apparatus necessary for technical examination of wood preservatives, standardized thermometers, cameras and other apparatus required for photomicrography, dark room, and all incidental apparatus required for the detailed study of wood tissues.

2. Wood Preservation Laboratory.—This consists of both an open tank and a pressure plant. The former is of commercial size for treating ties. It is composed of two treating tanks and two storage tanks, one of steel for creosote, the other a wooden tank for salt solutions and other preservatives. The pressure plant consists of a 12-foot retort, air compressor and vacuum pumps and a duplex pressure pump, and is so constructed that it may be used for any of the different pressure processes.

3. Wood Distillation Plant.—This plant consists of a retort of one-half cord capacity per charge, gas tank, and refining apparatus. The retort has been installed by the U. S. Forest Service for cooperative work with the University.

4. The Dry Kiln.—This is a plant of about one carload capacity, and is thoroughly equipped with all apparatus necessary for scientific experimentation in kiln drying.

Commercial Plants.—Plants for the manufacture of paper, wood pipe, cooperage, excelsior, wood conduit, veneers, furniture, boxes, and numerous other secondary wood products are located in or very near Seattle and are available for study. Four large creosoting plants and several smaller preservation plants are also available. As such of these industries not in Seattle are conveniently situated on Puget Sound, transportation costs to them are very low.

Demonstration Forest and Experiment Station.—Arrangements are now nearly completed whereby the University will acquire title to a 60,000-acre tract of forest land to be used by the College of Forestry as a demonstration forest and forest experiment station. This tract, which consists of the Pilchuck-Sultan watersheds of the Snoqualmie Forest, is very conveniently reached from Seattle, and offers almost ideal conditions for a school forest. It has a total stand of timber of over a billion and a half feet, representing nearly all species of the Pacific Northwest, but more than three-fourths is composed of
Douglas fir, cedar and hemlock, the most important commercial species. As there is an excellent representation of age classes, it will lend itself readily to scientific forest management. It is estimated that the tract will yield from $20,000 to $25,000 annually on a sustained yield basis.

ADMISSION TO FRESHMAN STANDING

A student must offer for admission to freshman standing in the University fifteen units by examination or by certificate from an accredited school from which he has graduated. 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 school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented):
(a) Latin and Greek (not less than two units of Latin or one of Greek counted).
(b) Modern foreign language (at least two units in one language; not less than one unit in any language).
(c) History, civics, economics (at least one unit to form a year of consecutive work in history).
(d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.)

2 units selected from the above groups.
5 units selected from any subjects accepted by an approved high school for its diploma, not more than four, however, to be in vocational subjects.

In addition to the three units of English and the two units of mathematics required for admission to all colleges of the University, it is recommended that a student expecting to enter the College of Forestry should elect his work from the groups (a) to (d), so as to offer the following subjects:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced algebra</td>
<td>½ unit</td>
</tr>
<tr>
<td>Solid geometry</td>
<td>½ unit</td>
</tr>
<tr>
<td>Physics</td>
<td>1 unit</td>
</tr>
<tr>
<td>Botany</td>
<td>½ or 1 unit</td>
</tr>
</tbody>
</table>

If he shall not have included these subjects in his high school elections, it will be necessary for him to include them among his elections in college.

More detailed information concerning admission to the University will be found in that part of the General Catalogue devoted to Entrance Information, also published separately as Section I.

Advanced Standing.—Credit will be given for subjects pursued at other colleges of recognized rank upon presentation to the registrar of certificates that such subjects have been satisfactorily completed. Graduates of this institution and others of similar rank are admitted to graduate standing. (See Entrance Information, page 18.)

Special Students.—Persons twenty-one years of age, or over, who are not regularly qualified for admission, but who have pursued special lines of studies related to forestry, may be admitted as special students on giving satisfactory evidence of their ability to pursue the work and conforming with the regulations regarding the admission of special students. (See Entrance Information, page 17.)

Short Courses for Forest Rangers and Lumbermen.—These
courses will be given during 1920, providing there are sufficient num­ber of applicants. Applicants must be at least twenty years old and show ability to carry the work with profit to themselves. Admis­sion to classes is without examination.

**Expenses**

(a) A tuition fee of $10 per quarter, to be paid by each stu­dent of the University.

(b) **Laboratory Deposits.**—Forestry 1, 5, 52, 58, 104, $1; For­estry 101, 102, 105, 187, $2; Forestry 51, 52, 183, 188, 213, 214, $3; Botany, $2; Chemistry, $7; Geology, $1; Physics, $2.50; Zoology, $4.

The laboratory deposits in each case are for materials used and cover repairs of apparatus. The student is entitled to a refund for such portion of the deposit as is not used.

**Associated Student Fee.**—The Associated Student Fee of $5 is paid by every student of the University. This entitles the student to a subscription to the University of Washington Daily and free admission to all athletic, debating and oratorical contests given under the auspices of the Associated Students of the University of Wash­ington, the annual music concert and discounts in the cooperative bookstore.

**Field Excursions.**—Much of the instruction in technical forestry is given in the field, necessitating frequent field excursions in nearby forests, logging camps and sawmills. The expenses of these excursions never exceed $10 for the freshman year, $15 for the sophomore year, $20 for the junior year, $50 for the senior year, and usually are much less.

Students of forestry are urged to spend their summer vacation in some line of practical work connected with the forest industry. Situ­ated as the school is in the heart of a great lumbering section and near

**Summer Work**

extensive national forests, ample opportunity is offered for summer employment. Students not only acquire valuable experience in this way, but earn a considerable portion of their university expenses.

**Forest Club**

The Forest Club is an organization open to all students of the College of Forestry. Its aims: To secure acquaintance and good fellowship among students and instructors; to keep in touch with everyday problems in forestry and lumbering, and the men who are doing things worth while in these industries; to interest the public in the college and in the forestry and lumbering problems of the state.
Officers of the club for the year 1918-1919 are: President, William Durland; vice-president, Will Morgan; secretary-treasurer, Seldon Andrews.

The club issues every May "The Forest Club Annual," a publication which contains articles and illustrations descriptive of the school, of scientific interest, and a complete roster of students, ex-students, and alumni. A special College of Forestry page is also published each month in the West Coast Lumberman.

Requirements for Graduation

Courses and Degrees.—Beginning with September, 1914, the College of Forestry abandoned its fixed four-year groups of study, and has since then offered only one five-year course with a liberal allowance for electives. As technical forestry has reached a stage where some specialization is almost necessary, this arrangement gives the student ample opportunity for specialization along four distinct lines: (1) Forest service and state work, (2) logging engineering, (3) forest products and (4) the lumber business. The course may, however, be pursued for only four years, and on the completion of four years of work the student will be awarded the degree of bachelor of science. It should be emphasized that this arrangement will allow the student to receive practically as broad a training in four years as heretofore, but that if he desires to specialize he should pursue the work for five years.

Undergraduate Work.—For the degree of bachelor of science (B. S.) the student shall have completed, in addition to the required subjects outlined in the curriculum, at least 46 credits in subjects selected from forestry, lumbering, engineering, or the botanical, chemical, zoological, geological or economic sciences, the subjects to be approved by the students' class adviser, but in no case shall more than 28 in any department other than forestry be allowed toward graduation. The total number of credits required for graduation shall be 180 exclusive of shop and military science. Candidates for the degree must furthermore receive grades of A, B, or C in at least three-fourths of the credits required for the degree.

Graduate Work.—For the degree of master of science in forestry (M. S. F.), the student in addition to being a graduate of this University or other institution of equal rank, and having a satisfactory knowledge of botany, geology, physics, chemistry, mathematics, surveying and languages, shall have been credited at this University with 225 credits, of which at least 78 are in technical forestry subjects, including silviculture, dendrology, wood technology, mensuration, management, lumbering, wood preservation, forest economics, and thesis. Only grades of A, B, and C can be counted toward a graduate degree.
Attention is called to the equipment and to the special advanced courses for graduate students. The physical equipment of the College of Forestry and the exceptional advantages of its location should prove particularly attractive to graduate students. The advanced courses include dendrology, silviculture, wood technology, timber physics, wood preservation, advanced forest products, the business of lumbering, and research. Special facilities and apparatus are provided for this advanced work. Emphasis is placed upon the fact that a graduate from a college of forestry of equal rank with the College of Forestry of this University may complete the requirements for the advanced degree in one year. Graduates from other institutions of equal rank, but giving no courses in technical forestry, may complete the required work in two years.

**OUTLINE OF CURRICULUM**

**Choice of Electives.**—In the election of studies, students should follow the sequence of subjects as outlined in the curriculum. Deviations from the prescribed order will not be allowed by class advisers unless such deviation is imperative.

For specialization in Forest Management the following electives are recommended: Economics 11-12, 168 (Accounting); Law 54, 55, 56 (Contracts); and Forestry and Lumbering 119, 120 (Administration).

For specialization in Logging Engineering: Civil Engineering 22 (Logging Railroads); Law 54-55-56 (Contracts); Electrical Engineering, 101, 102; and Forestry and Lumbering 185-186-187 (Logging Engineering) and 159 (Scientific Management).

For specialization in Forest Products: Chemistry 31-32-33; Botany 142 (Tree Diseases); Electrical Engineering; and Forestry 183 (Milling), 184 (Marketing) and 159 (Scientific Management).

For specialization in the Business of Lumbering: Economics 11-12; 168; Business Administration (Advertising); and Forestry 188, 184, and 159.

**LOWER DIVISION**

It will be the aim to prepare students who cannot go farther than the end of the Lower Division for forest ranger service, and as assistants to logging engineers. Upon approval of the dean they will be allowed to substitute certain of the subjects of the junior year for chemistry.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Credits</th>
<th>Winter</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 1 (Dend.)</td>
<td>5</td>
<td>Bot.</td>
<td>5</td>
<td>Bot. 12</td>
<td>5</td>
</tr>
<tr>
<td>For. 2 (Gen. For.)</td>
<td>3</td>
<td>For. 3</td>
<td>3</td>
<td>Math. X</td>
<td>8</td>
</tr>
<tr>
<td>Mat. 96 (Foresters)</td>
<td>3</td>
<td>Math. 55</td>
<td>3</td>
<td>For. 4 (Protection)</td>
<td>8</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
<td>C. E. 1</td>
<td>3</td>
<td>C. E. 56</td>
<td>5</td>
</tr>
<tr>
<td>For. 5 (Woodcraft)</td>
<td>2</td>
<td>C. E. 55</td>
<td>3</td>
<td>Recreation</td>
<td>+1</td>
</tr>
<tr>
<td>Recreation</td>
<td>+1</td>
<td>Mil. Science</td>
<td>+1</td>
<td>Mil. Science</td>
<td>+2</td>
</tr>
<tr>
<td>Rec. Shop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td>16+8</td>
<td>Required</td>
<td>16+8</td>
<td>Required</td>
<td>16+8</td>
</tr>
<tr>
<td>Shop</td>
<td></td>
<td>Shop</td>
<td></td>
<td>Shop</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td>Junior</td>
<td>Senior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For. 58 (Const.)</td>
<td>5</td>
<td>For. 158 (Util.)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For. 57 (Silvics)</td>
<td>3</td>
<td>For. 155 (Preserv.)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chem. 1</td>
<td>5</td>
<td>For. 153 (Mensurat.)</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Econ. 1 (Gen.)</td>
<td>5</td>
<td>Recreation</td>
<td>+1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td>+1</td>
<td>Mill. Science</td>
<td>+2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mil. Science</td>
<td>+3</td>
<td>Required</td>
<td>16+3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Required** | 16+3 | **Required** | 15+3 | **Required** | 15+3 |

**Upper Division**

Beginning with the Upper Division, the student should carefully consider the electives with reference to the specialty he intends to make his life work.

<table>
<thead>
<tr>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 101 (Technol.)</td>
<td>5</td>
</tr>
<tr>
<td>Phys. 92 (For.)</td>
<td>5</td>
</tr>
<tr>
<td>M. E. (Steam Engines)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>5</td>
</tr>
<tr>
<td>Recreation</td>
<td>+1</td>
</tr>
</tbody>
</table>

**Required** | 15+1 | **Required** | 15+1 |

**Suggested Electives**

<table>
<thead>
<tr>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 151 (Management)</td>
</tr>
<tr>
<td>For. 153 (Gen. Lumber.)</td>
</tr>
<tr>
<td>For. 155 (Management)</td>
</tr>
<tr>
<td>Bot. 142 (Fungi)</td>
</tr>
<tr>
<td>All elective.</td>
</tr>
</tbody>
</table>

**Graduate**

The following subjects are primarily for graduate students. Seniors will be allowed to elect them only upon recommendation of the dean and the instructor concerned. With the exception of the thesis none of the subjects is, strictly speaking, required, but the student will elect all those belonging to one specialty as determined upon consultation with his class adviser. A sufficient number will have to be taken to fulfill the requirements for the master's degree.

<table>
<thead>
<tr>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 202 (Thesis)</td>
</tr>
<tr>
<td>For. 201 (Adv. Dend.)</td>
</tr>
<tr>
<td>For. 208 (Seminar)</td>
</tr>
<tr>
<td>Elective</td>
</tr>
</tbody>
</table>

**Required** | 15+1 | **Required** | 15+1 |

**Suggested Electives**

<table>
<thead>
<tr>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>For. 202 (Thesis)</td>
</tr>
<tr>
<td>For. 209 (Seminar)</td>
</tr>
<tr>
<td>For. 208 (Seminar)</td>
</tr>
<tr>
<td>Elective</td>
</tr>
<tr>
<td>For. 224 (Adv. Milling and Marketing)</td>
</tr>
</tbody>
</table>
DEPARTMENTS OF INSTRUCTION
FORESTRY AND LUMBERING

1. Elementary Dendrology.—Nomenclature and classification of trees, with a study of one type species of each genus of the important timber trees of North America. Prerequisite, high school botany. Required of freshmen. Two recitations, four laboratory periods per week, field trips additional. Laboratory deposit, $1. Five credits; autumn or spring. Winkenwerder, Gröndal

2-3. General Forestry.—To familiarize the student with the field of work he is about to enter. Required of freshmen. Three credits per quarter; autumn, winter. Winkenwerder

4. Forest Protection.—Its economic importance; forest fires, their prevention and control. Required of freshmen. Three credits; spring. Winkenwerder

5. Woodcraft.—Food and clothing, camp equipment and sanitation, packing a horse, and general woodcraft. A section will be arranged for students not enrolled in forestry if not less than six apply. Two lectures per week; demonstrations and practice work additional. Laboratory deposit, $1. Two credits. Clark

51-52. Forest Mensuration.—Principles and methods of computing, scaling, estimating, mapping. Required of freshmen. Principally field work given at the college demonstration forest. Laboratory deposit, $3. Five credits; autumn; five credits; spring. Kirkland, Clark

53. Construction.—Trails, roads, logging railroads, telephone lines, wooden bridges, cabins, barns, and fences; clearings from the standpoint of United States Forest Service improvement work, and logging construction. Required of sophomores. Laboratory deposit, $1. Three credits; autumn. Clark

55. First Aid.—Lectures and demonstrations. Winter. Instructor to be assigned.

57-58. Silviculture.—The individual tree, the forest as a whole, and cultural practices. Required of sophomores. Laboratory deposit, $1. Three credits, autumn; five credits, spring. Kirkland

101. Wood Technology.—Wood structure, leading to identification of the commercial timbers of the United States; physical properties of woods. Each student is required to prepare permanent microscopic mounts of fifty species. Required of juniors. Prerequisite, college botany, 8 hours. Laboratory deposit, $2. Five credits; autumn. Gröndal
102. Wood Identification.—This course includes the laboratory work only of course 101. Open to students in other departments of the University who can show ability to carry on the work. Prerequisite, college botany, 8 hours. Laboratory deposit, $2. Two credits; autumn.  
Gröndal

103. Wood Analysis.—Identification, physical properties and characteristics of woods used in building construction. For juniors in architecture. Two credits.  
Gröndal

104. Timber Testing.—Stresses, tests, theory of flexure, moisture and strength; mechanical properties of wood. Prerequisite, mathematics. Required of juniors. Laboratory deposit, $1. Five credits; winter.  
Zimmerman

105. Wood Preservation.—Nature of decay of timber and methods and economics of preservation. Laboratory work with the college treating plant and reports on local creosoting plants. Required of seniors and graduates. Prerequisites, course 101 and one year of chemistry. Laboratory deposit, $2. Five credits; spring.  
Gröndal

109. General Forestry.—Lectures, assigned readings, and reports. Occasional field trips. Offered only to students not enrolled in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two credits; autumn.  
Winkenwerder

110. Characteristics of Trees.—The identification, distribution, life habits, and uses of trees of the Pacific Northwest. Offered only to students not enrolled in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two lectures weekly and occasional field trips. Two credits; spring.  
Winkenwerder

111. Teachers’ Course.—Offered only as a correspondence course. Must be accompanied or preceded by course 109. One credit.  
Winkenwerder

112. Properties and Uses of Woods.—Offered only as a correspondence course.  
Gröndal

119. Forest Administration.—Objects, principles, and methods of administering private and public forests. Prerequisite, course 126. Three credits; autumn.  
Kirkland

120. National Forest Administration.—National Forest land regulations, protection, fiscal matters, improvement. Three credits; winter.  
Kirkland

126. Forest Economics.—The forests of the United States, their uses, their relation to industries and resources. Required of juniors
or seniors in forestry and open to students in other departments. Prerequisite, Economics 51. Two credits; autumn.

151-152. Forest Management.—Forest finance, organization, methods of silviculture, administration. Required of students in senior or graduate year. Prerequisites, courses 51-52, 57-58. Five credits, autumn; three credits, spring.

153. General Lumbering.—Comparative methods of logging on the Pacific Coast and in other lumbering regions of the United States. Required of seniors and graduates. Prerequisites, courses 51-52. Five credits; autumn.

158. Forest Utilization.—Paper making, wood distillation, tan-bark, naval stores, and other secondary forest products; lumber and its economic uses in construction. Required of seniors and graduates. Prerequisites, course 101, and one year in chemistry. Five credits; winter.

159. Scientific Management.—Fundamental principles of scientific management, with special reference to the lumber industry. Given in alternate years, not in 1920-1921. Two credits; autumn.

160. Camp Sanitation.—Primarily for students in commerce specializing in employment management. One credit; winter.

183. Milling.—The sawmill; yard arrangements; practical operation. Primarily for graduates. Three credits; winter.

185-186-187. Logging Engineering.—Logging machinery and equipment, organization of logging companies, construction of railroads, camps, etc. Lectures, demonstrations at plants, manufacturing logging machinery, and field work in nearby logging camps. During the third quarter the work is transferred to the field, where extensive work in logging engineering is carried on. No credit is given for 186 unless followed by 187. Primarily for seniors and graduates. Prerequisites, courses 51, 52, 53, 158. Laboratory deposit for 187, $2. Five credits per quarter, autumn and winter; fifteen credits, spring.

188. Advanced Forest Products.—Advanced studies in wood technology and utilization, with individual problems. A laboratory course. Prerequisite, courses 101, 158. Laboratory deposit, $8. Five credits; spring.

201. Advanced Dendrology.—An extension of course 1, covering the identification and distribution of all important commercial tree species of the United States. Elective. Prerequisite, course 1. Given in alternate years, not in 1920-1921. Three credits; autumn.
208-209. Seminar.—Reviews, assigned readings, reports, and discussions on current periodical literature and the more recent Forest Service publications. Prerequisite, senior or graduate standing. Two credits per quarter; autumn, winter.

Winkenwerder, Kirkland, Gröndal

221. Forest History and Policy.—Forest policy of the United States; forestry in the states and island possessions; the rise of forestry abroad. Prerequisite, courses 107-108. Two credits. Kirkland

223. Advanced Forest Management.—About one week of field work on a tract of 50,000 to 100,000 acres on which data concerning different soil classes, forest types, etc., and volume of timber is already available. This work will be followed by the actual formation of a working plan providing for regulation of the yield and organization of all forest work on the area, with estimates of outlay and income. Prerequisite, courses 151-152. Eight credits; spring. Kirkland

SUBJECTS GIVEN BY DEPARTMENTS OF OTHER COLLEGES

The following subjects, forming a part of the forestry curriculum, are given by departments of other colleges of the University. They are listed in the section of the catalogue entitled Departments of Instruction, also published as a separate bulletin:

Botany—Foresters' Botany, General Fungi, Plant Physiology.
Chemistry—General and Organic.
Civil Engineering—Railroads, Forest Surveying.
Economics—General Economics, Advertising, Accounting, Advanced Accounting, Salesmanship.

English—Composition.
Geology.—Engineering Geology.
Home Economics.—Foods.
Law.—Business Law.
Mathematics.—Mathematics for Foresters.
Mechanical Engineering.—Woodwork, Steam Engineering.
Military Science.—Required of all freshmen and sophomores.
Elective for juniors, seniors, and graduates.
Modern Languages.—See Departments of Instruction.

Physics.—General Physics.

Zoology.—Forest Entomology.
THE BOARD OF REGENTS

WINLOCK W. MILLER, President...........................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS.............................................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER.............................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER.................................................................Yakima
Term ends March, 1922

JOHN A. REA........................................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON...........................................................Seattle
Term ends March, 1923

RUTH KARR McKEE...............................................................Olympia
Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission........................................... Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students..............................

.................................................. Friday and Saturday, September 25 and 27
Registration of all other students....................................

.................................................. Friday and Saturday, September 26 and 27
Instruction begins..................................................... Monday and Tuesday, September 29 and 30
President's annual address............................................ Friday, October 8, 10 a. m.
Women's assembly.................................................... Friday, October 10, 11 a. m.
Thanksgiving recess................................................... Wednesday, November 26, 6 p. m., to Monday, December 1, 8 a. m.
Quarter examinations................................................

Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days..................................................... Friday and Saturday, January 2 and 3
Instruction begins..................................................... Monday, January 6
Quarter examinations................................................

.................................................. Monday, Tuesday, Wednesday and Thursday, March 22, 28, 24 and 26

SPRING QUARTER

Registration days..................................................... Friday and Saturday, April 2 and 3
Instruction begins..................................................... Monday, April 5
Campus Day ........................................................... Friday, April 23
Junior Day ............................................................. Saturday, May 29
Quarter examinations................................................

.................................................. Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception................................ Saturday, June 19
Baccalaureate Sunday.................................................. June 20
Commencement and Alumni Day...................................... Monday, June 21

SUMMER QUARTER

Registration days ..................................................... Tuesday and Wednesday, June 22 and 23
Instruction begins..................................................... Thursday, June 24
Quarter examinations................................................

.................................................. Monday and Tuesday, August 30 and 31
OFFICERS OF ADMINISTRATION

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. ................. President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. ................ Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. ............... Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. .................. Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. ............... Executive Secretary
Administration Hall

ARTHUR RAGAN PRIEST, A. M. .................. Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ............... Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. .................. Librarian
Library

FRANK STEVENS HALL .................................. Director of Museum
Museum

EDWIN AUGUSTUS START, A. M. .................. Director

EVERETT FRANCIS DAHM, A. B. .................. Assistant Director
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. .......................... Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M. .......................... Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. ............... Director of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. ............ Dean of the College of Education
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CARL EDWARD MAGNUSSON, Ph. D. ............. Acting Dean of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M. .................. Dean of the College of Fine Arts
Meany Hall

JOHN NATHAN COBB .......................... Director of the College of Fisheries
Commerce Hall

HUGO WINKENWERDER, M. F. .................. Dean of the College of Forestry
Forestry Hall

COLIN VICTOR DYMENT, B. A. .................. Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M. ............... Dean of the Law School
Commerce Hall

WILLIAM ELMER HENRY, A. M. .................. Director of Library School
Library

MILNOR ROBERTS, A. B. .................. Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ........ Dean of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN PADELFORD, Ph. D. ....... Acting Dean of the Graduate School
Denny Hall

J. ALLEN SMITH, Ph. D. .................. Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. .................. Director

EDWARD NOBLE STONE, A. M. .................. Assistant Director
Administration Hall

1Absent on leave 1918-19.
2Detached on special service 1917-19.
3In charge of service 1918-19; resigned July 31, 1919.
SCHOOL OF LAW

THE FACULTY

HENRY SUEZALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), Professor of Law, Dean.

HARVEY LANTS, A. M. (De Pauw), LL. B. (Kent), Professor of Law.

IVAN WILSON GODWIN, LL. B. (Nebraska), Professor of Law.

CLARK PRESCOTT BISSELL, A. B. (Hobart), Professor of Law.

LESLIE JAMES ARTHUR, B. S., J. D. (Chicago), Professor of Law.

JOSEPH GRATIAN O'BRIAN, A. B. (Jesuit College), Lecturer on Law.

ORGANIZATION AND EQUIPMENT

General Statement.—The Law School of the University of Washington was established in 1899. The case system is generally used and is designed to give an effective knowledge of legal principles and to develop the power of independent legal reasoning. A thorough legal training is offered to students of maturity and with previous preliminary education, and the courses offered are adapted to train and fit the student for practice in any state or jurisdiction. Special attention and emphasis is given to the law of the state of Washington, and in the illustrations and development of legal principles, cases and statutes are largely cited from the state of Washington and other Northwestern and Pacific states.

The Law Building.—The Law School occupies the entire upper floor of the new Commerce building. This building, which is one of the largest of the University buildings and is in the center of the campus, in the Liberal Arts Quadrangle, represents the best in modern construction and equipment. The law library occupies the entire end, and an idea of its roominess may be gained from its dimensions, which are, exclusive of stacks, forty by seventy feet. In addition to this general reading room, there is a large consultation room, twenty-five feet square, adjoining. There are three large lecture or recitation rooms, and a large room fitted and used exclusively for the trial court. These are all readily accessible to each other, and every convenience and improvement tending to add to the efficiency of the student, from an equipment standpoint, is present.

The Libraries.—The University Law Library consists of about 20,000 volumes. It contains the reports of all the courts of last resort, the reported lower courts of several states and the English courts. The latest revisions of all the state statutes and a large collection of the
SCHOOL OF LAW

session laws of the various states, including a complete set of each of the Pacific Coast states, are important features.

The library is catalogued and indexed by the Library of Congress cards.

The University General Library contains 82,401 volumes and is especially strong in reference works.

The Public Library of the city of Seattle is open to the free use of our students and is within easy distance of the campus by street car.

GENERAL INFORMATION

The four quarter system is adopted in the Law School. Each quarter is approximately for twelve weeks, and credit for work is usually on the basis of one credit representing a recitation or lecture course one hour per week for one quarter. In adopting this system the total hour values of courses prevailing in the schools of the Association of American Law Schools have been retained—e. g., courses formerly given two hours per week per semester are under the quarter system given three hours per week per quarter. This makes possible a better sequence of courses in the first year and permits students to enter, even the beginning students, at the opening of any quarter, except students beginning the study of law cannot enter advantageously at the opening of the third or spring quarter.

Fees and Expenses.—A fee of ten dollars ($10) per quarter is charged in the Law School, payable at the beginning of each quarter.

A diploma fee of five dollars ($5) is charged all students to whom diplomas are issued.

Expenses are reasonable. Seattle, because of its location, makes possible a relatively low cost of living. A special bulletin is issued by the University, which gives the information in detail and may be obtained upon application.

Self-Help for Students.—The needs of a large city and particularly the demand for labor created by war conditions afford ample opportunity to the student for employment. The law courses are offered almost entirely in the forenoons, leaving the afternoons or evenings for employment. The University also offers employment for a smaller number of students. Many students earn a portion of their expenses while in the University, and a number earn their entire way. An employment bureau makes systematic efforts to obtain positions for students desiring work.

Admission to the Bar.—The Law School of the University of Washington is by law made the standard of approved law schools for the purpose of admission to the bar of this state. Students intending to practice in the state of Washington should consult the dean of the
Law School upon entering the Law School, and register in accordance with the rules of the State Board of Law Examiners.

**Admission and Graduation**

To be admitted to regular standing in the Law School students must present acceptable credits or pass examination entitling them to admission to this University and in addition thereto present a junior certificate from the College of Liberal Arts or the College of Science of this University, or present acceptable credits or pass examinations equivalent to the junior certificates. The entrance requirements are stated fully in the section of the catalogue relating to Entrance Information.

**Advanced Standing.**—If, in addition to satisfying the entrance requirements for regular standing in the Law School, the student has earned credits in another law school of satisfactory standing, by regular attendance for at least one academic year of not less than eight months, he will ordinarily receive credit for such work, subject to the following restrictions: The work must equal in amount and character that required by this Law School. Not more than two years' credit will be allowed for such work. The right is reserved to refuse advance credit in law in whole or in part, save upon examination. Candidates for a degree, with advanced standing, must spend at least one full college year in the Law School.

**Special Students.**—No person will be admitted as a special student in law, unless he is twenty-one years of age and his general education is such as to entitle him to take the state bar examination.

Special students who comply with these requirements and with the regulations for admission of special students (see Entrance Information, page 10) will be admitted to take such work in law as their previous preparation enables them to carry successfully, and upon satisfactory completion of sufficient law work to entitle them to take the state bar examination, will be given a certificate or affidavit entitling them to apply for examination. Students who intend to take this method must file notice of their intention to study law with the clerk of the Supreme Court as required by law.

**Special Students Becoming Candidates for Degree.**—Special students may become candidates for a degree upon complying with all the entrance requirements as above set forth in reference to regular students. If a special student intends to become a candidate for a degree by clearing up his entrance requirements during his law studies, he must notify the dean of the Law School upon registration. Such students will be permitted to carry a limited amount of work in the College of Liberal Arts or the College of Science to enable them to clear up their entrance requirements in law.

**Combined Curriculum in Arts and Law.**—This combined course allows the student with a good record to complete the requirements for the degrees of bachelor of arts and bachelor of laws in six years. It is open only to those students who have maintained a uniformly
good record for scholarship during the first three years of Liberal Arts. The student is enrolled in the College of Liberal Arts during the first three years. If at the end of three years he has uniformly good record for scholarship and has earned 135 or more credits, including all the required work, he may for the fourth year register in the Law School for the first year's work in law and must earn in the College of Liberal Arts additional credits sufficient to make his total of arts and science credits amount to 144, and earn in the Law School at least 36 credits in the first year law work, to apply on his bachelor of arts degree, thus making his 180 credits required for the degree of bachelor of arts. The degree of bachelor of arts will be granted upon the completion of both courses.

The last two years of this combined course are devoted to completing the rest of the work in the Law School.

Students are strongly advised to complete their full 144 credits in Liberal Arts by the end of the third year, so they can enter the law work clear in the fourth year.

Students from other schools entering this University with advanced standing may take advantage of this combined course, provided they are registered in the College of Liberal Arts for at least one full year's work and earn at least 45 credits in this University before entering the law work.

This privilege will not be extended to normal graduates attempting to graduate in two years nor to undergraduates of other colleges who enter this University with the rank of senior.

Thesis.—It is the desire of the faculty to encourage original investigation and research by the students. Each candidate for a degree is required to prepare and deposit with the dean of the Law School, before the beginning of the spring vacation of his senior year, a thesis of not less than thirty folios in length, upon some legal topic selected by the student and approved by the faculty. The student will be examined by the faculty upon this thesis. It must be printed or typewritten, and is to be kept permanently in the library of the Law School.

Carkeek Prize for Thesis upon Washington Law.—Mr. Vivian M. Carkeek, of the Seattle Bar, a graduate of this Law School, class of '01 (the first class to graduate from the Law School), offers an annual prize of $25 for the best thesis submitted by members of the senior class, candidates for the degree of bachelor of laws, upon a subject of Washington law, or upon a subject of peculiar interest to Washington lawyers, the subject to be selected by the dean of the Law School.

The Jaggard Prize.—Miss Anne Wright Jaggard, daughter of the late Edwin Ames Jaggard, LL. D., Justice of the Supreme Court of Minnesota, offers an annual prize of $50 for the best thesis submitted by members of the senior class, candidates for the degree of bachelor of laws, upon a subject in the courses of history of the law or jurisprudence.
Summer Session of the Law School.—Courses are offered each summer by the Law School for both beginning and advanced students. Different courses are offered successive summers. This work counts toward a degree as a part of the regular instruction of the Law School. By increasing the number of periods per week, the equivalent of a quarter's work in the regular session is completed in each of the offered courses.

Instruction in Other Departments.—Students in the Law School may pursue studies, for which they are prepared, in other departments of the University without charge, except that in the laboratory courses the usual laboratory deposits will be required.

Degrees.—The degree of bachelor of laws (LL. B.) will be conferred on all students who comply with the entrance requirements for regular students stated hereinafore, remain in residence in the Law School for three school years, successfully complete all the law work in the Law School, aggregating 135 credits, and comply with all the rules and regulations of the faculty and board of regents of this University.

Students admitted to advanced standing based upon credits earned at another law school may count that work toward graduation, subject to the restrictions heretofore stated.

Examination.—The members of each class are examined daily throughout the year in their studies, and may be subjected to written examinations at any time in the discretion of the faculty without notice. At the end of each quarter the members of each class are subject to written examination on the courses during the year, and their promotion is dependent on successfully passing such examination.

To receive the degree of bachelor of laws it is necessary to pass satisfactory examinations in the entire course of three years. Students who pass these examinations with distinguished excellence will receive the degree of bachelor of laws cum laude.

LAW
Commerse Hall
Professors Condon, Lantz, Goodner, Bissert, Ater; Mr. O'Bryan

First Year

All first year courses required

100. Agency.—Wambaugh's Cases. Five credits; spring.

103-104. Contracts.—Williston's Cases. Five credits per quarter; autumn and winter.

105-107. Criminal Law and Procedure.—Mikell's Cases supplemented by Washington Criminal Code and Cases. Three credits per quarter; autumn and winter.

108-109. Pleading.—Sunderland's Cases on Common Law Pleading, winter. Sunderland's Cases on Code Pleading, spring. Two and five credits, respectively, for winter and spring quarters.
110. Persons.—Woodruff's Cases on Domestic Relations and the Law of Persons, supplemented by Washington Cases. Three credits; spring.
M, W, F, S, C. 309.

118. Procedure II.—This course is a laboratory study in aid of the course in pleading. Two credits, spring.

116-118. Property I.—Warren's Cases. Three credits per quarter; autumn and winter.

117-118. Torts.—Ames' and Smith's Cases. Four and two credits, respectively, for autumn and winter quarters.

SECOND YEAR

156. Bankruptcy.—Holbrook and Aigler's Cases on Bankruptcy and Selected Cases. Three credits; spring.
T, Th, 8; F, 9. C. 308.

150. Damages.—Mechem and Gilbert's Cases on Damages, supplemented by Washington Cases. Three credits; spring.
M, W, F, 8. C. 308.

126-126. Equity.—Ames' Cases in Equity Jurisdiction, Volumes I and II. Three credits per quarter; autumn and winter.

129-130. Evidence.—Wigmore's Cases. Four and five credits respectively, for autumn and winter.
Autumn, Daily 8; winter, M, T, W, Th, 8. C. 308.

161. Procedure IV.—This course relates to procedure in civil actions in the Superior Court and is prerequisite to Procedure V. Three credits; autumn.
T, Th, 9; Th, 11. C. 308.

139-140. Property II.—Gray's Cases, Volumes III and V. Four and two credits, respectively, for autumn and winter quarters.

142-143. Public Utilities.—Green's Cases on Carriers and Wymans Cases on Public Service Companies. Three credits per quarter; winter and spring quarters.

138. Quasi-Contracts.—Woodruff's Cases on Quasi-Contracts. Three credits; spring.
T, Th, 9; F, 10. C. 308.

146-147. Sales.—Woodward's Cases. Three credits per quarter; winter and spring.
Winter, T, Th, F, 10. Spring, M, W, Th, 10. 308.

NOTEI.—Courses in Bills and Notes, Irrigation Law, Mining Law, Negligence, Partnership, Taxation, and Wills, heretofore offered, will not be offered until further notice, except upon petition of students for same and subject to action of the law faculty. Such courses when offered will be in substitution of the foregoing.

THIRD YEAR

165. Admiralty.—Ames' Cases. Three credits; autumn.

168. Conflict of Laws.—Lorenzen's Cases. Five credits; winter.
Daily, 10. C. 314.
170-171. Constitutional Law.—Three credits per quarter; winter and spring.

M, 11; T, Th, 9. C. 814.

186. Office Practice.—Conveyancing and examination of abstracts, care of a law office generally, drawing wills and contracts, preparation of briefs and office accounts. Spring.


187-188. Private Corporations.—Canfield and Wormser's Cases. Four and two credits, respectively, for winter and spring quarters.


188. Procedure V.—A continuation of Procedure IV, with jury in attendance. Course also includes the taking of appeals to the Supreme Court and practice in the extraordinary legal remedies of habeas corpus, mandamus, quo warranto, and prohibition. Procedure IV is a prerequisite. Autumn.

M, W, 10; T, 11. C. 308.

189. Procedure VI.—A course in probate proceedings, covering administration of estates, probate of wills, appointment of guardians, etc. Three credits; autumn.


T, Th, 9; F, 10. C. 514.

191. Property: Community.—Washington Statutes and selected cases on community property. Five credits; spring.

Daily, 11. C. 514.

195-196. Trusts.—Kenneson's Cases. Three credits per quarter; autumn and winter.


Note.—Courses in Insurance, History of the Law, Jurisprudence, Mortgages, Municipal Corporations, and Suretyship, heretofore offered, will not be offered until further notice except on petition of the students, and then in substitution of the foregoing courses and subject to action of the law faculty.

Fifteen hours or credits in each quarter are required, making a minimum total of 125 hours or credits for completion of the law course.

Students are limited to fifteen hours per quarter, except upon special permission of the dean.

Courses Offered in Other Colleges and Schools

(These courses not counted toward the degree of LL. B.)

54-55-56. Business Law.—This course covers the fundamental principles of law. The more general and practical principles are developed from problems and selected cases, particularly as related to the law of contracts, property, agency, negotiable paper, insurance, partnership and corporation, with special lectures as to the statutory regulations. Three credits per quarter; autumn, winter and spring.

Ayer

Other Information

Information on subjects not covered by the foregoing statement will be furnished in answer to communications addressed to the Law School of the University of Washington, University Station, Seattle, Washington.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ....................................... Thursday,
Friday and Saturday, September 26, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students .............................
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Registration of all other students ....................................
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Instruction begins ......................................................... Wednesday, October 1
President's annual address ............................................. Friday, October 3, 10 a. m.
Women's assembly ....................................................... Friday, October 10, 11 a. m.
Thanksgiving recess ......................................................
............. Wednesday, November 26, 6 p. m, to Monday, December 1, 8 a. m.
Quarter examinations ............................................... Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ...................................................... Friday and Saturday, January 2 and 3
Instruction begins ...................................................... Monday, January 6
Quarter examinations ............................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ...................................................... Friday and Saturday, April 2 and 3
Instruction begins ...................................................... Monday, April 5
Campus Day .................................................................. Friday, April 23
Junior Day .................................................................... Saturday, May 29
Quarter examinations ............................................... Tuesday, Wednesday, Thursday and Friday, June 16, 16, 17 and 18
Class Day and President's reception .............................. Saturday, June 19
Baccalaureate Sunday ..................................................... June 20
Commencement and Alumni Day ................................. Monday, June 21

SUMMER QUARTER

Registration days ...................................................... Tuesday and Wednesday, June 22 and 23
Instruction begins ...................................................... Thursday, June 24
Quarter examinations ............................................... Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President ...........................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS ......................................................Seattle
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Administration Hall

WILLIAM ELMER HENRY, A. M. Librarian
Administration Hall

FRANK STEVENS HALL Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

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Denny Hall

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WILLIAM ELMER HENRY, A. M. Director of Library School
Library

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THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. Director
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EVERETT FRANCIS DAHM, A. B. Assistant Director
Administration Hall

Absent on leave 1918-19.
Absent on leave 1918-19; resigned 1919.
Detached on special service 1917-19.
In charge of service 1918-19; resigned July 31, 1919.
LIBRARY SCHOOL

THE FACULTY

Henry Suzanne, Ph. D. (Columbia), LL. D. (California), President.

John Thomas Condon, LL. M. (Northwestern), Dean of Faculties.

William Elmer Henry, A. M. (Indiana), Professor of Library Economy, Director.

Charles Wesley Smith, A. B., B. L. S. (Illinois), Associate Professor of Library Economy.


Robinson Spencer, A. B. (Wesleyan University), B. L. S. (Illinois), Instructor in Library Economy.

Gertrude E. Andrews, Diploma (Carnegie Library School), Superintendent Children's Department, Seattle Public Library, Lecturer on work with schools and children.
THE LIBRARY SCHOOL

The Library School is a graduate professional school established for the purpose of training young men and women in librarianship.

It is made a graduate school because it is believed that the conduct of a library requires a larger and more comprehensive educational equipment and outlook than can be had with less than the equivalent of the bachelor's degree. The library is an educational institution, and cannot be entrusted to persons of only elementary requirements.

The technical curriculum is but one year in length, based upon the baccalaureate degree, because the general educational equipment of the librarian is of larger significance than the technical training, but neither is sufficient without the other.

The graduates are competent to take charge of the smaller type of public library, or to take an assistant's position in any department of the larger libraries, and after a reasonable experience in either of these two positions have shown themselves competent to conduct libraries of medium size with excellent success.

Admission.—The Library School curriculum is based upon two years of college work (known as the lower division) in either the College of Liberal Arts or the College of Science, as the student may elect.

It consists of a three-year curriculum of liberal arts or sciences and library economy combined, making a five-year curriculum, four of which are academic and one professional. For admission to the Library School, therefore, the student must complete the requirements of the lower division in either the College of Liberal Arts or the College of Science.

CURRICULA

I. Requirements for the Degree of Bachelor of Arts.—The bachelor of arts degree is granted at the end of the senior year to those who have finished the liberal arts requirements of the lower division and who have taken liberal arts electives totaling 192 credits. The electives taken must include three groups of minors of not less than 24 credits each in the following groups: language and literature; natural sciences; history, political, economic and social sciences; philosophy; psychology, and education.

A subject major is not required.

II. Requirements for the Degree of Bachelor of Science.—The bachelor of science degree is granted at the end of the senior year
to those who have finished the work of the lower division in the College of Science and who shall have earned 192 credits, 90 of which shall be in science under the following restrictions:

A student may select any three of the following sciences and must do the amount of work in any particular science as indicated:

- Botany, 24 credits
- Chemistry, 24 credits
- Geology, 24 credits
- Mathematics, 24 credits
- Physics, 24 credits
- Zoology, 24 credits

B. Either included or in addition to the work in (A) every student must take six credits in mathematics, 12 credits in physics, 12 credits in chemistry, 12 credits in botany or zoology.

C. If 24 credits in chemistry are taken, only 18 credits in geology are required.

The following would ordinarily be the most satisfactory combination:

- Botany, 24 credits
- Chemistry, 24 credits
- Geology, 18 credits
- Mathematics, 6 credits
- Physics, 12 credits
- Zoology, 6 credits

**III. Requirements for the Degree of Bachelor of Library Economy.**—The curriculum in library economy, constituting one year of work, consists of 48 credits distributed through the senior and graduate years, 20 credits being earned in the senior year and 28 in the graduate year.

At the end of the graduate or fifth year, or upon the completion of 240 credits, 48 of which must be in library economy, the degree of bachelor of library economy is granted.

**CURRICULUM IN LIBRARY ECONOMY**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order, accession, and loan systems</td>
<td>2</td>
</tr>
<tr>
<td>Classification and subject headings</td>
<td>3</td>
</tr>
<tr>
<td>Cataloguing</td>
<td>6</td>
</tr>
<tr>
<td>Reference</td>
<td>6</td>
</tr>
<tr>
<td>Books and libraries</td>
<td>1</td>
</tr>
<tr>
<td>Organization and extension</td>
<td>3</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
</tr>
<tr>
<td>Subject bibliography</td>
<td>2</td>
</tr>
<tr>
<td>Book selection</td>
<td>7</td>
</tr>
<tr>
<td>Work with children and schools</td>
<td>2</td>
</tr>
<tr>
<td>Special lectures</td>
<td>1</td>
</tr>
<tr>
<td>Special study of specific libraries</td>
<td>1</td>
</tr>
<tr>
<td>Practice (860 clock hours)</td>
<td>12</td>
</tr>
</tbody>
</table>

Each recitation or lecture period presupposes two hours preparation and twelve such periods are counted as one credit. Two and one-half clock hours of practice count as one recitation or lecture
period, and thirty clock hours of practice are counted as one credit. No course in this curriculum is open to election by students outside the Library School.

Practice.—Practice work under careful supervision covers 360 practice hours, distributed as six hours per week through five quarters for those who do a part of the work as under-graduates, or 12 hours per week for 30 weeks for those who enter as graduate students and complete the work in three quarters.

The practice time is divided about equally between the University Library and the Seattle Public Library.

The Seattle Public Library offers rather unusual opportunity for students to practice in varied phases of work under careful supervision of trained librarians of large experience.

Graduate Standing.—Graduates of the University of Washington or of other colleges and universities of equal rank may enter the Library School and finish the work and receive the professional degree in one year, upon compliance with the following provisions:

A. No one may be admitted to the senior year or to graduate standing with less than 20 credits each in French and German.

B. Before entering upon the work of the senior year each student must be able to operate a typewriting machine with accuracy and fair speed.

C. If at any time there are more applicants for admission to the Library School than can be adequately cared for, preference will be given to residents of the state of Washington if other qualifications are essentially equal.

Advisory Suggestions

A. No one with serious physical defects or in ill health can readily secure a position in library work, and therefore such persons should not ask admission to the Library School.

B. Persons beyond thirty years of age should not attempt to enter library work, unless they have been continuously engaged in intellectual pursuits since graduating from college.
COURSES OF STUDY

For the work of the lower division and for courses in other departments than that of library economy the sections of the catalogue relating to the Colleges of Liberal Arts and Science and Departments of Instruction should be consulted.

LIBRARY ECONOMY

101. Order Accession and Circulation.—In this course the routine of ordering, receiving, checking, accessioning and mechanical preparation of books and elements of trade bibliography are treated. Also loan administration, covering charging systems, registration of borrowers, circulation of books and circulation records are dealt with. Two credits; autumn. Howe

102. Classification and Subject Headings.—The work in classification is mainly a study of the decimal system. An exercise in classifying selected books follow each lecture with later revision, correction and discussion. Other classification systems are briefly described. Under subject-headings lectures and practice work with selected books are given. Three credits; autumn. Spencer

103-104. Cataloguing.—The course in cataloguing, including book numbers, shelf-listing, alphabeting and name lists consists of lectures, recitations and practice work selected as illustrative examples of rules given in class. The A. L. A. rules are used as a basis for study. Three credits per quarter; winter and spring. Spencer

105-106-207. Reference.—The purpose of these courses is to give a working knowledge of important types of reference books and to develop the power of research. Lectures cover books and methods. Practical problems are assigned and worked out. These courses include also the work with government documents. Two credits per quarter; autumn, winter, spring. Smith

208. Subject Bibliography.—Practical work in the preparation of bibliographic list; lectures on sources and methods of work. Problems cover arrangement and form of entry. One piece of independent bibliographic work is required of each student. Two credits; spring. Smith

109-110-211-212-213. Practice.—Each student is expected to do approximately one hour of practice or laboratory work under expert personal supervision for each class period of instruction as a test of practical ability and as an opportunity to exhibit personality in service. The practice work is given in both the University Library and the Seattle Public Library, and consists of six hours per week for five quarters or twelve hours per week for thirty weeks. Twelve credits; winter and spring quarters of senior year; autumn, winter, and spring of graduate year.
214. Books and Libraries.—Lectures, readings and reports on the evolution of the book and the library. One credit; autumn. Henry

215-216. Library Organization and Extension.—In this course such subjects are treated as legalization and organization of a general library system for city, county or state, as the unit of organization; also the organization of various types of libraries with varying degrees of equipment. One credit, autumn; two credits, winter. Henry

116-217-218-219. Book Selection.—Designed to cultivate taste and judgment in the evaluation of books through a study of the principles of book selection, annotation and book reviewing. One credit, winter quarter of senior year; two credits per quarter, autumn, winter, spring of graduate year. Howe

220. Library Administration and Library Literature.—Lectures, readings and discussions upon library legislation, local taxation, library budget, and all means and instruments for realizing the educational and social functions of the library. Reading and class discussion of the literature of libraries and librarianship, including library periodicals and the publications of library organizations, with special emphasis upon the best papers in the A. L. A. Proceedings for recent years. Two credits; spring. Henry

221. Work with Children and Schools.—This course is planned to meet the needs of general library assistants and librarians in charge of small libraries. It deals with principles of book selection with special attention to choice of books for children of various ages. Students read and discuss children’s books with these ideals in mind. Two credits; winter. Andrus

222. Special Lectures by Active Librarians.—Ten lectures are given by as many persons, each upon some vital problem of library service or administration. These persons are selected because of their experience and success in dealing with the problems treated. One credit; spring.

223. Study of a Selected Public Library.—Each student is assigned to make a study of some specific public library reasonably near Seattle, and write a report upon its general policy and plans of organization, extension and administration. One credit; spring. Henry
THE BULLETIN OF
THE UNIVERSITY OF WASHINGTON

is published quarterly, with frequent supplementary issues. Once a year is issued the

CATALOGUE AND ANNOUNCEMENTS

containing the register of officers, faculty and students for the current year and announcements of the several schools, colleges, and departments for the coming year. Separate sections of the Announcements are also published, as follows:

1. Entrance Information
2. College of Liberal Arts and College of Science
3. College of Business Administration
4. College of Education
5. College of Engineering
6. College of Fine Arts
7. College of Fisheries
8. College of Forestry
9. School of Journalism
10. School of Law
11. Library School
12. College of Mines
13. College of Pharmacy
14. Graduate School
15. Departments of Instruction
16. The Extension Service

Bulletins are also published containing announcements of

The Summer Quarter
Puget Sound Biological Station

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation, should be addressed to The Registrar, University of Washington, Seattle, Washington.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission .................................................. Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students ..................................... Friday and Saturday, September 26 and 27
Registration of all other students ............................................. Monday and Tuesday, September 29 and 30
Instruction begins ................................................................. Wednesday, October 1
President's annual address ..................................................... Friday, October 8, 10 a.m.
Women's assembly ............................................................... Friday, October 10, 11 a.m.
Thanksgiving recess ............................................................ Wednesday, November 26, 6 p.m., to Monday, December 1, 8 a.m.
Quarter examinations ........................................................... Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ............................................................... Friday and Saturday, January 2 and 3
Instruction begins ............................................................... Monday, January 5
Quarter examinations ........................................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ............................................................... Friday and Saturday, April 2 and 3
Instruction begins ............................................................... Monday, April 5
Campus Day ................................................................. Friday, April 23
Junior Day ................................................................. Saturday, May 29
Quarter examinations ........................................................... Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ........................................ Saturday, June 19
Baccalaureate Sunday .......................................................... June 20
Commencement and Alumni Day ................................................ Monday, June 21

SUMMER QUARTER

Registration days ............................................................... Tuesday and Wednesday, June 22 and 23
Instruction begins ............................................................... Thursday, June 24
Quarter examinations ........................................................... Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

WINLOCK W. MILLER, President.................................................. Seattle
Term ends March, 1920

WILLIAM T. PERKINS.......................................................... Seattle
Term ends March, 1920

ELDRIDGE WHEELER ......................................................... Montesano
Term ends March, 1921

OSCAR A. FECHTER ............................................................. Yakima
Term ends March, 1922

JOHN A. REA ................................................................. Tacoma
Term ends March, 1922

WILLIAM A. SHANNON ..................................................... Seattle
Term ends March, 1923

RUTH KARR McKEE ............................................................ Olympia
Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
OFFICERS OF ADMINISTRATION

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Administration Hall

JOHN THOMAS CONDON, LL. M. ....... Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. .... Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. .......... Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. .... Executive Secretary
Administration Hall

'ARTHUR RAGAN PRIEST, A. M. ......... Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ....... Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. ......... Librarian
Library

FRANK STEVENS HALL ................. Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. ...... Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. ............. Dean of the College of Liberal Arts
Denny Hall

HENRY LANDES, A. M. ................. Dean of the College of Science
Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. Director of the College of Business Administration
Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. Dean of the College of Education
Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. Director of the College of Engineering
Engineering Hall

IRVING MACKEY GLEN, A. M. ......... Dean of the College of Fine Arts
Meany Hall

JOHN NATHAN COBB .......... Director of the College of Fisheries
Commerce Hall

HUGO WINKENWERDER, M. F. ........ Dean of the College of Forestry
Forestry Hall

'COLIN VICTOR DYMENT, B. A. ....... Director of the School of Journalism
Commerce Hall

JOHN THOMAS CONDON, LL. M. ....... Dean of the Law School
Commerce Hall

WILLIAM ELMER HENRY, A. M. ....... Director of Library School
Library

MILNOR ROBERTS, A. B. ............. Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. Director of the College of Pharmacy
Bagley Hall

FREDERICK MORGAN PADELFFORD, Ph. D. Acting Dean of the Graduate School
Denny Hall

'J. ALLEN SMITH, Ph. D. .......... Dean of the Graduate School
Denny Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. .......... Director
Administration Hall

EVERETT FRANCIS DAHM, A. B. ......... Assistant Director
Administration Hall

\*Absent on leave 1918-19.  \*Absent on leave 1918-19; resigned 1919.
\*Detached on special service 1917-19.
\*In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF MINES

THE FACULTY

HENRY SUTZALLO, PH. D. (Columbia, LL. D. (California)), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.

MILTON ROBERTS, A. B. (Stanford), Professor of English.

JOSEPH NATCHER, S. B. (Massachusetts Institute of Technology); M. S. (Lehigh), Associate Professor of Engineering.

CLARENCE RAYMOND CORBY, E. M. (Montana State School of Mines), A. M. (Columbia), Assistant Professor of Mining Engineering and Metallurgy.

IRA HEWITT WILSON, Assistant Professor of Ceramics.


ERNEST N. PATTT, Assistant in Metallurgy.

EARL ROSCOE WILCOX, Assistant in Mining.

JOHN THOMAS CONDON, LL. M. (Northwestern), Professor of Law.

HANNY KUETZER BURNSON, PH. D. (Columbia), Professor of Industrial Chemistry.

TAYLOR KINGDON, A. M. (Washington), Professor of Zoology.

FREDERICK ARTHUR OSBORNE, PH. D. (Michigan), Professor of Chemistry.

ROBERT EDWARD MORRIS, PH. D. (Nebraska), PH. D. (Strasburg), Professor of Mathematics.

CARL EDWARD MAGNUSON, E. E. (Minnesota), PH. D. (Wisconsin), Professor of Electrical Engineering.

ERWIN OWEN EASTWOOD, C. E., A. M. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

DAVID CONNOLLY HALL, S. M., M. D. (Chicago), Professor of Physical Education and Hygiene.

CHARLES CHURCH MORE, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

WILLIAM FRANKLIN ALLISON, C. E. (Cornell), Professor of Municipal and Highway Engineering.


LORIN DOUGLAS MILLMAN, A. B. (Michigan), Associate Professor of English.

CHARLES WILLIAM HARRIS, C. E. (Cornell), Associate Professor of Civil Engineering.

VANDERVEER CURTIS, PH. D. (Harvard), Associate Professor of Economics.

GEORGE SAMUEL WILSON, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

EDGAR ALDEN LOW, E. S., E. E. (Wisconsin), Associate Professor of Electrical Engineering.

HENRY LOUIS BRACE, PH. D. (Cornell), Assistant Professor of Physics.

GEORGE IRVING GAVITT, B. S., C. B. (Michigan), Assistant Professor of Mathematics.

CHARLES EDWIN WEAVER, PH. D. (California), Assistant Professor of Geology.

ALLEN FULHOM CAMPBELL, B. S., C. E. (Chicago), Associate Professor of Mathematics.

MILTON JOHN WILLIAM, B. S., C. E. (Nebraska), Assistant Professor of Civil Engineering.

HAROLD EDWIN CULVER, PH. M. (Wisconsin), Assistant Professor of Geology.

FRANK MELVILLE WARNER, B. S. (M. E.), (Wisconsin), Assistant Professor of Engineering Drawing.

FRED HARVEY BARTLETT, PH. D. (Yale), Assistant Professor of Chemistry.

SETH CHAPIN LANGDON, PH. D. (Washington), Instructor in Chemistry.

SAMUEL THOMAS BARTLETT, Instructor in Woodwork.

SANDY MORROW KANE, Instructor in Metal Work.

LIVINGSTON WERNER, E. M. (Washington), Instructor in Civil Engineering.

ADVISORY BOARD COLLEGE OF MINES

UNIVERSITY OF WASHINGTON

ROY H. CLARK, mining engineer, Peyton Building, Spokane.

JOHN KINCHON, mine operator, Kinchen Building, Seattle.


*E. U. HUGHES, of Hughes, McMicken, Dowell & Ramsey, attorneys, mining lawyer, Colman Building, Seattle.

CHARLES HUSSEY, general manager of estate of John A. Finch, mine operator, Empire State Building, Spokane.

W. M. HUNT, founder of the Tacoma Smelter, president of Tacoma Exploration Company, Box 1464, Tacoma.

NATHANIEL D. MOORE, General Manager of Pacific Coast Coal Company, Seattle.

*Withdrawn.

* Absent on leave, 1919-1920.

* Decreed.
Degrees.—The College of Mines offers specialized training in mining engineering, metallurgy, and ceramics. The four-year curricula lead to degrees as follows:

I. Bachelor of science in mining engineering, B. S. (Min. E.)
II. Bachelor of science in geology and mining, B. S. (Geol. and Min.)
III. Bachelor of science in metallurgical engineering, B. S. (Met. E.)
IV. Bachelor of science in coal mining engineering, B. S. (Coal Mine E.)
V. Bachelor of science in electrometallurgy, B. S. (E.-Met.)
VI. Bachelor of science in ceramics, B. S. (Ceramics)

The degree of engineer of mines (E. M.) is given to graduates in mining engineering who have practiced their profession for at least three years and who present a satisfactory thesis. Graduates in metallurgy may receive the degree of metallurgical engineer (Met. E.) under similar conditions, and the appropriate advanced degrees are open to graduates of the other curricula.

Mining and Metallurgical Industries Available for Study.—Excellent opportunities for becoming familiar with mining and metallurgical operations are open to students in the College of Mines. Mining machinery of the best type is in operation within easy reach of the University. Much of the heavy mining machinery used in the neighboring states and Alaska is built in the city of Seattle, while patented machines, such as drills and concentrating tables of all makes, are kept in stock and as working exhibits by the firms that supply the North Pacific coast regions. More than 40 eastern firms dealing in mining equipment make their Seattle branches the distributing center for the Pacific Northwest, British Columbia and Alaska. The application of hydraulic mining methods to city grading is being carried on locally on a very large scale and with the most approved pumping and piping appliances and methods. Equally important to the mining engineer are the operations of the steam shovels, which are used largely now in iron, copper and gold mining. The engineers in charge of these plants have given the mining students every opportunity to become familiar with the methods of planning and carrying on the work, and the same statement applies to the mine operators throughout the state.

A partial list of the other available works of interest includes coal mines and coke ovens, with the largest production west of the Rocky mountains; metal mines of gold, silver, copper, arsenic, antimony, iron, etc.; cement plants, several stone quarries and dressing works; clay mines, clay and pottery works; gravel and sand pits with large production and approved methods; a region of varied geology with many economic minerals; the Tacoma smelters and refineries; the U. S. assay office; the blast furnace plant at Irondale; the West Seattle steel plant.
of the Pacific Coast Steel Co., and several plants engaged in electrometallurgical work.

Mining and Metallurgical Laboratories.—The laboratories of the College of Mines are housed in a two-story building of pressed brick. The main portion of the structure, measuring 50 by 60 feet, contains the offices, library, classrooms, drafting room and museum, as well as laboratories, desks, stockroom and balance room for assaying and general metallurgy. The rear wing, 40 by 66 feet, with tower, is occupied by mining and milling machinery, electric furnaces, and stocks of ore, coals and clays. An addition contains a steel locker room, shower-bath room and a metallographic laboratory.

The metallurgical equipment includes standard size furnaces fired by six methods—coal, coke, gasoline, gas, fuel-oil and electricity. Electric current to the amount of 280 kilowatts is available for experiments in electric smelting. Other important pieces of equipment are a reverberatory furnace, high temperature electric furnace, pyrometers of several types, cyanide equipment, amalgamating devices, blowers, calorimeters, balances, sampling machines, and exhibits of metallurgical processes and products.

The mining equipment consists of an air compressor, receiver, three rock drills, aerial tram, loading and tamping models, hand tools, full equipment for practice in blasting, models, drawings, blueprints, photographs, lantern with 1,600 slides, and collection of ores and minerals. The College of Mines’ mill contains breakers, rolls, 3-stamp battery, feeders, screens, classifiers, jigs, six concentrating tables, flotation cells of six types, Dings magnetic separator, coal washing equipment, and accessory apparatus.

Mining Society.—The Mining Society, affiliated with the American Institute of Mining Engineers, has a membership composed of upper-classmen, graduate students and three sophomores, chosen for the excellence of their records in actual mining. At the monthly meetings of the society addresses are made by prominent mining engineers, and papers descriptive of their summer work are presented by the student members.

Mining and Metallurgical Research

The purpose of this department is to stimulate and encourage development in the mining and metallurgical industry of Washington, the Pacific Northwest and Alaska by research in the special problems presented, and to solve the problems through the efforts of fellowship holders and others studying in the department.

Graduates from suitable technical courses at institutions of recognized standing, or men who present evidence of technical training which has fitted them to undertake investigations, are eligible to enroll in mining and metallurgical research. The degree of master of science may be granted to those students who, holding a suitable bachelor of science degree, complete investigative work in compliance with the Uni-
versity requirements for the master's degree. Although as much latitude as possible will be allowed in the choice of subjects for research, the general topics will be those which are of special importance to this region.

Research Fellowships.—In connection with the department, five research fellowships of $720 annual value have been established. These fellowships are open to qualified graduates of scientific or technical courses in institutions of recognized standing. Applicants should send a copy of their record from the registrar's office of the college where they have been, or will be, graduated, and the names and addresses of at least three references who know their character, training, and ability. Applications for these fellowships are due not later than June 1st, and should be addressed to the Dean, College of Mines, Seattle, Washington.

Appointees to the fellowships report for duty on July 1, and are required to be on duty during the entire year, except that in case of reappointment for a second year, the fellowship holder is given a vacation from June 15 to July 1.

Fellowship holders are required to register as graduate students in the University of Washington and to become candidates for the degree of master of science in mining engineering, or metallurgy, unless an equivalent degree has been previously earned.

Investigations of Problems.—The University will, under certain conditions, permit mining and metallurgical companies who have special problems for solution, to detail a representative to work on such problems, or to meet the expense of engaging a man to do so. Experiments which can be carried on as readily in commercial laboratories and which do not require direction from the Bureau's experts are not undertaken. The research work shall be under the direction of the department, and complete records of all the data obtained in the investigation of the problems shall be filed with the department, which shall have the right to publish this information for the benefit of the mining and metallurgical industry.

United States Bureau of Mines Seattle Mining Experiment Station

The United States Bureau of Mines maintains a mining and metallurgical experiment station for the Pacific Northwest and the coast regions of Alaska at the College of Mines. The headquarters of the station, from which all operations in this territory are directed, are in the Bureau of Mines building, between Mines and Bagley halls. An analytical laboratory is in the same building, while the electric furnaces and other equipment used by the bureau in cooperation with the college are housed in the Mines building. At present the principal investigations being conducted by the station are in ore dressing, electro-metallurgy, and the treatment and uses of coal. Members of the experiment
station staff give occasional lectures to the students of the University on subjects dealing with their special lines of work.

**Mines Rescue Training Station.**—The Mines Rescue Training Station, opposite Mines Hall, occupies a separate building. The "smokeroom" is the largest of its kind in the country, measuring $25 \times 50$ feet. Several sets of various types of oxygen rescue and resuscitation apparatus are kept on hand for practice as well as for use in mine rescue work. The purpose of the station is to train miners in the use of oxygen helmets, which are used in cases of mine fires and explosions in both coal and metal mines. From ten days to two weeks' time is required for the course of training. The applicant is taught the construction of the apparatus and is required to wear it for four hours each day, in two periods of two hours each. The practice is carried on in a room filled with gas which cannot be breathed without immediate danger, and the work to be performed is the same as that which would be required in actual mining operations or rescue work. The smokeroom represents a portion of a mine, and is equipped with mine car, track, overcast, timbers and brick. First-aid instruction is also given. Applicants who have completed the course of training receive a certificate from the United States Bureau of Mines.

A one-ton 45-horsepower automobile truck, equipped with rescue apparatus ready for emergency calls, forms part of the equipment of the rescue station.

**Instruction for Coal Mining Men.**—Miners taking the rescue training also receive instruction in the College of Mines on the subjects of mine gases, explosions and the origin and distribution of Pacific Coast and Alaska coals. Laboratory experiments are carried on to show the methods of analyzing coals and determining the uses to which they may be put. The methods of testing for permissible explosives at the Pittsburg station and the safe methods of charging, tamping, and firing are explained. Coal men interested in the washing of coals are given full practice with the several types of apparatus used for this purpose.

**Admission to Freshman Standing**

A student must offer for admission to freshman standing in the University fifteen units by examination or by certificate from an accredited school from which he has graduated. 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 school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

1. 8 units of English.
2. 2 units of mathematics (1 unit of algebra, 1 unit of plane geometry).
3. 3 units selected from one of the following groups (or 2 units, if 3 units of mathematics are presented):
   - (a) Latin and Greek (not less than 2 units of Latin, or 1 of Greek counted).
   - (b) Modern foreign language (at least 2 units in one language; not less than one unit counted in any language).
College of Mines

(c) History, civics, economics (at least one unit to form a year of consecutive work in history).

(d) Physics, chemistry, botany, zoology, general biology, physical geography, geology, physiology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.)

2 units in subjects represented in the above groups (a)-(d).
5 units selected from any subjects accepted by an approved high school for its diploma; not more than 4 units, however, may be in vocational subjects.

In addition to the three units of English and the two units of mathematics required for admission to Mines it is recommended that a student expecting to enter the College of Mines should elect his work from the groups (a) to (d), so as to offer the following subjects:

Advanced algebra .................................................. ½ unit
Solid geometry .......................................................... ½ unit
Physics ........................................................................ 1 unit

If he shall not have included these subjects in his high school elections, it will be necessary for him to include them among his elections in college.

Full information regarding entrance to the University, registration, requirements, and expenses, may be found in the section of the catalogue entitled Entrance Information, also published as a separate bulletin.

Curricula of the College of Mines

First and Second Year for All Curricula

Freshman

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Credits</th>
<th>Winter Quarter</th>
<th>Credits</th>
<th>Spring Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math. 51 (algebra) ..................</td>
<td>3</td>
<td>Math. 52 (trig.) ....................</td>
<td>3</td>
<td>Math. 53 (analytic) .................</td>
<td>3</td>
</tr>
<tr>
<td>Chem. 1 or 21 (general) ...........</td>
<td>5</td>
<td>Chem. 2 or 22 (general) ...........</td>
<td>5</td>
<td>Chem. 3 or 23 (general) ...........</td>
<td>5</td>
</tr>
<tr>
<td>C. E. 1 (drawing) ..................</td>
<td>3</td>
<td>C. E. 2 (drawing) ..................</td>
<td>3</td>
<td>C. E. 21 (surveying) ...............</td>
<td>3</td>
</tr>
<tr>
<td>M. E. 1 (shop) .....................</td>
<td>1</td>
<td>Min. 20 (timbering) ...............</td>
<td>1</td>
<td>Min. 21 (timber framing) ..........</td>
<td>1</td>
</tr>
<tr>
<td>Mil. Sci. .......................</td>
<td>2</td>
<td>Mil. Sci. .......................</td>
<td>2</td>
<td>Mil. Sci. .......................</td>
<td>2</td>
</tr>
</tbody>
</table>

Total: 17

Summer camp in mining and topographical surveying (four weeks), 6 credits.

Sophomore

| Min. 51 (elements) ............... | 3       | C. E. 27 (mine surv.) ............. | 3       | Geol. 22 (petrology) .............. | 3       |
| Geol. 5 (engr.) .................. | 5       | Geol. 121 (mineralogy) .......... | 3       | Physics 99 (engr.) ................. | 5       |
| Physics 97 (engr.) .............. | 5       | Physics 98 (engr.) .............. | 5       | Chem. 101 (quant.) ................. | 4       |
| Math. 51 (calculus) ............. | 3       | Math. 62 (calculus) ............. | 3       | Eng. 5 (comp. for engrs.) ........ | 3       |
| Mil. Sci. ....................... | 2       | Mil. 58 (shop) .................. | 1       | Mil. Sci. ....................... | 2       |
| Mil. Sci. ....................... | 2       | Mil. Sci. ....................... | 2       | Mil. Sci. ....................... | 2       |

Total: 18

†Mining practice in summer vacations.

Mining Engineering (Option I)

Junior

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<th>Autumn Quarter</th>
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<th>Winter Quarter</th>
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<td>Min. 101 (milling) ................</td>
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<td>Min. 103 (rescue) ..................</td>
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<tr>
<td>Met. 101 (dye essay) ..............</td>
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<td>E. E. 121-132 (A. C.) ............</td>
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<tr>
<td>Geol. 123 (opt. miner) ...........</td>
<td>3</td>
<td>Geol. 124 (petro.) .................</td>
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<td>C. E. 142 (hydraulics) ...........</td>
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<tr>
<td>C. E. 151 (machine) ..............</td>
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<td>E. E. 102 (D. C.) .................</td>
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<td>C. E. 152 (mechanics) ............</td>
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Total: 15

†Mining, metallurgical, or ceramics practice is required of all students during a summer vacation following the sophomore or junior year.
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<td>Met. 168 (wet assay)</td>
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### Geology and Mining (Option II)

#### Junior

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### Metallurgy (Option III)

#### Junior

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### Coal Mining (Option IV)

#### Junior

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### Senior

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**COLLEGE OF MINES**

**CERAMICS (OPTION VI)**

**JUNIOR**

- Autumn Quarter
  - Cer. 101 (raw materials) - 5 credits
  - Cer. 151 (clay prod. lab.) - 5 credits
  - Cer. 152 (clay prod. test.) - 2 credits
  - Cer. 158 (opt. min.) - 3 credits
  - Geol. 127 (economic) - 4 credits

- Winter Quarter
  - Cer. 102 (wat. test.) - 5 credits
  - Cer. 152 (clay prod. test.) - 2 credits
  - Cer. 158 (opt. min.) - 3 credits
  - Cer. 161 (theis) - 3 credits
  - Geol. 127 (economic) - 4 credits

- Junior Quarter
  - Cer. 152 (clay prod. test.) - 2 credits
  - Cer. 158 (opt. min.) - 3 credits
  - Cer. 161 (theis) - 3 credits
  - Cer. 168 (mining) - 5 credits
  - Elective - 4 credits

**SENIOR**

- Autumn Quarter
  - Cer. 151 (clay prod. lab.) - 5 credits
  - Cer. 152 (clay prod. test.) - 2 credits
  - Cer. 158 (opt. min.) - 3 credits
  - Cer. 161 (theis) - 3 credits
  - Geol. 127 (economic) - 4 credits

- Winter Quarter
  - Cer. 152 (clay prod. test.) - 2 credits
  - Cer. 158 (opt. min.) - 3 credits
  - Cer. 161 (theis) - 3 credits
  - Cer. 168 (mining) - 5 credits
  - Elective - 4 credits

**I. MINING**

20. **Mine Timbering.**—Materials and methods used in timbering shafts, tunnels, and drifts in hard and soft ground. Particular attention is paid to those methods used by military engineers. One credit per quarter; winter. Associate Professor Daniels

21. **Mine Timber Framing.**—Shop practice in framing mine timbers. One laboratory period. Laboratory deposit, $2. One credit; spring.

Daniels

51. **Elements of Mining.**—A general study of the field of mining, considering prospecting, boring, drilling, explosives, rock breaking, methods of development and working, transportation and drainage. Prerequisite, sophomore standing. Three credits; autumn. Daniels

101. **Milling.**—A preliminary course designed to familiarize all students in the department with the principles and uses of the various types of crushing, sampling, concentrating and washing machinery in
the Mines Building. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $3. Three credits; autumn.

103. Mine Rescue Training.—Twenty-five hours of instruction. Practice in the care and use of oxygen rescue apparatus, smokeroom training, and first-aid-to-the-injured work in the U. S. Bureau of Mines Rescue Station. Required of all students in the College of Mines. One credit; winter.

Professor Roberts

Daniels, Chisholm

106. Mining Excursion.—A two-weeks excursion taken in June of each year to a neighboring mining region; detailed examinations of mining and metallurgical industries. Expenses, $20 to $40. Three credits; spring.

Roberts, Daniels, Assistant Professor Corey

120. Coal Resources of North America.—The occurrence of coal in North America with especial reference to geographic and geologic distribution and structure; classification and commercial requirements of coals. Prerequisite, course 51. Three credits; winter.

Daniels

122. Coal Mining Methods.—Prospecting and development. A detailed study is made of a nearby mine. Prerequisite, courses 51, 120.

Roberts

151. Mining Engineering.—Lectures on exploration, mine development and operation, with mining costs, power generation, air compression, hoisting and transportation. Practice with air compressors, machine drills and mine equipment in laboratories and local plants. Prerequisite, senior standing. Three recitations, one laboratory period and excursions. Laboratory deposit, $8. Five credits; autumn.

Roberts

152. Ore Dressing.—A detailed study of certain branches of ore dressing accompanied by mill tests of ores checked by assays. Prerequisite, senior standing. Three recitations and two laboratory periods. Laboratory deposit, $5. Five credits; spring.

Roberts

153. Thesis Outline.—The outlining of senior thesis, the gathering of material, study of references, making of drawings, maps, etc. See course 154-155. Prerequisite, senior or graduate standing. One laboratory period. One credit; autumn.

Roberts, Daniels, Corey

154-155. Thesis.—A continuation of course 153. Weekly consultation and seminars. Prerequisite, course 153. A deposit of $5 or $10 will be required to cover cost of materials and equipment in thesis work involving the use of mining or metallurgical equipment. Two laboratory periods. Two credits per quarter; winter and spring.

Roberts, Daniels, Corey

158. Mining Law.—A series of lectures on the mining laws of the United States and Alaska; illustrated by diagrams and mine maps. Two lectures. Two credits; winter.

O'Bryan

162. Mining Metkocls.—An advanced study of mining methods. Prerequisite, senior or graduate standing. Three credits; winter.

Roberts
168. Mine Operation.—The complete operations at a few typical mines, including mining, transportation and treatment of ore, disposal of products, company finances and management. Illustrated by ores and products, maps and photographs, cost sheets, engineering and financial reports of the mines studied. Prerequisite, senior or graduate standing. Three credits; spring. Roberts

171. Mine Gases and Ventilation.—Composition and properties of mine gases, methods of testing; lighting of mines; principles of ventilation; ventilating machinery. Prerequisite, course 122. Three recitations. Three credits; winter. Daniels

172. Coal Mining Plant.—Design of plant and machinery employed in mining and preparing coal for market. Prerequisite, senior standing. Three drafting periods. Three credits; spring. Daniels

174. Coal Mining Machinery.—Study of coal cutting machines, mine locomotives, fans, hoists, pumps and tipple or breaker machinery with especial reference to application to coal mining. Prerequisite, senior standing. Three recitations; three credits; spring. Daniels

176. Coal Washing.—Methods of preparing coal for market, together with laboratory tests and runs on various coals to determine best methods of preparation. Prerequisite, course 101, Met. 108. Three recitations and two laboratory periods. Laboratory deposit, $5. Five credits; winter. Daniels

182. Mine Management.—The organizations and administration of engineering plants, involving the keeping and interpretation of cost accounts, the efficiency of labor and methods, the financial, legal and social aspects of engineering operation. Prerequisite, senior standing. Three recitations. Three credits; spring. Daniels

201-202-203. Seminar.—Lectures and discussions by Bureau of Mines staff, College of Mines faculty and fellows. Required of Bureau of Mines fellowship holders. Prerequisite, senior or graduate standing. One credit; autumn, winter, spring. Roberts

II. Metallurgy

101. Fire Assaying.—The testing of reagents, the crushing, sampling and assaying of ores, furnace and mill products. Prerequisite, Chemistry 101. One recitation and three laboratory periods. Laboratory deposit, $20. Five credits; autumn. Corey, Glenn, Patty

102. General Metallurgy.—The properties of metals and alloys, fuels, refractory materials, furnaces, and the extraction of the common metals from their ores. Visits to smelters. Prerequisite, course 101. Three recitations and two laboratory periods. Laboratory deposit, $10. Five credits; spring. Corey, Kerr

103. Metallurgical Fuels.—The analysis of fuels and a consideration of the most effective utilization of the country's present supplies. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $5. Three credits; autumn. Daniels.
104. Copper and Lead.—The metallurgy of copper and lead, especially the methods of roasting, smelting and refining. Prerequisite, junior standing. Three credits; spring. Corey

106. Refractories.—Methods of testing clays, refractory materials, cement-making materials. One recitation and one laboratory period. Laboratory deposit, $5. Two credits; spring. Corey

151. Gold and Silver.—Amalgamation, cyaniding and chlorination of gold and silver ores. Prerequisite, course 102. Three credits; autumn. Corey

153. Wet Assaying.—Technical methods for the determination of copper, lead, zinc, etc., in ores and furnace products. For students in ceramics, the analysis of clays and ceramic products. Prerequisite, course 102, Chemistry 101. One recitation and two laboratory periods. Laboratory deposit, $12. Three credits; autumn. Corey

155. Iron and Steel.—The metallurgy and manufacture of commercial iron and steel, with especial reference to their properties and uses in engineering work. Prerequisite, junior standing. Three recitations. Three credits; autumn. Daniels

157. Design of Plant.—The designing of a piece of equipment or a structure for mining, milling, or metallurgical purpose. Prerequisite, senior or graduate standing. Three drafting periods. Three credits; spring. Roberts, Daniels

158. Minor Metals.—The metallurgy of zinc, antimony, tin, aluminum, nickel, etc.; a study of the plant required, the methods and costs of treatment. Three credits; winter. Corey

160. Metallurgical Analysis.—Technical methods of analysis of slags and industrial products. Prerequisite, Chemistry 101. One recitation and two laboratory periods. Laboratory deposit, $12. Three credits; winter. Corey

162. Metallography.—The constitution and microstructure of metals and alloys, especially iron and steel. Prerequisite, junior standing. Two recitations. Two credits; winter. Daniels, Corey

163. Metallography.—The preparation and study of metal sections, photomicrography and the use of the microscope to aid in testing industrial alloys. Two laboratory periods per week. Laboratory deposit, $5. Two credits; spring. Corey

164. Pyrometry and Alloys.—Methods of measuring high temperatures; union of metals by fusion, compression and electro-deposition; the behavior of metals and alloys under heat. Laboratory practice in thermal measurements, synthesis and testing of alloys. One recitation and one laboratory period. Laboratory deposit, $5. Two credits; spring. Corey

165. Metallurgy Calculations.—Physical chemistry for the metallurgist, slag calculations, etc., illustrated by figures quoted from the present practice at a number of smelting plants. Prerequisite, course 102, Chemistry 101. Two credits; winter. Corey

166. Electro-Metallurgy.—A study of methods and practice with special consideration of the possibilities of electrometallurgical indu-
tries in the Pacific Northwest. Prerequisite, senior or graduate standing. Three credits; spring.

Corey

Thesis.—See Mining 153 and 154-155.

Summer Field Work.—See Mining 106.

III. Ceramics

101. Ceramic Raw Materials.—The occurrence, properties and winning of clays, shales, limestones, silica and other ceramic raw materials. Two credits; autumn.

102. Raw Materials Testing.—Laboratory and occasional lectures. Laboratory deposit, $8. Prerequisite, Ceramics 101. Two credits; winter.

105. Pottery.—Compositions and properties of materials used in making pottery and glazes. Prerequisite, junior standing. Optional for students in Fine Arts. Two credits; autumn.

111. Manufacture of Clay Products.—Principles governing the manufacture of clay wares; equipment, drying, and burning. Three credits; spring.

121. Ceramic Calculations.—Calculations involved in the blending of raw materials for pottery bodies, glazes, enamels, etc. Practical ceramic problems. One credit; spring.

151. Clay Products Laboratory.—Practice in the actual processes of manufacture of the various clay wares. Prerequisite, course 111. Two recitations and three laboratories. Laboratory deposit, $7. Five credits; autumn.

152. Clay Products Testing.—Requisite qualities of structural clay products and refractories. Standard tests. One recitation and one laboratory. Laboratory deposit, $8. Two credits; autumn.

161. Thesis.—A detailed study of some special or original ceramic problems. Prerequisite, senior or graduate standing. Laboratory and conference. Laboratory deposit, $5 to $10, depending upon the nature of the work. Two credits; autumn.

162-163. Thesis.—A detailed study of some special or original ceramic problem. Prerequisite, senior or graduate standing. Laboratory and conference. Laboratory deposit, $5 to $10 per quarter, depending upon the nature of the work. Three credits per quarter; winter, spring.

164. Field Work.—Visits to and reports upon individual plants. Prospecting trips. Two credits; spring.

172. Cements and Limes.—Lime, Portland cement, plaster and other cementing materials, and sand-lime products. Production, properties, and uses. Four lectures. Four credits; winter.

182. Glasses and Glazes.—Classification, production, properties and defects. Application to ceramic waves. Two lectures and one laboratory. Laboratory deposit, $8. Three credits; winter.

183. Enamels.—Composition and properties of enamels. Application to clay and metal wares. Prerequisite, course 311. Three credits; spring.
Class work will be directed by members of the instructural staff of the University. The research work is under the joint direction of the United States Bureau of Mines and the College of Mines. The subjects of research relate to the mining and metallurgical industries of the state and adjacent regions.

During the coming year investigations are contemplated in the following subjects:

1. Ore treatment, especially flotation.
2. The preparation and utilization of coal.
3. Ceramics.
4. Electrometallurgy.

SUBJECTS GIVEN BY DEPARTMENTS OF OTHER COLLEGES

Chemistry 1, 2, 3.—General Chemistry. Five credits per quarter; autumn, winter, spring.
21, 22, 23.—General Chemistry. Five credits per quarter; autumn, winter, spring.
101-102-103.—Quantitative Analysis. Four credits per quarter; autumn, winter, spring.
204.—Electro-Chemistry. Five credits; spring.

Economic and Business Administration.—Available courses in this department may be found in the section Departments of Instruction.

Engineering, Civil, 1, 2.—Engineering Drawing. Three credits per quarter; any quarter.

English 5, 6.—Composition for Engineers. Three credits; autumn, winter.
11, 12, 13.—Engineering Problems. Three credits per quarter; any quarter.
21.—Plane Surveying. Three credits; any quarter.
131, 132.—Mechanics. Three credits; any quarter.
142.—Hydraulics. Five credits; spring.

Engineering, Electrical, 99-100.—Direct Currents. Four credits; any quarter; laboratory, two credits; any quarter.
181.—Alternating Currents. Four credits; autumn or winter.

Engineering, Mechanical, 1, 2, 3.—Woodwork. One credit per quarter; autumn, winter, spring.
53, 54, 55.—Metalwork. One credit per quarter; autumn, winter, spring.

82.—Steam Engineering. Three credits; any quarter.
83.—Steam Engineering Laboratory. Three credits; any quarter.
105-106-107.—Metalwork. One credit per quarter; autumn, winter, spring.
Geology 5.—Engineering Geology. Five credits; autumn or spring.
21.—Mineralogy. Five credits; winter.
31.—General Paleontology. Five credits; autumn or spring.
32.—Stratigraphic Paleontology. Five credits; winter.
120.—Petrology. Three credits; spring.
123.—Optical Mineralogy. Three credits; autumn.
124.—Petrography. Four credits; winter.
125.—Advanced Petrography. Two credits, with additional credits optional; spring.
127-128.—Economic Geology. Five credits per quarter; winter, spring.
Law 54-55-56.—Business Law. Three credits; autumn, winter, spring.
Mathematics 51.—Algebra. Three credits; any quarter.
52.—Plane Trigonometry. Three credits; any quarter.
53.—Analytical Geometry. Three credits; any quarter.
61-62-63.—Calculus. Three credits per quarter; autumn, winter, spring.
Military Science and Tactics.—A course of two years in military training is required. All able-bodied male students except those from foreign countries, not intending to become naturalized, must take the course, which by regulation of the University is required during the first and second years. Furthermore, every male undergraduate student is required to take physical exercise or athletics during each week of his attendance at the University, unless excused by his dean and the physical director.
Modern Languages.—For description of courses in modern languages see the statements of the modern language departments in the section Departments of Instruction.
Physics 97-98-99.—Physics for Engineers.
Zoology 16.—Evolution. Two credits; autumn.

WINTER SESSION FOR MINING MEN

The twenty-fourth annual short session for mining men will open on January 5, 1920, and continue until March 25. During this period each year twelve of the instructors in mining engineering offer a course for the benefit of persons who are interested in prospecting, mining, milling, assaying or smelting. Admission to the class is without examination. No previous preparation, training, or mining experience is necessary to enter the course, other than ability to read and write English. Many practical men with an interest in some branch of mining but without much education have obtained satisfactory results from the course; others with a college education and mining experience have gained much up-to-date training and information. The past experience and future aims of each student are taken into consideration, and the character of his work arranged accordingly. Prospectors and mining men may bring in their own ores and minerals.
for study, for assay, or for concentration tests, by ordinary wet methods
or by flotation.

Instruction is given by lectures, laboratory exercises, and visits to
mines and plants in operation. Each year a group of mining men is
engaged to give special lectures during the period of the short session.
These men represent the fields of coal, quartz and placer mining,
dredging, milling and smelting.

Three general groups of studies are offered: (1) quartz mining;
(2) placer mining; (3) coal mining.

1. **Quartz Mining.**—For men interested in quartz or lode mining,
the course outlined consists of geology, mineralogy, mining, milling,
field trips, mining law, surveying, chemistry and fire assaying. Op­
tional subjects are forge and foundry, mine timber framing, and mine
rescue and first-aid training.

2. **Placer Mining.**—The placer mining group embraces surveying,
hydraulic mining, placer mining, geology, mineralogy, mining, milling,
milling law, and forge and foundry.

3. **Coal Mining.**—For coal miners the courses consist of coal
analysis, coal washing, gas and lamp testing, mine rescue and first­
aid training, chemistry, geology, mineralogy and surveying.

**General Information**

Full descriptions of all these subjects are given in the following
pages. Students need not enroll for all the subjects listed in a group
and changes in the choice of subjects in each group may be made,
depending on the individual circumstances. For students who return
a second year, special courses are arranged in continuation of their
previous work.

No charges are made in the course, except the tuition fee of $10
required of all students in the University, but each student makes
deposits for laboratory supplies actually used and also buys his own
books. The deposits in the various courses are stated under the de­
scription of the subjects. Books and supplies cost on the average
about $10. The total cost of the full course is less than $80 in the
placer group for the three months and $50 in the quartz mining studies.
All deposits are made at the beginning of the course.

Rooms and board may be obtained in the university district at
reasonable cost. The University operates a cafeteria, the cost of
board averaging about $20 per month. Several good restaurants
are located close to the University. A list of boarding- and rooming­
houses is kept on file at Mines Hall for the benefit of prospective
students. The use of library, gymnasium, showers and the privilege
of attending lectures, concerts and assemblies, are open to all winter
session students.

Students who satisfactorily complete a course of study are given
upon request a certificate stating the amount and character of the
work done.
### Subjects in the Winter Mining Session

**Mining S. C. 1.**—Lectures on prospecting, development, boring, air-compression, drilling, mining systems, timbering and transportation. Practice in air-compression, machine drilling and sampling. Study of mine maps, ore deposits and mining districts. Three lectures and one laboratory period per week. Roberts

**Mining S. C. 2.**—Millling. Lectures and recitations on ore treatment and concentration. Laboratory practice in ore sampling, testing, and dressing, using breakers, rolls, screens, stamp battery, tables, vanners, jigs, electromagnetic and flotation machinery. Three lectures and one afternoon per week. Laboratory deposit, $8. Daniels

**Mining S. C. 3.**—Placer Mining. Lectures and laboratory work in methods of placer mining. Laboratory practice in panning, sluicing, amalgamating, retorting, assaying of bullion. Lectures on testing and valuing placer ground, methods of operation, thawing, sluicing, dredging. Study of formation of placers and of type localities. Laboratory deposit, $8. Two lectures and one afternoon per week.

**Mining S. C. 4.**—Field Trips. An outline study of the operations at neighboring mines, mills, and smelters; geological field studies, followed by laboratory practice on the rocks and minerals found. Saturdays. Roberts, Daniels, Corey

**Metallurgy S. C. 1.**—Fire Assaying. Lectures on sampling, preparing ores for assay, furnaces, fuels, reagents, and the fire assay of gold, silver and lead ores. The laboratory work includes the testing of reagents, and the assaying of various ores. One lecture and two afternoons a week in laboratory. Laboratory deposit, $20. Corey
Metallurgy S. C. 2.—A study of the principles of metallurgy for the benefit of those who are engaged in the metal trades or in the mining of ores requiring smelter treatment. Two lectures and one afternoon a week. Laboratory deposit, $5.

Metallurgy S. C. 3.—Wet assaying. Technical methods for the determination of copper, lead, zinc, etc., in ores and smelter products. Two afternoons a week. Laboratory deposit, $12.

Chemistry S. C. 4.—General Chemistry and Qualitative Analysis. Laboratory practice in the determination of the common elements. Three lectures a week, and one laboratory. Laboratory deposit, $7.

Geology S. C. 2.—Mineralogy. Instruction and practice in blow-pipe analysis, with lectures upon the common minerals, and practice in the identification of minerals by field tests. Two two-hour laboratory periods per week. Laboratory deposit, $2.

Geology S. C. 3.—Elements of Geology. Lectures on the elements of geology, the common varieties of rocks, ore deposits, etc. Two lectures per week.

Mining Law.—A series of lectures on the mining laws of the United States and Alaska. Illustrated by drawings and mine maps. Two lectures per week.

Surveying (C. E. 83).—Instruction and field practice in the use of simple instruments for making underground and surface surveys; the elements of drawing, lettering, sketch-mapping and field notes; the rules governing mineral surveys. Two lectures and two laboratory periods per week. Laboratory deposit, $8.

Hydraulic Mining (C. E. 144).—The elements of hydraulics; the flow and measurement of water in pipes, flumes and ditches with special reference to placer mining. Two lectures a week.

Forge.—Practice in sharpening and tempering drill steel and picks; systematic training in the making and care of fires, and the application of various heats, drawing, punching, riveting, bending, twisting, upsetting, welding iron and steel, and making and tempering machine tools. Laboratory deposit, $2. One afternoon a week.

Mine Timber Framing.—Shop practice in framing and erecting the principal types of timbers employed in mining operations. Laboratory deposit, $2. One afternoon a week.

Mining 103.—Mine Rescue Training. Twenty-five hours' instruction. Practice in the care and use of oxygen rescue apparatus, smoke-room training, and first-aid-to-the-injured at the U. S. Bureau of Mines Rescue Station.
THE BULLETIN OF
THE UNIVERSITY OF WASHINGTON

is published quarterly, with frequent supplementary issues. Once a year is issued the

CATALOGUE AND ANNOUNCEMENTS

containing the register of officers, faculty and students for the current year and announcements of the several schools, colleges, and departments for the coming year. Separate sections of the Announcements are also published, as follows:

1. Entrance Information
2. College of Liberal Arts and College of Science
3. College of Business Administration
4. College of Education
5. College of Engineering
6. College of Fine Arts
7. College of Fisheries
8. College of Forestry
9. School of Journalism
10. School of Law
11. Library School
12. College of Mines
13. College of Pharmacy
14. Graduate School
15. Departments of Instruction
16. The Extension Service

Bulletins are also published containing announcements of

The Summer Quarter
Puget Sound Biological Station

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation, should be addressed to The Registrar, University of Washington, Seattle, Washington.
BULLETIN
UNIVERSITY OF WASHINGTON

GENERAL SERIES  JUNE, 1919  NO. 127—SECTION 13

COLLEGE OF PHARMACY
1919-1920

SEATTLE, WASHINGTON
PUBLISHED BY THE UNIVERSITY
1919

Entered as Second Class Matter, at Seattle, Under the Act of July 16, 1894
UNIVERSITY CALENDAR

1919-1920

AUTUMN QUARTER

Examinations for admission ................................................ Thursday, Friday and Saturday, September 26, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students .................................. Monday and Tuesday, September 29 and 30
Registration of all other students .......................................... Monday and Tuesday, September 29 and 30
Instruction begins .................................................. Wednesday, October 1
President's annual address ............................................... Friday, October 3, 10 a.m.
Women's assembly ...................................................... Friday, October 10, 11 a.m.
Thanksgiving recess .......................................................... Wednesday, November 26, 6 p.m., to Monday, December 1, 8 a.m.
Quarter examinations ..................................................... Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days .................................................. Friday and Saturday, January 2 and 3
Instruction begins .................................................. Monday, January 5
Quarter examinations ..................................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days .................................................. Friday and Saturday, April 2 and 3
Instruction begins .................................................. Monday, April 5
Campus Day .................................................. Friday, April 23
Junior Day .................................................. Saturday, May 29
Quarter examinations ..................................................... Tuesday, Wednesday, Thursday and Friday, June 16, 17, 18 and 19
Class Day and President's reception .................................. Saturday, June 19
Baccalaureate Sunday .................................................. June 20
Commencement and Alumni Day ........................................... Monday, June 21

SUMMER QUARTER

Registration days .................................................. Tuesday and Wednesday, June 22 and 23
Instruction begins .................................................. Thursday, June 24
Quarter examinations ..................................................... Monday and Tuesday, August 30 and 31
THE BOARD OF REGENTS

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Term ends March, 1920

WILLIAM T. PERKINS ................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER ..................................Montesano
Term ends March, 1921

OSCAR A. FECHTER ....................................Yakima
Term ends March, 1922

JOHN A. REA ...........................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON .................................Seattle
Term ends March, 1923

RUTH KARR McKEE .................................Olympia
Term ends March, 1923
UNIVERSITY OF WASHINGTON

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Administration Hall

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Administration Hall

HERBERT THOMAS CONDON, LL. B......................Comptroller
Administration Hall

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Administration Hall

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Administration Hall

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Administration Hall

ETHEL HUNLEY COLDWELL, A. M......................Dean of Women
Administration Hall

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Museum

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Denny Hall

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EDWIN AUGUSTUS START, A. M......................Director

EVERETT FRANCIS DAHM, A. B.......................Assistant Director
Administration Hall

1Absent on leave 1918-19.
2Absent on leave 1918-19; resigned 1919.
3Detached on special service 1917-19.
4In charge of service 1918-19; resigned July 31, 1919.
COLLEGE OF PHARMACY

THE FACULTY

HENRY SUZIALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.
JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES.
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GEORGE BURTON RUG, PH. D. (Chicago), Assistant Professor of Botany.
FRED H. HEATH, PH. D. (Yale), Assistant Professor of Chemistry.
The College of Pharmacy was organized in 1894 for the purpose of offering an opportunity to young men and women to become well trained practical pharmacists. The work of the two year course as first organized has been extended to three, four and five year courses. In the two and three year courses a complete training is offered in technical and commercial pharmacy; in the four year course an opportunity for training in more advanced scientific pharmacy together with a liberal training in other sciences and in languages. The five year or graduate course offers an opportunity to do research work in one of the most fertile fields of modern science.

The students in pharmacy share the advantage and enjoy the spirit of one of the foremost educational institutions of the Pacific Coast.

Requirements to Practice Pharmacy in Washington.—To become a registered pharmacist, one must be twenty-one years of age and must be a graduate of at least a two year course in a college of pharmacy recognized by the Washington State Board of Pharmacy. This board recognizes such colleges as hold membership in the American Conference of Pharmaceutical Faculties and such foreign colleges as meet the requirements of the conference.

Graduates of the two year course of the College of Pharmacy are admitted as registered pharmacists without examination, providing they have had two years of practical experience, and of the three year course providing they have had one and one-half years of practical experience.

Graduates of the four year course of the College of Pharmacy are admitted as registered pharmacists without examination, providing they have had one year of practical experience.

Graduates of any course of the College of Pharmacy who have not had practical experience are admitted without examination as assistant registered pharmacists and serve as such until they have received the required practical experience for full registration.

Assistant registered pharmacists may work under the direction of a registered pharmacist and may take charge of a store only during his temporary absence.

Higher Standard in Pharmacy.—Never have opportunities in pharmaceutical vocations been so great as at the present time. Rapid advances are being made in educational requirements to practice pharmacy. Many states now require graduation from a college of pharmacy as a prerequisite to become a registered pharmacist. In the Northwest, the states of Montana, Oregon and Washington now have the educational requirement. The National Association of Boards
of Pharmacy at its 1915 meeting recommended that in 1920 all state boards holding membership in the organization should require graduation as a prerequisite for registering pharmacists. This advance in the requirements for the practice of pharmacy is certain to make the profession more attractive.

The American Conference of Pharmaceutical Faculties.—The College of Pharmacy is a member of the American Conference of Pharmaceutical Faculties. The objects of the conference are: to promote closer relations between the several colleges of pharmacy of the United States, to standardize pharmaceutical education and to encourage a higher standard of proficiency for members of the profession.

General Information

Garden of Medicinal Plants.—For several years the College of Pharmacy has maintained on the campus a garden in which plants of pharmaceutical importance have been cultivated. The area and scope of this garden have been gradually extended, until the college now has a very complete collection of medicinal plants which furnishes valuable material for classes in botany, materia medica and drug assay.

The bureau of plant industry of the United States Department of Agriculture has, for some time, taken an active interest in the garden and has rendered valuable assistance in its maintenance. During the season of 1918 the bureau will extend this cooperation by detailing a specialist in scientific drug plant cultivation to be stationed at the college. This specialist will give his full time to the management and supervision of the garden. It is expected that with the large area now under cultivation, and with the active cooperation of the bureau of plant industry, substantial progress will be made in the solution of problems connected with the cultivation of medicinal plants on a commercial scale.

Service to Pharmacists of the State.—It is the desire of the college to render every possible service to the pharmacists of the state. We therefore invite the pharmacists to write us in regard to their prescription difficulties. Many pharmacists are now availing themselves of this privilege, and it is our wish to extend this service to the entire profession.

Food and Drug Analysis.—The enactment of the Food and Drug Act by Congress, and of similar legislation by most of the states (Washington included), has given great importance to pharmaceutical education. It is at once apparent that a knowledge of drugs is equally important with chemistry in the administration and enforcement of this legislation. The graduate in chemistry is not wholly qualified to act as a food and drug inspection chemist for the government, states, private individuals, and corporations, if he is not trained
in those subjects included in the collective name of pharmacy. These allied subjects are: Theory and practice of pharmacy, manufacturing pharmacy, drug assaying, pharmaceutical botany, study of the United States Pharmacopoeia and National Formulary, pharmacognosy, materia medica and therapeutics, etc., A great many pharmaceutical chemists are needed to carry out the analytical processes involved in the enforcement of this legislation, but the number of men adequately trained is very limited. Students with high school training are urged to consider these opportunities and to prepare themselves for such positions. The Dean of the College of Pharmacy is chemist for the Washington State Department of Agriculture and is also in close touch with the government food and drug work. Courses are offered that will fit students for this line of work.

**Expenses.**—(a) The tuition fee is $10 per quarter. Students who have served in the United States army or navy during the war, or as nurses in either branch of the service, are exempt by law from payment of this fee.

(b) The laboratory deposits for freshmen in the autumn quarter are $12; winter quarter $12; spring quarter $8. Deposits for sophomores in the two year courses in the autumn quarter are $10; winter quarter $12.50; spring quarter $12.50. In addition the student must purchase a breakage ticket costing $5.

(c) Associated Student fee $5 per year.

(d) Cost of books will average about $15 per year.

The students pay only the actual cost of the drugs and chemicals used; the remainder of the deposit, less breakage, is returned at the end of the quarter.

The Associated Student fee of $5 is paid by every student of the University. This entitles the student to a subscription to the University of Washington Daily and free admission to all athletic, debating and oratorical contests given under the auspices of the Associated Students of the University of Washington, the annual music concert and discounts in the cooperative bookstore.

**Library Facilities.**—A branch of the university library containing books and current publications on pharmacy and chemistry is maintained in the pharmacy building. Practically all the domestic and some foreign journals on pharmacy are received by the college. The student is expected to make use of the library and to report from time to time on current topics of interest.

**Observation Trips.**—The observation visits made each year by the classes in pharmacy to the various large manufacturing and wholesale establishments of Seattle and to the large retail stores are an important feature of the work of the college. Among the places visited during the year 1918-1919 were Stewart & Holmes Drug Com-
pany, branch houses of Parke, Davis & Co., H. K. Mulford Company and some of the leading prescription and commercial pharmacies of the city. Also to the hydrastis and ginseng farm of Mr. C. E. Thorpe, situated near the university campus.

Pharmacy, Materia Medica and Chemistry Laboratories.—Rooms devoted to pharmacy, materia medica and chemistry are located in Bagley Hall, a three-story fireproof building. Special sections are provided for pharmacy students in general, organic and qualitative chemistry. Work in prescription practice receives special attention in a room constructed and arranged as a model prescription pharmacy. The materia medica room contains a museum of several hundred samples of official and unofficial crude drugs. It also contains an extensive collection of commercial and biological products manufactured and donated by the H. K. Mulford Company of Philadelphia, Pennsylvania; Parke, Davis & Co., of Detroit, Michigan, and Eli Lilly and Company, of Indianapolis, Indiana. One room is given to drug assaying and food analysis. The examination of official food and drug samples for the state is under the direction of the Dean of the College of Pharmacy. A well equipped laboratory is devoted to this purpose. Pharmacy students taking botany, physiology and bacteriology have well equipped laboratories in Science Hall.

Military Science and Physical Education.—The University requirements in military science, physical education and hygiene are satisfied as follows:

Men students, freshmen and sophomores: Five hours of military science per week. Juniors and seniors: Two hours of physical education per week.

Women students in the two year course: Physical education three times per week for one year; in all other courses three times per week for two years.

Correspondence.—Inquiries in regard to the College of Pharmacy may be addressed to the Dean of the College or to the Registrar of the University. Students desiring to enter the College of Pharmacy will be furnished proper blanks for filing entrance credentials on request to the Registrar. Entrance credentials should be sent to the Registrar before August 15. The student will then be notified if his credentials are satisfactory. Copies of the bulletin of the College of Pharmacy may be had upon application.

ADMISSION AND GRADUATION

Admission to the College of Pharmacy

1. Admission to the two year course leading to the degree of graduate in pharmacy.

2. Admission to the three year course leading to the degree of pharmaceutical chemist.
For admission to the two and three year courses, a student must offer fifteen units by examination or by certificate from an accredited school from which he has graduated. To count as a unit a subject must have been taught five times a week, in periods of not less than forty-five minutes, for a school year of not less than thirty-six weeks. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).
3 units in one of the following groups (or two units, if three units of mathematics are presented).
   a) Latin and Greek (not less than two units of Latin or one of Greek counted).
   b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).
   c) History, civics, economics (at least one unit to form a year of consecutive work in history).
   d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work).
2 units selected from the above groups.
3 units selected from any subjects accepted by an approved college school for its diploma; not more than four, however, to be in vocational subjects.

3. ADMISSION TO THE FOUR YEAR COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY.

For admission to the four year course the student must present in the fifteen units, as listed under paragraph 2, two units of a foreign language and one unit of science selected from the following: physics, 1 unit; chemistry, 1 unit; general biology, 1 unit; botany, ½ or 1 unit; zoology, ½ or 1 unit; physiology, ½ unit. No science will be counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.

A student who fulfills the entrance requirements as listed under paragraph 2 will be admitted to freshman standing, but if any of the prescribed subjects as listed in the preceding paragraph have not been taken in the high school he will take them in the University and receive college credit to apply toward the degree, so far as elective courses may allow.

4. THE FIVE YEAR COURSE LEADING TO THE DEGREE OF MASTER OF SCIENCE IN PHARMACY.

Candidates for the degree of master of science must have received the bachelor's degree from this college or from some other college of equal rank maintaining a four year course which is the equivalent of the course at this institution.

5. STUDENTS NOT CANDIDATES FOR DEGREES.

Students over twenty-one years of age may enter as specials, providing they present evidence of adequate preparation. In general, a student from an accredited high school will not be admitted as a special if he has been in attendance in high school the previous year. Persons desiring admission as specials should write to the dean, giving a detailed statement of their preparation. The necessary application blanks will then be forwarded.
DEGREES

1. The degree of graduate in pharmacy (Ph. G.) will be conferred upon any student who has fulfilled the requirements for entrance to the two year course and has completed the two year course as outlined.

2. The degree of pharmaceutical chemist (Ph. C.) will be conferred upon any student who has complied with the entrance conditions and has completed the three year course.

3. The degree of bachelor of science (B. S.) will be conferred upon any student who has fulfilled the entrance requirements and has completed either the four year scientific course or the combined scientific and business course. This degree with honors may be conferred upon a student of the College of Pharmacy if recommended for this distinction by the pharmacy faculty.

4. The degree of master of science in pharmacy (M. S.) will be conferred upon any graduate of the four year course who has completed at least one year of graduate work and has presented a satisfactory thesis.

CURRICULA REQUIRED FOR GRADUATION

1. A two year course which prepares its graduates for responsible positions as practical pharmacists.

2. A three year course which includes the work of the two year course and in addition offers opportunity for training in commercial pharmacy, business law, advertising, accounting, advanced work in scientific pharmacy, bacteriology and chemistry.

3. A four year scientific course which offers a well-rounded scientific and liberal training. Graduates of this course are prepared for positions as, (a) practical and manufacturing pharmacists; (b) manufacturing and technical chemists; (c) bacteriologists; (d) teachers in colleges of pharmacy; (e) food and drug inspection chemists and bacteriologists in the United States Civil Service; (f) pharmaceutical journalism.

Graduates of the four year course have clear entrance to the best medical colleges and are well equipped to carry on their medical studies.

4. A four year combined scientific and business course which includes the regular pharmacy work of the two year course together with advanced training in pharmacy, and courses in the College of Business Administration and Schools of Journalism and Law which will insure the student a thorough business training. Special attention will be given to courses in business law, advertising, accounting, salesmanship, insurance, money and banking and business organization. This course is designed to produce well trained men for either retail or wholesale pharmacy.

5. A five year course offers opportunity to the four year grad-
UANIVERSITY OF WASHINGTON

uate to do graduate and research work in some line of scientific pharmacy and graduate work in some branch of allied science. Graduates of this course are prepared for responsible positions in many different lines of work.

1. WITH DEGREE OF GRADUATE IN PHARMACY. (Two Year Course)

**Course**

<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>Phar. 1 (Manufacturing)</td>
<td>5</td>
<td>Phar. 2 (Manufacturing)</td>
<td>5</td>
<td>Phar. 3 (Commercial)</td>
<td>2</td>
</tr>
<tr>
<td>Chem. (General)</td>
<td>5</td>
<td>Chem. 9 (General)</td>
<td>5</td>
<td>Chem. 10 (Qualitative)</td>
<td>4</td>
</tr>
<tr>
<td>Zool. 7 (Physiology)</td>
<td>5</td>
<td>Bot. 13 (General)</td>
<td>5</td>
<td>Bot. 14 (Microscopy)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Phar. 5 (Drug Assay) | 5 | Phar. 6 (Drug Assay) | 5 | Phar. 7 (Urinalysis) | 3 |
| Chem. 87 (Organic) | 5 | Chem. 88 (Organic) | 5 | Bacteriology | 4 |
| Phar. 8 (U.S. Pharm.) | 2 | Phar. 9 (Pharm. Chem.) | 5 | Phar. 10 (Prescriptions) | 2 |
| Phar. 11 (Prescriptions) | 2 | Phar. 11 (Prescriptions) | 2 | Phar. 14 (Textiology) | 2 |

Two years of Military Training (12 credits) are required of men. One year of Physical Education (6 credits) is required of women.

2. WITH DEGREE OF PHARMACEUTICAL CHEMIST. (Three Year Course)

**Freshman Year**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
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<tr>
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<td>Chem. 9 (General)</td>
<td>5</td>
<td>Chem. 10 (Qualitative)</td>
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<tr>
<td>Zool. 7 (Physiology)</td>
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<td>Bot. 13 (General)</td>
<td>5</td>
<td>Bot. 14 (Microscopy)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sophomore Year**

| Phar. 5 (Drug Assay) | 5 | Phar. 6 (Drug Assay) | 5 | Phar. 7 (Urinalysis) | 3 |
| Chem. 87 (Organic) | 5 | Chem. 88 (Organic) | 5 | Bacteriology | 4 |
| Phar. 8 (U.S. Pharm.) | 2 | Phar. 9 (Pharm. Chem.) | 5 | Phar. 10 (Prescriptions) | 2 |
| Phar. 11 (Prescriptions) | 2 | Phar. 11 (Prescriptions) | 2 | Phar. 14 (Textiology) | 2 |

**Junior Year**

| Pharmacy | 5 | Pharmacy | 5 | Pharmacy | 5 |
| Elective | 5 | Elective | 5 | Elective | 5 |
| Elective | 5 | Elective | 5 | Elective | 5 |

In addition to the work required in the two-year course, the student must complete 15 hours credit in pharmacy and electives sufficient to make 185 hours credit. Students expecting to go into commercial work are urged to elect courses in psychology, economics, business law, advertising and accounting. This work will apply on the four-year combined business and scientific course. Students expecting to enter a scientific field of work are expected to elect courses that will apply on the four-year scientific course. Two years of Military Training or Physical Education (12 credits) must be taken by the student.

3. WITH DEGREE OF BACHELOR OF SCIENCE. (Four Year Scientific Course)

**Freshman Year**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
<th>Second Quarter</th>
<th>Credits</th>
<th>Third Quarter</th>
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<td>Phar. 2 (Manufacturing)</td>
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<td>Phar. 3 (Commercial)</td>
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<tr>
<td>Chem. 8 (General)</td>
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<tr>
<td>Zool. 7 (Physiology)</td>
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<td>Bot. 13 (General)</td>
<td>5</td>
<td>Bot. 14 (Microscopy)</td>
<td>4</td>
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</table>

**Sophomore Year**

| Phar. 5 (Drug Assay) | 5 | Phar. 6 (Drug Assay) | 5 | Phar. 7 (Urinalysis) | 3 |
| Chem. 87 (Organic) | 5 | Chem. 88 (Organic) | 5 | Bacteriology | 4 |
| Language | 5 | Language | 5 | Language | 5 |
JUNIOR YEAR

<table>
<thead>
<tr>
<th>Subject</th>
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<tbody>
<tr>
<td>Pharm. 13 (Therapeutics)</td>
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<tr>
<td>Language</td>
<td>5</td>
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<tr>
<td>Science</td>
<td>5</td>
</tr>
<tr>
<td>Math. 4 (Trigonometry)</td>
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</tr>
<tr>
<td>Science</td>
<td>5</td>
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<tr>
<td>English 2</td>
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SENIOR YEAR

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<thead>
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<th>Subject</th>
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<tr>
<td>Pharm. 14 (Toxicology)</td>
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<tr>
<td>Pharm. 8 (U. S. F.)</td>
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</tr>
<tr>
<td>Pharm. 10 (Prescriptions)</td>
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</tr>
<tr>
<td>Language</td>
<td>5</td>
</tr>
<tr>
<td>Science</td>
<td>5</td>
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<tr>
<td>Math. 4 (Trigonometry)</td>
<td>5</td>
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<tr>
<td>Physics</td>
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<tr>
<td>English 2</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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The student is required to take 25 hours of one modern foreign language or 30 hours (15 each) if two languages are taken.

The elective work in science may be varied so as to prepare students for: (a) Entrance to Colleges of Medicine; (b) manufacturing pharmacists and chemists; (c) food and drug chemists; (d) bacteriologists; or (e) physiological chemists.

A total of 180 hours plus two years of military training or physical education (12 credits) are required for graduation.

4. WITH DEGREE OF BACHELOR OF SCIENCE. (Four Year Combined Scientific and Business Course)

FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Quarter</th>
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<td>Pharm. 8 (C.)</td>
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<tr>
<td>Chem. 8 (G.)</td>
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<td>Chem. 9 (G.)</td>
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<tr>
<td>Zool 7 (P.)</td>
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SOPHOMORE YEAR

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<tr>
<td>Pharm. 13 (T.)</td>
<td>5</td>
<td>Pharm. 8 (U. S. F.)</td>
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<tr>
<td>Law 54 (B.)</td>
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<td>Pharm. 10 (P.)</td>
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<td>Law 56 (B.)</td>
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<td>Pharm. 14 (T.)</td>
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<td>Bus. 13 (A.)</td>
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<tr>
<td>Bus. 71 (E. of M.)</td>
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<td>Law 55 (B.)</td>
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<td>Bus. 73 (S. M.)</td>
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<td>Elective</td>
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<td></td>
<td></td>
<td>Bus. 10 (B. P.)</td>
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JUNIOR YEAR

<table>
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<tr>
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<tr>
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<td>Pharm. 11 (P.)</td>
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<tr>
<td>Bus. 76 (A.)</td>
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<td>Pharm. 10 (P.)</td>
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<td>Bus. 76 (A.)</td>
<td>3</td>
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<tr>
<td>Bus. 193 (I. M.)</td>
<td>3</td>
<td>Bus. 89 (O. M.)</td>
<td>3</td>
<td>Bus. 196 (B. M.)</td>
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</table>

A total of 180 hours plus two years of military training or physical education (12 credits) are required for graduation.

5. WITH DEGREE OF MASTER OF SCIENCE IN PHARMACY. (Five Year Course)

Graduates of the four year course may continue work for the master's degree as follows:

Not more than 22 credits allowed outside of the department of pharmacy. Election may be made in one or more of the following studies: Bacteriology, 8 to 22 credits; botany, 4 to 22 credits; physics, 10 to 22 credits; chemistry, 5 to 22 credits; zoology, 4 to 12 credits.

Not less than 28 credits shall be elected in the department of pharmacy. At least 12 credits of the major work must be a research problem and the preparation of a thesis. Examination and thesis must conform to the regulations of the Graduate School.
DEPARTMENTS OF INSTRUCTION

PHARMACY, PHARMACEUTICAL CHEMISTRY, MATERIA MEDICA
AND FOOD CHEMISTRY

Bagley Hall

1-2. Theoretical and Manufacturing Pharmacy.—The study of the principles of pharmacopoeial operations, and the manufacture of Pharmacopoeial and National Formulary preparations. Three lectures and two laboratory periods per week. Pharmacy 1 is repeated in the winter quarter. Pharmacy 2 is repeated in the spring quarter. Laboratory deposits $5 per quarter. Five credits per quarter; autumn, winter.

Associate Professor Linton, Mr. Goodrich

3. Commercial Pharmacy.—A lecture course covering the commercial problems of the practical pharmacist. Two credits; spring.

Mr. Osseward

4. Materia Medica.—A study of crude drugs, their source, methods of collecting and preserving, identification, active constituents and adulterations. Five credits; spring.

Linton

5-6-7. Drug Assaying.—Experiments in gravimetric and volumetric analysis are given with the idea of training the students in the fundamental principles of quantitative chemistry, and at the same time making them familiar with the analysis of substances of pharmaceutical importance. Two recitations and three laboratory periods per week in autumn and winter quarters; one recitation and one laboratory period per week in spring quarter. Laboratory deposit $5 per quarter. Five credits, autumn and winter; three credits, spring.

Professor Johnson, Mr. Goodrich


Linton


Johnson

10-11. Prescriptions.—Special attention will be given to incompatibilities and to the more important of the "new remedies." The students are required to criticise and compound approximately two hundred difficult prescriptions. One recitation and one laboratory periods per week during winter quarter; two recitations and two laboratory periods per week during spring quarter. Laboratory deposit: Winter quarter $2.50; spring quarter $5. Two credits, winter; four credits, spring.

Linton, Goodrich
18. Pharmacology and Therapeutics.—The actions and uses of chemicals, drugs and their preparations on the human organism in health and disease. Five credits; autumn. Linton

14. Toxicology.—The action of poisons, methods of treatment in cases of poisoning, and methods of identification and separation of poisons from tissue. Two credits; winter. Linton

15. Field Materia Medica.—A study of the native medicinal plants of Washington and also of plants under cultivation in the drug garden. One laboratory period per week, consisting largely of work in the drug garden and field trips. Laboratory deposit $1. One credit; spring. Linton

16. Food Laws.—National, state and foreign food laws. For students in the department of fisheries. One credit; winter. Johnson

104. Food Analysis.—For students in the Department of Home Economics. Two lectures and two laboratory periods per week. Laboratory deposit $5. Four credits; autumn. Johnson

105-106-107. Chemistry and Analysis of Food.—Methods of analysis of food products and the study of federal and state laws regulating the sale of foods and drug products. Methods of the Association of Official Agricultural Chemists are used. Graduate students, if prepared, may elect a research problem in food analysis. Laboratory deposit $5 per quarter. Five credits per quarter; autumn, winter, spring. Johnson

109-110-111. Toxicology.—A laboratory course in the separation, identification and estimation of inorganic and organic poisons and in the analysis of alkaloids. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring. Johnson

113-114-115. Advanced Prescriptions.—Extensive practice in difficult and incompatible prescriptions; also a study of special problems. Laboratory deposit according to credit. Credit to be arranged; autumn, winter and summer. Linton

117-118-119. Current Problems.—A lecture and recitation course on current problems of scientific importance. One credit per quarter; autumn, winter, spring. Linton

121-122-123. Manufacturing Pharmacy.—An advanced course in pharmaceutical manufacturing, including the manufacture of some of the more difficult of the Pharmacopoeial and National Formulary preparations, as well as a number of organic and inorganic compounds used in pharmacy and medicine. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.
201-202-203. Investigation.—Senior and graduate students may undertake some original investigation in pharmacy, pharmaceutical chemistry or chemistry of foods under the direction of one of the instructors. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.

**Bacteriology**

5. Pharmacy Bacteriology.—A general course with emphasis upon pharmaceutical problems. Prerequisite, sophomore standing and general chemistry. Laboratory deposit $8. Four credits; spring. Lectures T, Th, 1; T, Th, 2-5. Weinzirl

102. Sanitary Bacteriology.—Consideration of water supplies and sewage disposal; foods; industrial applications; inspection trips. Prerequisite, Bacteriology 101. Laboratory deposit $8. Four credits; winter. Lectures, T, Th, 1; laboratory, T, Th, 2-5, or M, W, 2-5. Weinzirl

103. Public Hygiene.—The conservation of health; prevention of disease; school and industrial hygiene. Prerequisite, junior standing except for bacteriology majors. Four credits; spring. Lectures, T, Th, 2. Weinzirl

201. Serology.—Immunity and immunization in animals and man. Prerequisites, Bacteriology 5, 102, 105 and senior or graduate standing. Laboratory deposit $8. Four credits; autumn. Lectures, M, W, 1; laboratory, M, W, 2-5. Weinzirl

202. Bacteriological Diagnosis.—The diagnosis of infectious diseases. Intended for those specializing in bacteriology. Some time may be spent in public and private laboratories. Prerequisite, Bacteriology 102. Laboratory deposit $8. Four credits; winter. Lectures, M, W, 1; laboratory, M, W, 2-5. Weinzirl

203. Clinical Diagnosis.—Examination of sputum, urine, blood, gastric and intestinal contents, parasites, etc., study of the pathological conditions involved. Prerequisites, Bacteriology 105, 106, or 102 and 103. Laboratory deposit $8. Four credits; spring. Lectures, M, W, 1; laboratory, M, W, 2-5. Weinzirl

**Botany**

13-14. Pharmacy Botany.—Gross structure of vegetative and reproductive parts of seed plants; brief study of sport plants; microscopy of powdered drugs. Laboratory deposit $1.50. Five credits, winter; four credits, spring. Rigg

**Economics and Business Administration**

1. General Economics.—Five credits; autumn, winter or spring.
10. Business Principles.—Three credits; winter.
11-12-13. Elementary Accounting.—Three credits per quarter; autumn, winter, spring.

71. Evolution of the Market.—Three credits; autumn.

73. Sales Management.—Three credits; spring.

76-77-78. Advertising.—Three credits per quarter; autumn, winter, spring.

89. Office Management.—Two credits; winter.

191. Business Management.—Prerequisite, junior standing. Three credits; autumn or spring.

195. Industrial Management.—Prerequisite, junior standing. Three credits; autumn.

CHEMISTRY

Laboratory deposits for all laboratory courses are $5 per quarter; breakage ticket, $5; locker key, 50 cents.

8-9. General Chemistry.—Five credits per quarter; autumn, winter.

10. Qualitative Analysis.—Four credits; spring.

37-38. Organic Chemistry.—Prerequisite, course 10. Five credits per quarter; autumn, winter.

43. Qualitative Analysis.—Prerequisite, course 28 or its equivalent. Five credits; autumn or spring.

101-102-103. Quantitative Analysis.—Laboratory. Four credits; autumn, winter, spring. (Repeated as 102-103-101; winter, spring, autumn.)

104. Food Analysis.—Four credits; autumn.

105-106-107. Chemistry and Analysis of Food.—Five credits per quarter; autumn, winter, spring.

121-122-123. Industrial Chemistry.—Prerequisite, 102. Five credits per quarter; autumn, winter, spring.

133. Sanitary Chemistry.—Prerequisite course 3 or 28. Three credits; autumn.

141-142-143. Physiological Chemistry.—Prerequisite course 33. Five credits per quarter; autumn, winter, spring.

201-202. Physical Chemistry.—Prerequisite, Physics 2 and courses 36 and 102. Five credits per quarter; autumn, winter.

203. Advanced Physical Chemistry.—Prerequisite, course 202. Five credits; spring.
204. *Electro Chemistry.*—Prerequisite, course 202. Five credits; spring.

206. *Chemistry of Colloids.*—Prerequisite, course 202. Two credits; spring.

212. *Organic Preparations.*—Prerequisite, course 223. Five credits; autumn.

213. *Organic Analysis.*—Prerequisite, courses 23 and 102. Two credits; winter.

221-222-223. *Chemical Theory.*—Prerequisite, course 202. Two credits per quarter; autumn, winter, spring.


250. *Research.*—The work in research offered by the department is of two types: (1) research for the master's degree. This work is not necessarily laboratory investigation, although the investigation of the literature is ordinarily supplemented by laboratory development of the subject. The maximum credit is nine hours. (2) research for the doctor's degree. Work for this degree may be carried on under the direction of any member of the regular staff of the department, or in food investigation with the dean of the College of Pharmacy. The work may be upon any topic approved by the department. The maximum credit is forty-five hours. First, second and third quarters. Prerequisite, course 202. Credit to be arranged.

**ENGLISH**

1-2. *Composition.*—Three credits per quarter for two quarters. Any two quarters.

**LAW**

54-55-56. *Business Law.*—The fundamental principles of law, with special lectures as to the statutory regulations and matters pertaining peculiarly to pharmacy. Three credits per quarter; autumn, winter, spring.

**MATHEMATICS**

4. *Plane Trigonometry.*—Prerequisite, one year of algebra, one year of plane geometry. Five credits; autumn, winter or spring.

**PHYSICS**

48-49. *Elementary Physics.*—No prerequisites. Laboratory deposit $2.50 per quarter. Five credits per quarter; autumn, winter.
92-98. General Physics.—A course for pharmacy, forestry and pre-medical students. Prerequisite, high school physics. Laboratory deposit $2.50 per quarter. Five credits per quarter; winter, spring.

**Physiology**

7. Elementary Physiology.—Laboratory deposit $2 per quarter. Five credits; autumn, winter or spring.

**Psychology**

1. General Psychology.—Four lectures, one discussion section and one two-hour laboratory a week. Course repeated every quarter. Five credits.

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*Note.—Fuller information regarding courses given by departments in other colleges than the College of Pharmacy may be found in the section of the catalogue entitled Departments of Instruction, published also as a separate bulletin.*
Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
GRADUATE SCHOOL
1919-1920

SEATTLE, WASHINGTON
PUBLISHED QUARTERLY BY THE UNIVERSITY
1919

Entered as Second Class Matter, at Seattle, Under the Act of July 16, 1894
THE BOARD OF REGENTS

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  Term ends March, 1920

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  Term ends March, 1920

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*EVERETT FRANCIS DAHM, A. B. ................ Assistant Director Administration Hall

1 Absent on leave 1918-19.
2 Absent on leave 1918-19; resigned 1919.
3 Detached on special service 1917-19.
4 In charge of service 1918-1919; resigned July 31, 1919.
UNIVERSITY CALENDAR
1919-1920

AUTUMN QUARTER

Examinations for admission ................................ Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a.m. and 2 p.m.
Registration of new first year students .................................................. Friday and Saturday, September 25 and 27
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Quarter examinations ........................................ Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER

Registration days ........................................ Friday and Saturday, January 2 and 3
Instruction begins ........................................ Monday, January 5
Quarter examinations ........................................ Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days ........................................ Friday and Saturday, April 2 and 3
Instruction begins ........................................ Monday, April 5
Campus Day ........................................ Friday, April 23
Junior Day ........................................ Saturday, May 29
Quarter examinations ........................................ Tuesday, Wednesday, Thursday and Friday, June 16, 18, 19 and 20
Class Day and President's reception ........................................ Saturday, June 19
Baccalaureate Sunday ........................................ June 20
Commencement and Alumni Day ........................................ Monday, June 21

SUMMER QUARTER

Registration days ........................................ Tuesday and Wednesday, June 22 and 23
Instruction begins ........................................ Thursday, June 24
Quarter examinations ........................................ Monday and Tuesday, August 30 and 31
Graduate School

THE FACULTY

HENRY SUKALLO, PH. D. (Columbia), LL. D. (California), PRESIDENT.

JOHN THOMAS CONDON, LL. M. (Northwestern), DEAN OF FACULTIES; DEAN OF LAW.

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CAROLINE HAYES OER, Professor of Spanish.

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HORACE G. BYERS, PH. D. (Johns Hopkins), Professor of Chemistry.

THOMAS KINCAID, A. M. (Washington), Professor of Zoology.

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DAVID THOMSON, B. A. (Toronto), Professor of Latin; DEAN of the College of Liberal Arts.

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CHARLES WILLIS JOHNSON, PH. D. (Michigan), Professor of Pharmaceutical Chemistry; DEAN of the College of Pharmacy.

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THERODEN CHRISTIAN FEYS, PH. D. (Chicago), Professor of Botany.

ROBERT EDWARD MORRIS, PH. D. (Nebraska), PH. N. D. (Strassburg), Professor of Mathematics.

HARVEY LANTZ, A. M. (De Pauw), LL. B. (Kent Law School), Professor of Law.

EVERETT OWEN EASTWOOD, C. E., M. A. (Virginia), S. B. (Massachusetts Institute of Technology), Professor of Mechanical Engineering.

DAVID CONNOLLY, Sc. M., M. D. (Chicago), Professor of Physical Education and Hygiene; University Health Officer.


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CHARLES CHURCH MORE, M. S., C. E. (Lafayette), M. C. E. (Cornell), Professor of Civil Engineering.

HENRY KLEITZER BENSON, PH. D. (Columbia), Professor of Chemical Engineering.

JOHN WEINZUR, PH. D. (Wisconsin), Professor of Bacteriology.

HUGO WINKENWINTER, M. F. (Yale), Professor of Forestry; Dean of the College of Forestry.

VERNON LOUIS PARRINGTON, A. B. (Harvard), A. M. (Emory), Professor of English.

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EDWIN JOHN VICKNER, PH. D. (Minnesota), Professor of the Scandinavian Languages.

MATTHEW LLOYD SPENCER, PH. D. (Chicago), Professor of Journalism; Director of the School of Journalism.

EDWIN ISAAC BARTT, B. S. (Columbia), Professor of Home Economics; Director of the Department of Home Economics.

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STEVENSON SMITH, PH. D. (Pennsylvania), Professor of Psychology.

WILLIAM PIERCE GORMAN, A. B. (Knox), Professor of Public Speaking and Debate.

CLARK PHRESCOTT BISSEY, A. B. (Hobart), Professor of Law.

ARTHUR RAGAN PHIRST, A. M. (De Pauw), Professor of Debating and Dean of Men.

ALLEN ROGERS BURHALL, PH. D. (Yale), Professor of English.

J. ANTON DE HAAS, PH. D. (Stanford), Professor of Business Administration.

SAMUEL LATTIMER BOOTHROYD, M. S. (Colorado Agricultural College), Associate Professor of Astronomy.

1. Absent on leave.

2. Withdrawn.
Burt Persons Kirkland, A. B. (Cornell), Associate Professor of Forestry.

Thomas Kay Sidex, Ph. D. (Chicago), Associate Professor of Latin and Greek.

William Marvel Dwin, Ph. D. (Illinois), Professor of Chemistry.

Edward McMahon, A. M. (Wisconsin), Associate Professor of American History.

George Samuel Wilson, B. S. (Nebraska), Associate Professor of Mechanical Engineering.

George Wallace Umbreit, Ph. D. (Harvard), Associate Professor of Spanish.

Otto Kattner, Ph. D. (Wisconsin), Associate Professor of French.

Charles William Harris, O. B. (Cornell), Associate Professor of Civil Engineering.

Edgar Allen Low, B. S., E. E. (Wisconsin), Associate Professor of Electrical Engineering.

Edwin James Saumier, A. M. (Harvard), Assistant Professor of Geology.

Eliai Thad Clarke, M. F. (Yale), Assistant Professor of Forestry.

Edward Gorsey Cox, Ph. D. (Cornell), Associate Professor of English.

Joseph Daniels, S. B. (Massachusetts Institute of Technology), M. S. (Lehigh), Associate Professor of Mining Engineering and Metallurgy.

Bex Victor Smith, Ph. D. (Northwestern), Assistant Professor of Zoology.

Charles Munro Strong, A. M. (Missouri), Assistant Professor of Spanish.

Henry Louis Brakel, Ph. D. (Cornell), Assistant Professor of Physics.

Harvey Bruce Denison, A. B. (Oxford), Assistant Professor of Greek.

Charles Edwin Weaver, Ph. D. (California), Assistant Professor of Geology.

Clarence Raymond County, M. S. (Columbia), Assistant Professor of Mining and Metallurgy.

Allen Fulling Carpenter, Ph. D. (Chicago), Assistant Professor of Mathematics.

George Burton Eas, Ph. D. (Chicago), Assistant Professor of Botany.

Horace James Macintyre, M. M. E. (Harvard), Assistant Professor of Mechanical Engineering.

Gino Andrea Batti, Ph. D. (Grenoble), Assistant Professor of French.

Ernst Otto Eckelmann, Ph. D. (Heidelberg), Assistant Professor of German.

John Louis Hotson, Ph. D. (Harvard), Assistant Professor of Botany.

Louis Irving Nejirke, Ph. D. (Pennsylvania), Assistant Professor of Mathematics.

Samuel Herbell Anderson, Ph. D. (Illinois), Assistant Professor of Physics.

Friedrich Kurt Kirsten, B. S. (B. E.) (Washington), Assistant Professor of Electrical Engineering.

Curt John Dugan, Ph. D. (Harvard), Assistant Professor of Philosophy.

Erek Temple Bell, Ph. D. (Columbia), Assistant Professor of Mathematics.

Bron Leonard Grondahl, M. S. F. (Washington), Assistant Professor of Forestry.

Leslie Forrest Curtis, B. E. (Tufts), Assistant Professor of Electrical Engineering.

Herman V. Taft, B. S. (Oregon A. C.), Assistant Professor of Chemistry.

Richard Frederick Schole, Ph. D. (Wisconsin), Professor of Ancient History.

Thomas Talbot Waterman, A. B. (California), Ph. D. (Columbia), Associate Professor of Anthropology.

Halmar Lawrence Ostertag, A. M. (Washington), Instructor in Zoology.

Francis Edward Hindman, M. S. (Washington), Instructor in Pharmacy and Assistant State Chemist and Bacteriologist.

Edwin Ray Guthrie, Ph. D. (Pennsylvania), Instructor in Philosophy.

Horace Handy Lester, Ph. D. (Princeton), Instructor in Physics.

Committee on Graduate Courses: Professors Osborn, Thomson, Savery, Fishin and Moritz.

Secretary of Graduate Faculty and Ex-Officio Secretary of Committee on Graduate Courses: Professor Thomson.

1 Absent on leave, 1919-1920.
THE GRADUATE SCHOOL

The Aims of Graduate Study.—The principal aims of graduate study are the development of intellectual independence through the cultivation of the scientific attitude of mind, and the promotion of the spirit of research. The graduate student is therefore thrown more largely upon his own resources than the undergraduate, and must measure up to a more severe standard. The University is consistently increasing the emphasis upon graduate work in order that it may be a strong center for advanced study.

Organisation.—The Graduate School was formally organized in May, 1911. The graduate faculty includes:

1. All heads of departments and full professors.

2. All associate professors, assistant professors and instructors offering graduate work for major students; provided no department shall have more than four representatives. If more than that number are eligible, the departmental representatives below the rank of full professor shall be elected by the members of the department.

Fees.—Graduate students, including fellows, associates, and assistants, are required to pay a tuition fee of $10 a semester.

GRADUATE SCHOLARSHIPS AND FELLOWSHIPS

Fellowships.—There are three Loretta Denny fellowships, of $416.66 each, open to graduate students in any department of the University. They are awarded by the faculty on the basis of scholastic excellence and general merit, but only to those who need financial assistance. Fellows are expected to give their undivided attention to the prosecution of graduate work and must pay the regular matriculation and tuition fees. Applications for these fellowships should be made on blanks supplied by the Recorder of the University, and must be in his hands on or before March 15 preceding the academic year for which they are granted.

National research fellowships in physics and chemistry, offered by the National Research Council, are open to promising research students, preferably those who have already taken the doctor's degree. A successful candidate can pursue his research at this University. The salary will ordinarily be $1500 for the first year. Fellows are eligible for successive reappointments, ordinarily with increase of salary.

Scholarships.—A scholarship of $200, known as the "Samuel Rosenberg Scholarship, endowed in loving memory by Ella S. Rosenberg, his wife," is open to graduate students in French.

Through its chemical department, Du Pont de Nemours & Co. offer a scholarship of $850 in chemistry, known as the "Du Pont Scholarship," open to a senior student or graduate student in chemistry or chemical engineering.

University Honorary Fellowships.—Three honorary fellowships
have been established by the University. These, like the Loretta Denny fellowships, are open to students in any department of the University. They carry no stipend, and are designed to furnish recognition of exceptional scholastic excellence in the case of graduate students who are not eligible for the Loretta Denny fellowships, either because they do not need financial assistance or because they are not giving their entire time to their work in the University.

University Teaching Fellowships.—There are also a number of teaching fellowships yielding $450.00 each. Teaching fellows are expected to give about half time to such work as the head of the department may assign. An applicant for a teaching fellowship should apply directly to the head of the department in which he is interested.

Research Fellowships in Mining and Metallurgy.—The College of Mines of the University in cooperation with the United States Bureau of Mines offers five fellowships in mining and metallurgical research. The fellowships are open to graduates of universities and technical schools who are properly qualified to undertake research work. The value of each fellowship is $720 per year of twelve months. Fellowship holders are required to register as graduate students and to become candidates for the degree of master of science in mining engineering or metallurgy, unless an equivalent degree has previously been earned. Applications are due not later than May 15, and should be addressed to the Dean, College of Mines, University of Washington, Seattle, Washington.

ADMISSION AND DEGREES

Three classes of students are recognized in the Graduate School:

1. Candidates for the master's degree.
2. Candidates for the doctor's degree.
3. Students not candidates for a degree.

Admission—A graduate of the University or of any other institution of equal rank will be given a full graduate standing. If the student is from a college or university which falls below a satisfactory standard in the character of its curriculum, the efficiency of its instruction, its equipment, and its requirement for graduation, he must take such undergraduate courses as may be specified before making application for an advanced degree.

Any graduate student who expects to become a candidate for a degree must file an outline of his proposed work with the Dean of the Graduate School, on a blank provided for the purpose, at the time of his registration. Registration will not be regarded as complete until this outline has been filed. When it has received the approval of the committee on graduate courses or of the graduate faculty, and the student has been notified thereof, he will be enrolled as a candidate for a degree.

Students on the Staff.—Assistants, associates, or others in the employ of the University are permitted to carry three hours of grad-
Graduate work if full-time employees, and ten or eleven hours if half-time employees.

Graduate Study in the Summer.—As the summer offers leisure for advanced study to a large number of teachers, the University lays special emphasis upon graduate work during the summer quarter. Graduates of colleges or universities in attendance during the summer are urged to enroll for the strictly graduate courses, as these courses give them an opportunity to work with a select group of mature students toward the acquisition of an advanced degree.

Graduate students will enroll with the Dean of the Graduate School and will be given an opportunity to discuss their courses of study in detail.

Attendance during two and one-half summer quarters will satisfy the residence requirement for the master's degree. A fair amount of credit toward the doctor's degree may also be earned in the summer quarter.

Degrees

Every graduate student who expects to take a degree in June of any given year shall send to the Recorder a written statement to that effect between February 1 and May 1 of that year.

The Master's Degree.—Graduate students may receive the degree of master of arts or master of science by complying with the following requirements:

1. At least one year's work must be done in residence in undivided pursuit of the studies elected; or not less than two years in residence, if the candidate is employed as a teacher or regularly engaged in any other occupation or profession. Attendance during two and one-half summer quarters or their equivalent will satisfy the residence requirement.

2. The candidate must elect a major subject and either one or two minors. He must earn not less than thirty-six credits in residence, with a grade of A, B or C, at least one-half being in the major subject, and present a thesis which shall embody independent though not necessarily original research. The requirement of a minor or minors may be waived, but only upon the recommendation of the head of the major department and with the consent of the committee on graduate courses. The total must represent the equivalent of at least forty-five hours.

3. No work done in the major subject may be counted toward the master's degree until the candidate for such degree has complied with the departmental requirement as to previous work in that subject, which in no case shall be less than eighteen hours.

4. Elementary or lower division courses may not count toward the minor requirement, and the teachers' courses may not count toward either the major or minor requirement.

5. Upon completion of the work as outlined in the application, the candidate shall be given an oral or an oral and written examina-
tion by a committee consisting of the major professor and all instructors with whom he has had work. The candidate in order to be recommended for a degree must receive a two-thirds affirmative vote of each department represented in the examination.

6. The candidate's thesis shall be in charge of the instructor in whose field the subject of it falls, and it must be approved by the instructor in charge and receive a two-thirds favorable vote of the instructors of professorial rank in the department concerned. One copy of the thesis in typewritten or printed form (or library hand, in case the thesis is of such character that it cannot be typewritten), shall be deposited in the University library. The thesis must meet the approval of the librarian, and the cost and form of binding must be deposited with the thesis.

The Doctor's Degree.—Graduate students will be received as candidates for the degree of doctor of philosophy in such departments as are adequately equipped to furnish the requisite training.

Graduate students may receive the degree of doctor of philosophy by complying with the following requirements:

1. At least three years of graduate work, the last year of which must be spent in residence at the University of Washington. If a candidate is otherwise engaged in any regular employment, a correspondingly longer time will be required.

2. Evidence of a reading knowledge of both French and German and such other languages as individual departments may require. Evidence of sufficient attainment in these languages must be presented to the Dean, and, upon his approval, filed with the Recorder at least one academic year before the degree is granted.

3. Completion of courses of study in a major and two minor subjects, the work in the minors to constitute one-third of the total course. The major subject, in addition to the regular courses, shall include the preparation of a thesis embodying the results of a research which shall be a positive contribution to knowledge. This thesis must be approved by a committee appointed by the head of the major department of which the instructor in charge of the thesis shall be a member, and also by the committee on graduate courses.

4. Oral examination in each of the minor subjects before a committee of three, including a representative of the major department. Certificates of the satisfaction of this requirement must be given before the candidate may be admitted to his major examination.

5. An exhaustive written examination in the major subject, not less than six hours in duration, no one session of which may exceed five hours.

6. An oral examination before a committee of three or more representatives of the major department, of not less than two hours. This examination must be approved by the entire committee. All examinations are open to members of the faculty.
7. One copy of the thesis in typewritten form (or library hand) shall be bound at the expense of the candidate and deposited with the librarian for permanent preservation in the University archives.

The thesis, or such parts thereof as may be designated by the committee on graduate courses, must be printed in a form approved by the librarian and one hundred copies must be presented to the University library.

The completion of the requirements as specified shall be certified by the head of the major department not later than the Wednesday preceding commencement day.

The doctor's degree will not be granted to graduates of the University of Washington who have not spent two years in graduate work, or three years in undergraduate work, at some other institution.

For the present, members of the teaching staff of the University, of the grade of instructor or above, will not be received as candidates for the doctor's degree.

Master of Science in Engineering.—Courses leading to the degree of master of science in engineering are provided for students in civil engineering, electrical engineering, mechanical engineering, chemical engineering, and mining engineering.

For further information, see bulletins of the Colleges of Engineering and Mines.

Master of Science in Pharmacy.—The degree of master of science in pharmacy will be conferred upon graduates of the four-year course in pharmacy who complete at least one year of graduate work as outlined and present at satisfactory thesis.

For further information, see the bulletin of the College of Pharmacy.

Master of Science in Forestry.—For the degree of master of science in forestry, the student, in addition to being a graduate of this University or other institution of equal rank, and having a satisfactory knowledge of botany, geology, physics, chemistry, mathematics, surveying and languages, shall have been credited at this University with 249 credits of which at least 78 are in technical forestry subjects, including silviculture, dendrology, wood technology, mensuration, management, lumbering, wood preservation, forest economics, and thesis.

For further information, see the bulletin of the College of Forestry.

Master's Degrees in Education.—Advanced work for teachers leading to the master's degree in education is given by the University. See bulletin of College of Education for further information.

For description of graduate courses, see Departments of Instruction.
THE BULLETIN OF
THE UNIVERSITY OF WASHINGTON

is published quarterly, with frequent supplementary issues. Once a year is issued the

CATALOGUE AND ANNOUNCEMENTS

containing the register of officers, faculty and students for the current year and announcements of the several schools, colleges, and departments for the coming year. Separate sections of the Announcements are also published, as follows:

1. Entrance Information
2. College of Liberal Arts and College of Science
3. College of Business Administration
4. College of Education
5. College of Engineering
6. College of Fine Arts
7. College of Fisheries
8. College of Forestry
9. School of Journalism
10. School of Law
11. Library School
12. College of Mines
13. College of Pharmacy
14. Graduate School
15. Departments of Instruction
16. The Extension Service

Bulletins are also published containing announcements of

THE SUMMER QUARTER
PUGET SOUND BIOLOGICAL STATION

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Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board
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ETHEL HUNLEY COLDWELL, A. M. ................... Dean of Women Administration Hall

WILLIAM ELMER HENRY, A. M. ..................... Librarian Library

FRANK STEVENS HALL ................................ Director of Museum Museum

JAMES GARFIELD FLETCHER, A. B. ................. Vocational Secretary Administration Hall

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HENRY LANDES, A. M. ..................... Dean of the College of Science Science Hall

STEPHEN IVAN MILLER, LL. B., A. B. ............ Director of the College of Business Administration Commerce Hall

FREDERICK ELMER BOLTON, Ph. D. ................ Dean of the College of Education Home Economics Hall

CARL EDWARD MAGNUSSON, Ph. D. ................. Acting Dean of the College of Engineering Engineering Hall

IRVING MACKEY GLEN, A. M. ..................... Dean of the College of Fine Arts Meany Hall

JOHN NATHAN COBB .................... Director of the College of Fisheries Fisheries Hall

HUGO WINKENWERDER, M. P. .................. Dean of the College of Forestry Forestry Hall

MATTHEW LYLE SPENCER, Ph. D. ............... Director of the School of Journalism Commerce Hall

JOHN THOMAS CONDON, LL. M. .................. Dean of the Law School Commerce Hall

WILLIAM ELMER HENRY, A. M. .................. Director of Library School Library

MILNOR ROBERTS, A. B. ...................... Dean of the College of Mines Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ........ Dean of the College of Pharmacy Bagley Hall

J. ALLEN SMITH, Ph. D. ...................... Dean of the Graduate School Denny Hall

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UNIVERSITY CALENDAR

1919-1920

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WINTER QUARTER

Registration days......................................................... Friday and Saturday, January 2 and 3
Instruction begins......................................................... Monday, January 5
Quarter examinations ......................................................... Monday, Tuesday, Wednesday and Thursday, March 22, 23, 24 and 25

SPRING QUARTER

Registration days......................................................... Friday and Saturday, April 2 and 3
Instruction begins......................................................... Monday, April 5
Campus Day ................................................................. Friday, April 23
Junior Day ................................................................. Saturday, May 29
Quarter examinations ......................................................... Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception ........................................ Saturday, June 19
Baccalaureate Sunday ..................................................... June 20
Commencement and Alumni Day ........................................... Monday, June 21

SUMMER QUARTER

Registration days......................................................... Tuesday and Wednesday, June 22 and 23
Instruction begins......................................................... Thursday, June 24
Quarter examinations......................................................... Monday and Tuesday, August 30 and 31
This bulletin contains a list of all courses of study offered in the university. The departments are arranged in alphabetical order.

The University reserves the right to withdraw temporarily any course which has not an adequate enrollment at the end of the sixth day of any quarter. For changes in registration, due to the withdrawal of a course, no fee will be charged.

The four-quarter plan was adopted in order to enable the University to render larger service. It is more flexible than the semester plan, besides adding twelve weeks' instruction to the regular year. It is impossible, however, to provide that every course be given every quarter.

Courses bearing numbers 1 to 99 inclusive are normally offered to freshmen and sophomores; those from 100 to 199, to juniors and seniors; and those from 200 upward to graduate students.

Two or three numbers connected by hyphens indicate a course which ordinarily carries credit only when pursued for the full time; the instructor's permission must be obtained for credit for only a single quarter of such a course. No credit in a beginning foreign language is given for less than two quarters' work.

The credit indicated in connection with each course is the "quarter credit," being based on the class periods per week.

The descriptions of courses in each department include: (1) the number of the course as used in university records; (2) the title of the course; (3) a brief statement of its subject matter and method; (4) number of quarter credits given; (5) quarter in which it is given (autumn, winter, spring, summer); (6) name of instructor.

The following abbreviations are used to designate buildings:

Ar.—Army. F.—Forestry.
Arch.—Architectural Building. Fish.—Fisheries.
As.—Astronomy Building (Observatory). Gym.—Gymnasium.
Aud.—Auditorium. H. E.—Home Economics Hall.
B.—Bagley Hall. Li.—Library.
BS.—Bookstore Building. M. H.—Meany Hall.
C.—Commerce Hall. M.—Mines Hall.
D.—Denny Hall. S.—Science Hall.
E.—Engineering Hall. Shop—Shop Building.

Courses preceded by a * are not given in 1919-1920.
DEPARTMENTS OF INSTRUCTION

AERONAUTICAL ENGINEERING

Assistant Professor Anderson

101. Aerodynamics.—Use of the wind tunnel in the determination of the characteristics of aerofoils; selection of aerofoils for a given purpose. Prerequisite, C. E. 11, 12, and Math. 68. Three credits; autumn, winter, spring.

ANATOMY

Assistant Professor Worcester

GROSS ANATOMY

101-102-103. General Human Anatomy.—A thorough study of the human body. The dissecting material is prepared after the most modern methods. Osteological collections are loaned to the students. Especially intended for students taking the pre-medical, nurses' or physical education courses, but open to others. Prerequisite, Zoology 3 and 4 or their equivalent. Six credits per quarter; autumn, winter, and spring.

Topographic Anatomy.—Cross and sagittal sections for correlation. Prerequisites, Anatomy 101-102, and 108. Four credits; autumn quarter.

Microscopic Anatomy

106-108. Histology and Embryology.—The microscopic anatomy of developing and adult mammals studied both in their fresh and fixed conditions. Especially for students in pre-medical and nurses’ courses but open to others. Prerequisite, Zoology 3 and 4 or their equivalent. Five credits per quarter; autumn and winter.

Neurology.—The dissection of the human brain and cord and special organs of sense, also the comparative developmental history of the central nervous system, followed by a microscopic study of the nuclei and fiber tracts. Prerequisites, Anatomy 105 and 106 or their equivalents. Especially for medical students but open to others. Five credits per quarter; spring.

ARCHITECTURE

Associate Professor Gould; Mr. McLennan, Mr. Skeatsmth

3-2-1. History and Elements of Architecture.—Illustrated lec-
tures and exercises in drawing and simpler elements of buildings. Excursions will be made to buildings and to builders' supply houses. In second and third quarters a general course in the history of architecture. Juniors in department of home economics and majors in painting and design take first and second quarters consecutively, receiving three credits first quarter. In the first quarter one two-hour laboratory period per week is required of juniors in home economics and juniors majoring in painting and design. One credit is added for this work. Two credits per quarter; autumn, winter, spring.

4-5-6. Architectural Design.—Practical methods of presenting an architectural problem by means of plan, section and elevation. Individual instruction with occasional conferences. Recommended to students in engineering. Three credits per quarter; autumn, winter, spring.

7. Descriptive Geometry.—Training in draftsmanship and the ability to read drawings. Two three-hour laboratory periods per week. Three credits; autumn.

8. Shades and Shadows.—Construction by descriptive geometry of shades and shadows found in architectural renderings. Prerequisite, course 7. Two three-hour laboratory periods per week. Three credits; winter.

9. Perspective Drawing.—The theory of architectural perspective from simple problems in single point perspective up to and including the more complicated problems. Office methods and short-cut methods will be studied and compared with the theory. Two three-hour laboratory periods. Three credits; spring.

10-11-12. Free Hand Drawing.—The fundamentals of free hand drawing and free hand perspective. Drawing in charcoal or crayon from cast or architectural ornament and from still life. One credit per quarter; autumn, winter, spring.

47-48. Mechanics.—Statics; mechanics of building materials. No prerequisites. Five credits per quarter; autumn, winter.

51-52-53. History and Elements of Architecture.—First quarter, Egyptian, Greek and Roman architecture; second and third, Byzantine, Romanesque and Gothic, with concurrent study of outlines of general history. Illustrated lectures. Sophomore course, but may be taken the autumn quarter as a part course. Required of all students in the department and open to all students in the University. Two credits per quarter; autumn, winter, spring.

54-55-56. Architectural Design.—Problems in design and planning. Society in Beaux Arts Architects program will be used and work
sent to New York City for judgment in competition with work from leading architectural schools. Laboratory fee, $2. Five credits per quarter; autumn, winter, spring.

GOULD

60-61-62. Building Construction and Inspection.—Lectures on methods employed in building construction, supplemented by detail drawing of various parts of buildings of all types. Visits will be made to the manufacturing plants of building materials and to all types of buildings under construction. Two credits per quarter; autumn, winter, spring.

MCCLELLAND

72. Modeling.—Studies in clay of architectural ornament. One credit; autumn.

WHIH

73-74. Free Hand Drawing.—Studies of architectural ornament and cast of the human figure. One credit per quarter; winter, spring.

101-102-103. History of Architecture.—The architecture of the Renaissance; problems in ornamental design and planning. Two credits per quarter; autumn, winter, spring.

MCCLELLAND

104-105-106. Architectural Design.—Advanced problems in ornamental design and planning as applied to different materials. Problems of industrial layouts, city squares, playgrounds, etc. Laboratory fee, $2. Three credits per quarter; autumn, winter, spring.

MCCLELLAND

112. Modeling.—Design of simple architectural forms. One credit; autumn.

Time to be arranged.

WHIH

113-114. Water Color.—Still life studies, out-door subjects and architectural rendering. One credit per quarter; autumn, spring.

MCCLELLAND

115-116. Sanitation and Plumbing.—Methods of sewage disposal and water supply in modern buildings; modern appliances and office practice; specifications. One credit per quarter; autumn, winter.

SEYMOUR

151-152-153. History of Architecture.—Modern architecture; city and industrial planning. Prerequisite Architecture 103. Two credits per quarter; autumn, winter, spring.

GOULD

154-155-156. Architectural Design.—Beaux Arts Class A projects first two quarters; third quarter, thesis. Five credits per quarter; autumn, winter, spring.

MCCLELLAND

157-158-159. Free Hand Drawing.—Studies from life. Two credits per quarter; autumn, winter, spring.
Art Appreciation.—A survey of the history of art, principles of composition and arrangement. One credit per quarter; autumn, winter, spring.

Electives.—Electives may be chosen from among the following subjects: Analytical geometry, calculus, modern language, music, economics, naval architecture, psychology, public speaking, geology 5, English 37, 38, 39.

In addition students who elect design in their fourth year may select from the following subjects: Bridges, higher structures, structural materials (C. E. 167), frame structures (C. E. 184), electrical engineering 11.

These two courses are suggested as electives in the spring quarter of the junior year in architecture: Engineering geology (Geology 5), and practical public speaking (Dramatic Art 81).

Astronomy and Navigation

The Observatory

Associate Professor Boothroyd

The work in astronomy is planned for three classes of students:
(a) Those who desire some knowledge of astronomy as a part of a liberal education; (b) engineers and navigators who need some knowledge of the science as a part of their technical training; and (c) those who wish to pursue the subject more intensively than either of the other classes.

In navigation the aim is to give a thorough mastery of the science and as much of the art as can be given with the limited equipment of the laboratory and class room. Men having the necessary experience in seamanship should have no difficulty in securing a master's license after successfully completing the course in navigation.

Any one of the following combinations of courses may be taken to satisfy the fourth science requirement in the College of Science:
(a) 1, 2, 11 and 12; (b) 1, 2, 11 and 12; (c) 1, 11, 81 and 125; (d) 1, 11 and 5 hours of geology; (e) 10 hours of geology.

In the College of Liberal Arts 1, 11, 12 and 81 are recommended for those electing astronomy for the science requirement.

No major is offered in astronomy. Those contemplating graduate work in the subject should major in mathematics or physics and should arrange their course in consultation with their major professor and the head of the department of astronomy. Those contemplating applying for the "Mars Fellowship" must major in physics or mathematics and arrange their course as above specified. In the College of Engineering those wishing to specialize in geodetic engineering should arrange their electives in consultation with the head of the department of civil engineering and the head of the department of astronomy.
1. *Introduction to Astronomy.*—Eleven lectures, accompanied by studies of the heavens with the unaided eye, with the equatorial telescope and with charts and planetarium, and illustrated by lantern slides. Open to all students of the University. Laboratory fee, $1. One credit.

2. *The Elements of Practical Astronomy.*—Orbits and planetary motions; observations for time and azimuth with universal instrument and graphical solution for same on small hemispheres; equatorial telescope. Must be preceded or accompanied by Astronomy 1. Laboratory fee, $1. Two lecture and recitation periods and four laboratory hours per week. Two credits; winter.

11. *The Solar System.*—The solar system as a whole, its individual planets and their satellite systems, and the comets and meteors. Prerequisite, must be preceded by Astronomy 11 or its equivalent. Four lecture and recitation periods per week. Four credits; autumn, winter and spring.


31. *History of Astronomy.*—An exposition of the scientific method as illustrated by the progress of astronomy. Forbes' "History of Astronomy" is used as a basis for the course. Prerequisite, Astronomy 11. Two lecture and recitation periods per week. Two credits per quarter.

106. *Modern Astronomy.*—Recent work on planets, sun, stars and the general problems of the structure of the universe. Prerequisites, physics 93, mathematics 4 or its equivalent, and astronomy 12 and 31. Five lecture and discussion periods per week. Five credits; spring quarter.

*123. Nautical Astronomy.*—Principles of spherical astronomy as applied to the problems of determining the ship's position by observation; the sextant and its use. Prerequisites, Mathematics 52, or its equivalent, and must be preceded or accompanied by Astronomy 1. Two lecture and recitation periods and four laboratory hours per week. Three credits; autumn quarter. Laboratory fee, $2.

*124. Navigation.*—Study of nautical instruments, charts, elements of navigation, piloting, the sailings and dead reckoning, the Sumner method and the "new navigation." Prerequisite, Astronomy 123. Ten hours per week recitations and working problems. Laboratory fee, $2. Five credits; winter-quarter.
171. Engineering Astronomy.—An elementary course designed to give the student ability to determine time, latitude and azimuth from observations on the sun or stars with the surveyor's transit. Prerequisites, Mathematics 52, C. E. 21 or its equivalent, and must be preceded or accompanied by Astronomy 1 or its equivalent. Four laboratory hours per week. Two credits; autumn quarter. Laboratory fee, $2.

172. Geodetic Astronomy.—The course consists in the solution of problems for the precise determination of time, latitude and azimuth. Prerequisites, Astronomy 122, Mathematics 62. Ten hours laboratory work per week. Five credits; winter quarter. Laboratory deposit, $5. Hours to be arranged.

173. Geodesy.—Figure of the earth, geodetic positions, adjustment of triangulation systems, gravity determination and isostacy, mapping and map projection. Prerequisites, Astronomy 122 and Mathematics 62. Five lecture and recitation periods per week with outside assignments of problems and reading. Five credits; spring quarter.

*203-204-205. Practical Astronomy.

BACTERIOLOGY AND PATHOLOGY

Science Hall
Professor Whinzel, Assistant Professor Nickson

With the exception of general bacteriology, all the courses offered are applied in one of the following fields: (a) medicine; (b) sanitation; (c) industry. Laboratory work forms an important part of all courses.

SUGGESTED SELECTIONS

For a major: 101, 102, 103, 110, 111, 112, 201, 202, 203. The work should be begun in the sophomore year if possible.

For arts and science students: 101, 102, 103.

For medical students and nurses: 104, 105, 106, and 203.

For home economics students: 101, and 102, are required, and 103 may be elected.

For pharmacy students: 5.

For chemical and sanitary engineers: either 5 or 101, 102, 103 may be elected.

5. Pharmacy Bacteriology.—A general course with emphasis upon pharmaceutical problems such as sterilization, disinfectants, and biological products. Prerequisite, sophomore standing and general chemistry. Four credits; spring. Laboratory fee, $8.

101. General Bacteriology.—Technique in growing and examining bacteria, their structure, functions and distribution; identification

* Not offered in 1919-1920.
DEPARTMENTS OF INSTRUCTION

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of species; study of common disease bacteria. Prerequisite, junior standing except for bacteriology majors. A knowledge of biology and general chemistry is desirable. Four credits; autumn, summer. Laboratory fee, $8.

Weinzel and Assistant

102. Sanitary Bacteriology.—Consideration of water supplies and sewage disposal; milk, meat, and other foods; certain industrial applications; inspection trips. Prerequisite, Bacteriology 101. Four credits; winter, summer. Laboratory fee, $8.

Weinzel and Assistant

103. Public Hygiene.—The conservation of health; prevention of infectious and other diseases; school hygiene; industrial hygiene, etc. Prerequisite, junior standing except for bacteriology majors. Two credits; spring and summer.

Weinzel

104. Medical Bacteriology.—The technique and principles of general bacteriology; identification of species; theories of infectious disease and of immunity. Prerequisites, general chemistry, histology, and junior standing. Four credits; autumn. Laboratory fee, $8.

Weinzel and Assistant

105. Infectious Diseases.—A detailed study of the pathogenic bacteria, and methods for the diagnosis of infectious diseases. Prerequisite, Bacteriology 104. Four credits; winter. Laboratory fee, $8.

Weinzel and Assistant

106. Hygiene.—A general course covering both personal and public hygiene. Four credits; spring. Laboratory fee, $8.

Weinzel and Assistant

110. Pathology.—Three credits; autumn. Laboratory fee, $8.

Nickson

111. Pathology.—Three credits; winter. Laboratory fee, $8.

Nickson

112. Pathology.—Four credits; spring.

Nickson

201. Serology.—A consideration of the types of immunity; immunization of animals and man; study of immune products. Prerequisite, Bacteriology 5, 102, or 105, and senior or graduate standing. Four credits; autumn. Laboratory fee, $8.

Weinzel

202. Bacteriological Diagnosis.—The diagnosis of infectious diseases. Intended for those specializing in bacteriology. Some time may be spent in public and private laboratories. Prerequisite, Bacteriology 102. Four credits; winter quarter. Laboratory fee, $8.

Weinzel

203. Clinical Diagnosis.—The examination of sputum, urine, blood, gastric and intestinal contents, parasites; etc.; study of the path-
ological conditions involved in the above. Prerequisite, Bacteriology 105 and 106, or 102 and 103. Four credits; spring. Laboratory fee, $8.

210-211-212. Seminar.—A consideration of topics not included in the regular courses; also reports on recent investigations and of research work done by the members. Prerequisite, senior or graduate standing, and Bacteriology 102 or 105. Two credits per quarter; autumn, winter, spring.


BOTANY

Science Hall
Professor Frye, Assistant Professors Rigg and Hotson

SUGGESTED SELECTIONS

For the required biological science in the Colleges of Liberal Arts and Science, only courses 1, 2, 3, 11, 12, 105, 106, 107, will be accepted.

For a major: Courses 105, 106, 107, 140, 141, 142, 148, 144, 145, of which 105 and 106 are required unless 11 and 12 were taken in the freshman year.

For teaching botany: 3, 105, 106, 140, 141, 142, 143, 144, 145.

For pharmacy students: 13, 14.

For forestry students: 11, 12, 140, 141, 142, 261, 262.

For fisheries students: 58, 180.

1. Elementary Botany.—The structure and functions of roots, stems, leaves and seeds. Only for those who have had no botany in the high school. Five credits; autumn.

2. Elementary Botany.—Types of the great groups of plants from the lowest to the highest. Open to students entering the second quarter without any previous botany. Five credits; winter.

3. Elementary Botany.—Plant analysis; field work with local flora. Open to students entering the third quarter without any previous botany. Five credits; spring.

8, 9, 10. Ecology and Taxonomy.—For city teachers. Field trips every other Saturday, with noon campfire talks. Two or three credits per quarter; autumn, winter and spring quarters.

11, 12. Foresters’ Botany.—A study of types of plants to illustrate the advances in complexity. For forestry students. Five credits per quarter; winter and spring. Prerequisite, Course 7.
18, 14. Pharmacy Botany.—Gross structure of vegetative and reproductive parts of seeds; brief study of spore plants; microscopy of powdered drugs. Five credits, winter; four credits, spring quarter.  

Rigg and Assistant

26. School Garden.—Prerequisite, Courses 1, 2, or 10. Five credits; spring quarter.

Hotson

58. Aquatic Botany.—A course on the plants of fresh water habitats, especially those involved in the study of fishes and their culture. Five credits; spring.

Fith

105, 106, 107. Morphology and Evolution.—A morphological study of types to show advances in complexity. Required for all majors unless Courses 11 and 12 were taken in the freshman year. Prerequisite, Courses 2 or 10, or Zoology 1 and 2. Sophomore standing, or senior standing without prerequisites. Four credits per quarter; autumn, winter, spring.  

Fith and Assistant

111. Forest Pathology.—The recognition and treatment of common wood-destroying fungi. Prerequisites, Courses 10 or 105. Five credits; spring.  

Hotson and Assistant

119. Plant Histology.—Preparation of slides for the compound microscope. Prerequisite, Courses 12 or 106. Three credits; any quarter.

Fith

130. Economic and Marine Botany.—Economic marine plants, their condition, the products derived therefrom and the process of manufacture. Prerequisite, one year of chemistry and junior standing. Four credits; autumn.

Fith

187. Journal Club.—Reviews of articles in current journals, suggested for all seniors, graduates and instructors in the department. Prerequisite, junior standing; two years of botany. No credit; each quarter.

Fith

140, 141, 142. General Fungi.—Morphology and classification of fungi as a basis for plant pathology. Prerequisite, course 11 or 105, junior standing. Five credits per quarter; autumn, winter, spring.  

Hotson

143, 144, 145. Plant Physiology.—Prerequisite, two quarters of botany and Chemistry 21, junior standing. Five credits per quarter; autumn, winter and spring quarters.

Rigg

200. Proseminar.—Semi-independent work by students. Open only on consultation with the head of the department. Credit to be arranged; any quarter.  

Fith, Rigg, Hotson
283. Research.—Credit to be arranged; any quarter.

250. Algae.—Prerequisite, Course 11 or 105. Five credits; any quarter.

251. Bryophytes.—Prerequisite, Course 12 or 106. Five credits; any quarter.

252. Pteridophytes.—Prerequisite, Course 12 or 106. Five credits; any quarter.

253. Gymnosperms.—Prerequisite, Course 12 or 107. Five credits; any quarter.

254. Angiosperms.—Prerequisite, Course 12 or 107. Five credits; any quarter.

261, 262, 263. Plant Pathology.—A study of the diseases of plants and the fungi which produce them. Prerequisite, Course 142. Five credits per quarter; autumn, winter, spring.

271. Experimental Morphology.—Prerequisite, Course 12 or 106, one year chemistry, senior standing. Five credits; any quarter.

279. Colloidal Biology.—Prerequisite, Course 143, Chemistry 32, senior standing. Five credits; any quarter.

280. Micrometabolism.—Prerequisite, Botany 12 or 107, 148, senior standing. Five credits; any quarter.

CHEMISTRY

Bagley Hall

PROFESSORS BENSON, JOHNSON, DENN, SMITH; ASSISTANT PROFESSORS TAPSTEE, HEATH, BARTON AND THOMPSON; INSTRUCTOR WERTON; ASSOCIATES PESS, WHITWELL.

The instruction in this department is designed to satisfy, as far as possible, the requirements of those students who desire to study chemistry as a means of culture and as a necessary complement of a liberal education. It is realized that the subject is eminently practical; hence it is the desire of those in charge so to guide the student that he may fit himself for work in those lines in which chemistry has become an applied science.

REQUIREMENTS OF THE DEPARTMENT

For a major a minimum of thirty-six credits selected from the

NOTES.—Only a limited number of courses 250-280 will be given in any one quarter.
courses outlined and including courses 21, 22, 23, 31, 32, 33 and 101, 102, or their equivalents.

The fee for each laboratory course is $5 per quarter. This deposit covers the cost of materials furnished by the laboratory and provides the student for a full quarter's work. The student is required to purchase a breakage ticket when he obtains his locker key. The cost of the ticket is $5, and any portion of it unused will be refunded.

1-2-3. General Chemistry.—The first two quarters are devoted to general chemistry and the chemistry of the non-metals; the third quarter to the chemistry of the metals. Open only to students who have had no high school chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring.

3-1-2. General Chemistry.—A repetition of the course described above. Five credits per quarter.

4. General Chemistry.—For short course miners. Three lectures and one four-hour laboratory period per week. No credit; winter.

5-6. General Chemistry.—For students in the department of home economics. Only women admitted. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter.

8-9. General Chemistry.—For students of pharmacy. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter.

10. Qualitative Analysis.—For students of pharmacy. Two lectures and two laboratory periods per week. Four credits; spring.

21-22-23. General Chemistry.—For students who have had a high school course in chemistry, and especially for students in the colleges of Science and Engineering. Prerequisite, an accredited high school course in chemistry. Three lectures and two laboratory periods per week. Five credits per quarter; autumn, winter, spring.

22-23-21. General Chemistry.—A repetition of the course above beginning the spring quarter. Five credits per quarter.

31-32-33. Organic Chemistry.—Designed especially for major students in chemistry and for students preparing for medicine. Prerequisite, course 3 or its equivalent. Three lectures and two laboratory periods per week. Five credits; autumn, winter, spring.

35-36. Organic Chemistry.—For students in the department of home economics. Only women are admitted. Two lectures and two
laboratory periods per week. Prerequisite, course 6 or its equivalent. Five credits per quarter; autumn, winter

37-38. Organic Chemistry for Pharmacy Students.—Three lectures and two laboratory periods per week; autumn and winter.

43. Qualitative Analysis.—For students of chemistry and chemical engineering. Three lectures and two laboratory periods per week. Prerequisite, course 28 or its equivalent. Five credits; autumn, spring.

51. Engineering Chemistry.—An elective for engineering students. The course deals with the chemistry of fuels and construction materials. Two lectures and one laboratory period per week. Prerequisite, course 3 or 28. Three credits; spring.

101-102-103. Quantitative Analysis.—The first and second quarters deal with gravimetric and volumetric methods; the third with mineral analysis and commercial methods. Three laboratory periods per week. Prerequisite, course 28 or its equivalent. Four credits per quarter; autumn, winter, spring.

102-103-101. Quantitative Analysis.—A repetition of the course described above.

104. Food Analysis.—For students in the department of home economics. Methods of analysis of various foods and federal and state laws are studied. Two lectures and two laboratory periods per week. Laboratory deposit, $5. Four credits; autumn.

105-106-107. Chemistry and Analysis of Food.—Laboratory and class work in analysis of food products and the study of federal and state laws regulating the sale of food and drug products. Laboratory deposit, $5. Five credits per quarter; autumn, winter, spring.

121. Industrial Chemistry.—Three lectures and two laboratory periods per week. Prerequisite, 102. Five credits per quarter; autumn.

122-123. Industrial Chemistry.—In the first quarter the course deals with the machinery and processes for the manufacture of acids and alkalies. The second deals with organic industrial chemistry, particularly with the technology of oils, fats, paints, rubber and cellulose products. The third quarter deals with fuels, gases, cements, refractories, iron and steel, and alloys with special reference to technical testing. The work of each quarter may be undertaken independently. Three lectures and two laboratory periods per week. Prerequisite, 102. Five credits per quarter; winter, spring.
183. Sanitary Chemistry.—Materials and processes used in the purification of water, sewage, and in sanitation. Two lectures, one laboratory period per week. Prerequisite, course 3 or 23. Three credits; autumn.

BENSON

185. Forest Products.—Wood distillation, tannin, wood pulp, alcohol, viscose, vulcanized fiber and wood oils. An elective for students in forestry and chemical engineering. Two lectures and one laboratory period per week. Prerequisite, course 3 or 23. Three credits; autumn.

BENSON

186. Road Materials.—Bitumens and methods of testing. An elective for students in civil and chemical engineering. One lecture and one laboratory period per week. Prerequisite, course 3. Two credits; spring.

BENSON

141-142-143. Physiological Chemistry.—For students preparing for the study of medicine. Three lectures and two laboratory periods per week. Prerequisite, course 33. Five credits per quarter; autumn, winter, spring.

BARKER

144. Physiological Chemistry.—For students in the department of home economics. Three lectures and two laboratory periods per week. Prerequisite, course 36. Five credits; spring.

DEHN

201-202. Physical Chemistry.—An elementary course dealing with the fundamental theories of chemistry based upon physical measurements. Three lectures and two laboratory periods per week. Prerequisite, Physics 2 and courses 36 and 102. Five credits per quarter; autumn, winter.

TAYLOR

203. Advanced Physical Chemistry.—Chemical statics and dynamics. Three lectures and two laboratory periods per week. Prerequisite, course 202. Five credits; spring.

TAYLOR

204. Electro Chemistry.—Theories and laws of voltaic currents and laboratory work with electro-chemical processes and measurements. Three lectures and two laboratory periods per week. Prerequisite, course 202. Five credits; spring.

TAYLOR

211. Inorganic Preparations.—The preparation of special substances involving representative laboratory methods. Four laboratory periods per week. Prerequisite, course 228. Five credits; autumn.

THOMSON

212. Organic Preparations.—This course and 211 are required of all candidates for the degree of doctor of philosophy. Four labora-
213. **Organic Analysis**.—The fundamental special methods used in the analysis of organic substances. Two laboratory periods per week. Prerequisite, courses 38 and 102. Two credits; winter.

215-216-217. **Chemical Engineering**.—For seniors and graduates in chemical engineering. In the autumn quarter the course consists of a study of the apparatus, devices and methods used in the chemical control and inspection of manufacturing industries. The winter quarter deals with the study of selected chemical processes in detail, including the preparation of layouts and complete plans of equipment. The spring quarter deals with the evolution of a chemical process from assigned raw materials quantitatively and experimentally tested. This quarter's work may be reported in the form of a thesis for the bachelor's degree. Prerequisite, courses 123, C. E. 2 and M. E. 90. Five credits per quarter; autumn, winter, spring.

221-222-223. **Advanced Inorganic Chemistry**.—A course in chemical theory required of all major and graduate students. Two credits per quarter; autumn, winter, spring.

231-232-233. **Advanced Organic**.—A detailed study of special fields of organic chemistry. Prerequisite, courses 38 and 202. Five credits per quarter; autumn, winter, spring.

249. **Chemical Engineering**.—The design, construction, equipment and operation of a plant for semi-commercially testing the results of laboratory experiments. The results may be reported as a thesis for an advanced degree. Prerequisite, course 217. Credit to be arranged; autumn, winter, spring.

250. **Research**.—The work in research offered by the department is of two types: (1) Research for the master's degree. This work is not necessarily laboratory investigation, although the investigation of the literature is ordinarily supplemented by laboratory development of the subject. The maximum credit is nine hours; (2) research for the doctor's degree. Work for this degree may be carried on under the direction of any member of the regular staff of the department, or in food investigation with Dean Johnson of the College of Pharmacy. The work may be upon any topic approved by the department. The maximum credit is forty-five hours. Prerequisite, course 202. Credit to be arranged; autumn, winter and spring.

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**Note.**—For the year 1919-20, course 215 will be offered in lieu of 123.
CIVIL ENGINEERING

Engineering Hall

PROFESSOR MOUS, ALLISON; ASSOCIATE PROFESSOR HARRIS; ASSISTANT PROFESSOR HAYDEN; MR. WHITE, MR. FORD

1. Engineering Drawing.—The use of instruments, freehand lettering, fundamental principles of making working drawings, platting of traverse from field notes. Laboratory deposit, $1. Three credits; autumn, winter, spring.

2. Engineering Drawing.—Reading of working drawings, conventional symbols and standards, tracing. Prerequisite, course 1. Three credits; autumn, winter, spring.

5. Cartography.—Making of maps and charts, with topographical symbols, U. S. G. S. standard. Three credits; spring.

11. Engineering Problems.—The investigation of simple structures as to loadings, weights and stresses in members by algebraic and graphic methods. Three credits; autumn, winter, or spring.

13. Engineering Problems.—The problems of dimensioned objects, graphic solution. Three credits; autumn, winter or spring.

18. Engineering Problems.—The problems of dimensioned objects, graphic solution. Three credits; autumn, winter or spring.

21. Plane Surveying.—Instruments, computations, mapping, and an introduction to the U. S. system for the survey of the public lands. Prerequisite, course 1 and Mathematics 51. All freshman engineers. Laboratory deposit, $3. Three credits; autumn, winter, spring.

22. Railroad Surveying.—Elementary railroad engineering. Prerequisite, Course 21. Laboratory deposit, $3. Four credits; autumn.

23. Higher Surveying.—Meridian observations; triangulation and base line measurements; computations and adjustment of measurements; plane table surveying. Prerequisite, course 21. Four credits; winter.

24. Field Engineering.—Field practice in the survey and construction of highways, railroads, canals, etc. Prerequisite, course 22. Four credits; spring.

27. Mine Surveying.—Surface and underground practice; observation for meridian; topography; mining claim survey; tunnels and
vertical shaft work and connections; mapping. Prerequisite, course 21. Sophomore mining engineers. Laboratory deposit, $3. Three credits; winter.  

Hayden

30. Surveying.—(Short session in Forestry). Laboratory deposit, $3. Five credits; winter.  

Hayden

38. Surveying.—(Short session in Mining). Laboratory deposit, $3. Five credits; winter.  

Hayden

41. History of Civil Engineering.—A general survey of monumental structures from the standpoint of utility, design, construction and maintenance. Three credits; winter or spring.  

White

55. Forest Surveying.—For students in forestry. Laboratory deposit, $3. Three credits; winter.  

Hayden

56. Forest Surveying.—Chain, compass, transit and level surveying, with reference to work in forestry. Laboratory deposit, $3. Five credits; spring.  

Hayden

112. Railway Constructing.—Railway construction methods, machinery and tools; details of track, and terminal structures. Prerequisite, course 24. Five credits; winter.  

Hayden

115. Railway Economics.—The economic theory of railway location, operation, and maintenance. Prerequisite, course 24. Five credits; spring.  

Hayden

122. Highways.—Location, methods, and types of construction, with local application. Prerequisite, C. E. 22. Three credits; winter.  

Allison

126. Roads and Pavements.—Surface materials and maintenance, including comparative laboratory study of properties of local materials. Prerequisite, C. E. 122. Five credits; autumn.  

Allison, Ford

131. Mechanics.—Statics, stresses in structures, beams, columns, flexible cords; theorem of least work; theorem of three moments; combined stresses. Prerequisite, Mathematics 62. Three credits; autumn, winter, or spring.  

More

132. Mechanics.—Dynamics; translation and rotation; work, energy and power; friction; torsion; inertia of rigid bodies. Prerequisite, C. E. 131. Three credits; autumn, winter, or spring.  

133. Reinforced Concrete.—The mechanics of reinforced concrete beams, girders, columns and retaining walls and introduction to rein-
forced arch bridges. Prerequisite, C. E. 181. Three credits; spring.

184. Framed Structures.—Complete problems presenting structural engineering, cranes, roof trusses, highway bridges and simple railroad spans. Prerequisite, course 181. Three credits; autumn.

142. Hydraulics.—Flow of water through pipes, orifices, over weirs and in open channels; energy, impulse and reaction of jets with application to impulse wheels; review of hydrostatics. Prerequisite, C. E. 181. Laboratory deposit, $8. Five credits; autumn, spring.

143. Hydraulic Engineering.—Complete problems presenting hydraulic engineering. Prerequisite, C. E. 142. Three credits; winter.

144. Hydraulic Mining.—A course of two lectures per week on theory and practice of hydraulic mining. Two credits; winter.

145. Hydraulic Machinery.—Development and theory of water wheels and turbine pumps; design of a reaction turbine; reference to hydrostatic machinery and dredging equipment. Prerequisite, C. E. 12. Senior and graduate E. E. and M. E. Three credits; winter.

147. Hydraulic Power.—Generation of power; penstock and turbines; types of installations. Prerequisite, C. E. 142; senior and graduate C. E. Five credits; spring.

153. Water Supply.—The principal engineering operation necessary to secure suitable water supplies for cities and towns; purification of water. Prerequisite, C. E. 143; senior and graduate C. E. Five credits; winter.

154. Sanitary Engineering.—The design and construction of sewage systems, sewage treatment, and disposal; garbage collection and destruction. Senior and graduate C. E. Prerequisite, C. E. 153. Five credits; spring.

161. Bridges.—Stresses, design and deflection of simple trusses; detail drawings; estimates. Prerequisite, C. E. 184. Senior and graduate C. E. Five credits; winter.

164. Higher Structures.—Primary and secondary stresses and design. Prerequisite, C. E. 161. Senior and graduate C. E. Five credits; spring.

167. Strength of Materials.—An experimental study of the physical properties of materials used in engineering. Prerequisite, C. E.
181. Senior and graduate C. E. and M. E. and graduate E. E. Laboratory deposit, $3. Three credits; spring.

169. Materials of Construction.—Selection, handling and inspection of builders' materials; critical investigations in laboratory and field. Prerequisite, junior standing. Five credits; winter.

171. Engineering Astronomy—(See Astronomy 171.)
172. Geodetic Astronomy—(See Astronomy 172.)
173. Geodesy.—(See Astronomy 173.)

CLASSICAL LANGUAGES AND LITERATURE

Denny Hall

Professor Thomson, Associate Professor Sidney, Assistant Professors Densmore, Clark

Requirement for a major; at least 36 hours in the department, chosen from courses other than Greek 11 and 13-14; Latin, 1, 2, 3; 11; 14-15-16. A student specializing in Greek must take at least nine hours of Latin; one specializing in Latin must take at least ten hours of Greek.

1. GREEK

1-2-3. Elementary Greek.—Translation from a wide range of Greek authors. An especial effort will be made to give students who take but one year of Greek an appreciation of its spirit and its bearing on the English language. Five credits per quarter; autumn, winter, spring.

4-5. The World of Homer and Hesiod.—The epic age as seen in Homer and the renaissance of the Greek world. Illustrated lectures, conferences, and reports. Prerequisite, one year of Greek. Three credits per quarter; autumn and winter.

6. Herodotus.—A study of the Persian war period. Prerequisite, course 4-5. Three credits; spring.


8-9-10. Greek Art.—Autumn—architecture; winter—sculpture; spring—painting, numismatics, and the minor arts. This course alternates with that in Roman art. Primarily for students of fine arts but open to all students. One credit per quarter.

11. Greek Civilization.—An institutional and cultural survey of the Greek world from the earliest times to the Roman conquest. Illustrated lectures, conferences and discussions. Five credits; autumn, or winter.
12. Advanced Greek Civilisation.—A continuation of the problems of course 11 with particular attention to their development in modern times. Conferences and discussion groups. Prerequisite, course 11 or junior standing. Five credits; spring.

18-14. Greek and Roman Literature.—A two-quarter course devoted to the study of the chief masterpieces in English translation. Knowledge of Greek and Latin is not required. Five credits; autumn, winter, spring.

101-102-103. The Periclean Age.—An intensive study of Greek civilization from the founding of the Delian confederacy to the death of Socrates. Readings, conferences, and reports. Prerequisites, courses 4-5. Three credits per quarter; autumn, winter, spring.

104-105-106. Greek Poetry.—Lyric poetry, tragedy, and pastoral poetry. Prerequisite, courses 4-5. Two credits per quarter; autumn, winter, spring.


151-152-153. Plato.—Intensive study of the Republic, the Laws (in part), and some of the shorter dialogues. Prerequisites, courses 101-103. Three to five credits per quarter; autumn, winter, spring.

Greek History.—(See History 71-72-73 and 171-172-173.)

LATIN

1-2-3. Elementary Latin.—This course covers the first and second years of high school Latin. It is designed to help those who have previously had little or no Latin to an appreciation of the sources of the English and Romanic languages, as well as to enable those who desire to study Latin more thoroughly to bring their preparation up to the college requirements. It will be given if any considerable number of students desire it. Five credits per quarter; autumn, winter, spring.

4. Ovid.—Selections, chiefly from the Metamorphoses, with some study of the same myths as they appear in English literature. Prerequisite, three and one-half years of high school Latin. Three credits; autumn.

5. Cicero: De Amicitia.—A comparison of Cicero's work with similar essays. Prerequisite, three and one-half years of high school Latin. Three credits; winter.

*Not offered in 1919-1920.
6. *Catullus.*—The Latin lyric. Emphasis upon finished translation and comparison of the best English versions. Prerequisite, three and one-half years of high school Latin. Three credits; spring. 

7, 8, 9. *Sight Translation and Composition.*—Prerequisite, three and one-half years of high school Latin. Two credits per quarter; autumn, winter, spring.

11. *Roman Civilization.*—The part played in history by the Romans and their contributions to modern civilization. Lectures, illustrated, when possible; collateral reading, and reports. Five credits; autumn, winter, or spring.

13. *Roman Literature.*—(See Greek 13-14.)

*14-16. Roman Art.*—Roman architecture for two quarters, followed by sculpture, numismatic and minor arts. Illustrated by photographs and slides. Primarily for students of fine arts but open to all. Alternates with the course in Greek art. One credit per quarter; autumn, winter, spring.

50. *Horace and Tibullus.*—Selections from the odes of Horace and the elegies of Tibullus and Propertius. Prerequisite, courses 4, 5, 6, or special permission. Three credits; autumn.

60. *Livy.*—One book and selections from the other books. Prerequisite, courses 4, 5, 6, or special permission. Three credits; winter.

70. *Plautus and Terence.*—A study of the Roman drama and its Greek sources. Prerequisite, courses 4, 5, 6, or special permission. Three credits; spring.

108-104-105. *Teachers' Course.*—Caesar, Cicero, and Vergil; methods, practice teaching, and observation. Prerequisite, courses 50, 60, or 70. Three credits per quarter; autumn, winter, spring.

110. *Horace's Satires.*—Horace as a representative of the Augustan age; the development of satire among the Romans. Prerequisite, courses 50, 60, or 70. Two credits; autumn.

111. *Juvenal and Martial.*—Reading of the Satires of Juvenal and Epigrams of Martial in the original and translation, with further study of the life of the period. Prerequisite, courses 50, 60, or 70. Two credits; winter.

*Not offered in 1919-1920.*
118. Short Stories from Apuleius.—Readings from the Golden Ass of Apuleius with a study of the development of this literary form among the Greeks and Romans, and some attention to the Latinity of the period. Prerequisite, course 50, 60, or 70. Two credits; spring.


152. Seneca.—Moral Essays. Two credits; winter.

153. Latin of the Empire.—Gudeman's Selections. Two credits; spring.

Dramatic Art

Denny Hall
Professor Gorsuch

The work in this department is planned for three classes of students: (a) those who desire some knowledge of dramatic art as part of a liberal education; (b) those who need some knowledge of dramatic art as part of their technical training; and (c) those who wish to pursue the subject more intensively than either of the former groups.

For a major the department requires 38 to 60 credits, of which 24 must be in the department, including courses 1-2-3 and 21-22-23.

Courses 1-31 (inclusive) may be entered at the beginning of the first, second or third quarters.

1-2-3. Dramatic Literature.—Introductory course. Selected plays of the great dramatists are studied with the purpose of increasing the students' power of analysis and appreciation. Three credits per quarter; autumn, winter, spring.

21-22-23. Shakespeare.—Dramatic reading and interpretation of selected plays. Courses 21-22-23 have as their general purpose the interpretation of the drama. Selected plays are used as exercises in dramatic delivery and for the study of effectiveness in the reading of lines. The special aims are to correct personal mannerisms of vocal expression and to encourage habits of speech that are right and natural; to cultivate proper instinctive expression, and the use of imagination in conceiving the situation, relation and characterization as these are manifested in utterance. Three credits per quarter; autumn, winter, spring.

27-28-29. Contemporary Drama.—Dramatic reading and interpretation of selected plays. For further information see courses 21-22-23.
Work to be announced later will include courses in Dramatic Composition, Producing, General Stagecraft, Acting.

31. Practical Public Speaking.—An introductory course. Principles of public speaking are studied and short, original talks are prepared and delivered. Prerequisite, English 1. Three credits per quarter; autumn, winter, spring.

ECONOMICS AND BUSINESS ADMINISTRATION

Commerce Hall

Professors Miller, De Haan; Associate Professors Curtis, Mohanty Douglas, Smith, Assistant Professors McMahon, Skinner, Cox; Instructors Akerman, Thoma, Gould; Assistant, Mr. Turpin

1. General Economics.—Introductory course covering the general principles of economics. Five credits; autumn, winter, or spring.

4. Economics of Consumption.—The social psychology of consumption in its relation to the economic laws of production and distribution. Two credits; autumn.

7. Economic Resources of the World.—A study of the principal agricultural and mineral resources of the world, their development and commerce and governmental policies of conservation. Three credits; autumn, spring.

8. Economic Resources of the Northwest.—An intensive study of the resources of the Pacific Northwest and of the industries based upon them. Special attention is given to the question of ownership and control of these resources and to the measures of conservation. Three credits; winter.

9. History of Commerce and Commercial Policies.—The object of this course is to study the evolution of commerce to the present time. The commercial policies of the principal nations are studied in connection with the development of American foreign trade. Prerequisite, courses 1, 7, or 8. Two credits; winter.

10. Business Principles.—This course considers the economic structure constituting the basis of business. Lectures and discussion will cover the cooperation of the factors of production and the economic limitation of cost. Three credits; winter.

11-12-13. Elementary Accounting.—Fundamental principles of accounting; practice in the keeping of accounts and in the preparation of balance sheets and financial statements. This course is a prerequisite to all other courses in accounting. Three credits per quarter; autumn, winter, spring.
14-15-16. **Second Year Accounting.**—Designed to give a more thorough training in accounting. The work falls into three sections which correspond approximately with the three quarters, so that any student may discontinue the course at the end of any quarter. The entire course is required of students specializing in accounting. Three credits per quarter; autumn, winter, spring.

17. **Economic Resources of the Orient.**—An intensive study of the resources of China and Japan as basis for the study of America’s trade with the East. Three credits; winter.

21. **Money and Banking.**—The nature and functions of money, the relation between money and price levels; state and national banks, their functions and government regulation. Prerequisite, sophomore standing. Five credits; autumn, winter, spring.

24. **Banking Practice.**—The accounting systems of commercial and savings banks, the duties of the officers and employees, and the preparation of reports. Prerequisites, courses 21, 11, 12, 18. Two credits; winter.

41. **Risk and Insurance.**—A study of the risk factor in its economic and social consequences. Classification of important kinds of risks. Solution of the risk problem: 1. Conservation; 2. Distribution of risk; 3. Insurance. This course is a prerequisite to all other courses in insurance. Prerequisite, sophomore standing. Three credits; autumn, spring.

42. **Elements of Statistics.**—Designed to develop appreciation for the correct use of, and familiarity with, common methods of collecting and analyzing quantitative data. Prerequisite, sophomore standing. Three credits; autumn or spring.

51. **Economics of Transportation.**—The history of transportation; railroad problems in relation to industry and society; the present American railway situation. Prerequisite, sophomore standing. Three credits; autumn and spring.

53. **Water Transportation.**—A study of inland and ocean transportation, rate determination, combinations, and government regulations. Prerequisite, course 51. Three credits; winter.

61. **Social and Economic Standards of Living.**—An historical study of standards of living; racial differences in habits, and ideals of consumption; economic and social influence in industry; conflict of
standards and racial survival. Prerequisite, course 1 or 4. Two credits; winter.

McMAHON

62. Social and Economic Standards of Living.—An analysis of class standards of consumption in the United States; their economic and social background; new standards in their evolutionary development. Prerequisite, course 61. Spring.

McMAHON

63. Immigration and Labor.—The influence of immigration upon the American labor movement. Two credits; spring.

McMAHON

71. Evolution of the Market.—The development of the market from early times to the present, with emphasis on the marketing of raw products. This course is a prerequisite to all the other courses in marketing. Three credits; autumn.

MORIARTY

72. Marketing of Manufactured Products.—A general survey of modern marketing methods in manufactured products and trademarked goods. Three credits; winter.

MORIARTY

73. Sales Management.—Selling methods, organization of the sales force and training of salesmen are carefully studied. Three credits; spring.

MORIARTY

76–77–78. Advertising.—History, purpose, and place of advertising in the business world; psychological factors; principles of copy construction; advertising display; problems of the small advertiser, such as the retailer and professional man; study of media and current campaigns; some practice in preparation of copy and planning campaigns.

MORIARTY

81–82–83. Typewriting.—This course requires ten hours practice each week for three quarters. One credit per quarter; autumn, winter, spring.

THOMA

84–85–86. Shorthand.—Two hours class work required daily, with from one to two hours preparation. Students with previous training may be admitted to second or third quarters upon examination. Prerequisite, sophomore standing. Two credits per quarter; autumn, winter, spring.

THOMA

87. Secretarial Accounts.—A study of accounting for professional offices, societies, clubs, educational, religious, and civic organizations, public subscriptions, etc. Prerequisite, two quarters of accounting. Two credits; autumn.

THOMA
88. Office Management.—The principles of office administration, office location, lay-out, and equipment; communication; correspondence; business departments; training office workers. Prerequisites, secretarial accounts, typewriting, and business correspondence. Two credits; winter.

89. Secretarial Training.—Use of office appliances and practice in filing, telephoning, and general office work. This course rounds out and completes the training of the stenographer. Prerequisite, typewriting and two quarters of shorthand. Three credits; spring.

90. Business Correspondence.—Principles of business writing; theory and practice of various types of letters, sales, adjustment, credit, collection etc., reports and summaries. Three credits; autumn or spring.

91. The Teaching of Economics.—For those who expect to teach economics in the high schools. A critical study of standard texts; a consideration of the application of general economic theory to the economic and social problems of the day. Prerequisite, senior standing. Three credits; spring.

92. Advanced Economics.—This course is intended to give a more thorough training in economic theory. The various theories of value and distribution are critically studied. Prerequisite, senior standing. Three credits; autumn.

93. Trusts and Combinations.—The forms of business organization from the point of view of the concern and from that of the public. Prerequisite, junior standing. Three credits; autumn.

*106. Fair and Unfair Competition.—A critical study of methods of competition and their effect on the development of industrial efficiency; the rulings of the Federal Trade Commission and of the courts affecting unfair practices. (Alternates with 107.) Prerequisite, junior standing. Three credits; winter.

107. The Regulation of Industry.—The policy of the government toward contracts and combinations in restraint of trade, both historical and theoretical, with special attention to the changes in policy to result under the administration of the Webb-Pomerene Act. (Alternates with 106.) Prerequisite, junior standing. Three credits; winter.

109. Research Course in Combinations and Trusts.—Two credits per quarter; autumn, winter, spring.

110. Research Course in Economic Theory.—Two credits per quarter; autumn, winter, spring.
111. Auditing.—Auditing practice and legal responsibilities of the auditor. The student is required to perform an independent audit of a set of books under the supervision of the instructor. Prerequisite, 12 credits in accounting. Three credits; autumn.

114. C. P. A. Problems.—This course is designed for those intending to take the C. P. A. examinations, and is intended to give a thorough training in the solution of problems which have been given at such examinations by various examination boards. The training aims to develop accuracy and speed. Prerequisite, 18 credits in accounting. Three credits; spring.

*116. Municipal Accounting.—Accounting problems resulting from municipal operation of public utilities. Prerequisite, 18 credits in accounting. Two credits; winter.

117. Cost Accounting.—A study of the principles and methods of cost accounting systems applicable to mercantile and industrial establishments, and the preparation of cost reports. (Alternates with 116.) Three credits; winter.

118. Practice Work in Accounting.—By special arrangement a student may receive credit for practical accounting work performed under supervision and with the approval of the instructor. This course corresponds to the research courses in other study groups. Prerequisite, 18 hours of accounting. Credit by arrangement but not to exceed three units per quarter nor six units in all; autumn, winter, spring.

120. Business Administration.—The principles according to which business organizations are conducted. Field work forms an important part of this course. A study of a number of business houses, including bank, steamship line, lumber mill, store, and also trade associations. Prerequisite, junior standing. Three credits; winter.

121. Corporation Finance.—Methods of financial management and control of corporations; issue of stocks and bonds; problems of reorganization and liquidation; and the relation of stock- and bondholders to the management. Prerequisite, junior standing. Three credits; winter.

122. Investments.—A critical study of the various classes of investment securities; state, municipal and industrial. Prerequisite, junior standing and course 121. Three credits; spring.

*123. Stock Exchange Operations.—The organization of stock exchanges, the methods of dealing in securities, and the operations of the brokerage business. (Alternates with 122.) Two credits; spring.

*Not offered in 1919-1920.
126. **Real Estate Problems.**—Factors determining urban and rural land values; methods of operation and administration of the real estate business. Prerequisite, junior standing. Two credits; spring. 

128. **Foreign Exchange and Foreign Banking.**—The theory of foreign exchange and the methods of dealing in foreign exchange; financing of import and export shipments. Prerequisite, junior standing and courses 21 and 24. Two credits; winter.

135. **Municipal Finance.**—See Prof. Co. 27. 

141. **Property Insurance.**—A study of the theory and practice of fire, credit, title and fidelity insurance. Prerequisites, junior standing and course 41. Three credits; autumn.

137. **Economics.**—See Prof. W. Monard, Smith

142. **Life Insurance.**—The functions of life insurance; calculation of premiums, reserves, surrender of loan values and dividends; state regulation of the insurance business. Prerequisites, junior standing and courses 41 and 42. Three credits; winter.

139. **Principles of Adm.**—See Prof. W. Monard.

145. **Business Statistics.**—The preparation and interpretation of statistical information concerning business operations; the preparation of graphs for the use of executives. Prerequisites, junior standing and course 42. Two credits; winter.

147. **Social Insurance.**—Social risks; the hazards of accident, ill health, old age, invalidity, and unemployment; public, private and mutual insurance systems. Prerequisites, junior standing and course 41. Three credits; winter.

149. **Marine Insurance.**—The history, principles and practice of marine insurance as applied to ship and cargo. This course is intended to serve the needs of the student of foreign trade as well as those of the student of insurance. Prerequisite, course 41. Three credits; spring.

150. **Research Course in Insurance and Statistics.**—Prerequisites, senior standing and 9 credits in statistics and insurance. Two credits per quarter; autumn, winter.

151. **Rail and Marine Rates.**—A study of cases; the jurisdiction of the Interstate Commerce Commission, and of the U. S. Shipping Board; local and commodity tariffs; rate structures. Prerequisites, junior standing and course 51. Three credits; spring.

153. **Railroad Administration.**—A study of railroad administration from the foreign and American viewpoint; divisional and departmental systems compared and criticised; the relation of administration to efficiency will consume considerable time; uniform accounting as a
basis for statistical comparison and railroad efficiency emphasized; typical railroad systems studied and contrasted, conclusions, and constructive criticism developed. Prerequisites, junior standing and courses 51, 11, 12, 13. Three credits; autumn.

154. State Railroad Commissions.—The work of the leading state railroad commissions or public utility business; a particular emphasis will be given to the work of the Wisconsin, California and Washington Railroad Commissions. Alternates with 157. Prerequisites, junior standing and courses 51 and 151. Three credits; winter.

157. Railroad Finance.—A study of railroad compensation, valuation, bond and stock issues, earnings, and receivership; European methods will be compared with financial methods of the U. S.; government control, its efficiency, earning power and limitations reviewed. (Alternates with 154.) Prerequisites, junior standing and courses 51 and 121. Three credits; winter.

159. Research Course in Transportation.—Prerequisites, senior standing and nine credits in transportation. Two credits per quarter; autumn, winter, spring.

161. History of the American Labor Movement.—This course aims to show the relation between the development of the American labor movement and free lands, immigration, economic organization, prices and industrial crises. Prerequisites, junior standing and course 1. Three credits; autumn.

162. Modern Labor Problems.—An analysis of the modern labor movement with special emphasis on craft unionism, industrialism, the cooperative movement and profit-sharing; the psychology of laborers as influenced by modern industrial tendencies. Prerequisite, junior standing and course 1. Three credits; winter.

163. European Labor Problems.—Spring.  ¥ 3  ø

166. Labor Legislation.—Winter.  3 ø  f w. 2ø

166. Women in Industry.—A study of the evolution of women's work; their relative importance in industry; social reaction in labor legislation. Prerequisite, junior standing and course 1. Three credits; autumn.

167. Employment Management.—The organization and operation of the employment management department, its relation to the workers and to the management of industrial enterprises. The sociological effect of employment management upon the labor market. Prerequisites, permission of instructor. Three credits; spring.

*Not offered in 1919-1920.
168-169-170. Seminar in Labor.—A research course in current labor problems of the Pacific Northwest. Prerequisite, senior standing. Three credits per quarter; autumn, winter, spring.

171. Organization of Foreign Trade.—The organization of foreign trade; methods of public and private trade promotion; the principle and practice of international market organization. Prerequisite, junior standing. Three credits; autumn.

172. Technique of Foreign Trade.—The technique of importing and exporting. The administration and operation of an export department; the preparation of documents and the calculation of values of staples and of manufactured products. Prerequisite, junior standing. Three credits; winter.

173. Ports and Terminals.—The administration and technical equipment of ports and the bearing of these factors on port efficiency. A comparative study of foreign and American ports, their relative importance and their relation to the hinterland. Prerequisites, junior standing. Three credits; spring.

174. The Trade of the Pacific.—The problems of trade with the Orient and with Russia, the products of import and export, the transportation and financial situation. Prerequisites, junior standing and courses 7 and 171. Three credits; spring.

175. The Trade of Latin America.—A study of the products of imports and exportation of the Latin American countries; the methods of buying and selling; the transportation problems and the banking situation. Prerequisites, junior standing and courses 7 and 171. Three credits; winter.

176. The Trade of Europe.—The articles of commerce in the principal European countries and a detailed study of the market organization in those countries. Prerequisites, junior standing and courses 7 and 171. Three credits; autumn.

177, 178, 179. Commercial Teachers' Course.—For those preparing for teaching positions in high schools. A study is made of texts, teaching methods, and of the subject matter of a commercial course for high schools. Prerequisites, secretarial accounting, office management, shorthand, typewriting, secretarial training and economic resources of the world. The student must have senior standing and obtain consent of instructor. Two credits per quarter; autumn, winter, spring.
195. Industrial Management.—The internal organization and administration of industrial enterprises. Factors in plant location; accounting records, and executive control. Prerequisite, junior standing. Three credits; winter.

Douglas

196. Research Course in Management.—Prerequisite, course 195. Two credits per quarter; autumn, winter, spring.

201. Seminar in Economics and Business Administration.

Education

Home Economics Hall

Professors Bolton, Ayes, Counts; Associate Professors Woody; Assistant Professors Freeland, Jensen

Sociology and zoology as well as psychology are very desirable all other courses in education. Students should take psychology during of education and social foundation of education are fundamental to all other courses in education. Students should take psychology during the freshman or the sophomore year, and principles of education in either the last half of the sophomore year or the first half of the junior year. This should be followed by social foundations of education, secondary education, or childhood and adolescence and methods of teaching; practice teaching should be taken in the senior year. Students who major in the department should take all of the fundamental courses required for the normal diplomas and then select enough to total 36 credits in the department. Major students in education must take course 171, Experimental Education.

Principles of education, see courses 1, 99, 221-222-223.
Educational sociology, see courses 109, 151, 161, 162, 176-177, 211-212-213, 271-272-273.
Educational administration, see courses 191, 192-108, 252-253.
Secondary education 119, 153, 154, 275, 276.
Practice teaching, see courses 145, 146, 167.
Research, see courses 190, 298, 299, 300.
Teachers' training courses in trades and industries (under Smith-Hughes Act), see courses 3, 4, 5, 6.

Courses for Undergraduates

1. How to Study.—Following a consideration of how to study effectively, an attempt is made to help students to apply this knowledge in their work. Required of all freshmen in the College of Education. Open as an elective to students of other colleges. Counted toward a major in education but not toward the normal diploma. Two credits; autumn, winter.

Freeland
99. Principles of Education.—An attempt to interpret the meaning of education, to understand human nature and to comprehend how environment may be utilized to promote the development of the individual and of society. Prerequisite, Psychology 1. Five credits; autumn, winter, or spring.

109. Educational Sociology I: Social Foundations.—Introductory course treating social factors in the development of the individual and in school administration, and educational functions of typical social groups. Prerequisite, Psychology 1. Three credits; autumn, winter, or spring.

119. High School Curriculum.—Secondary school curricula and closely related problems. Prerequisite, courses 99, 109. Three credits; autumn, winter, or spring.

135. Childhood and Adolescence.—A study of the characteristics of the child to reveal how education is conditioned upon successive stages of development; physical, mental and moral. Prerequisite, Psychology 1. Three credits; autumn, winter, or spring.

140. Methods of Teaching I.—The application of psychology to high school instruction. Three credits; autumn, winter, or spring.

*141. Methods of Teaching II.

145. Practice Teaching.—One lecture each week, conferences with the instructor, assigned readings, and one period each day during the quarter devoted to observation and practice teaching under supervision in the Seattle city school. As far as possible the details of the course are arranged to meet individual needs. Five credits; autumn, winter, or spring.

146. Practice Teaching.—A second quarter of practice teaching may be elected.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

To be admitted to the following group of courses students must have had at least 18 credits in education:

151. Educational Sociology II: Coöperative Agencies.—Evolution of the school curriculum with reference to social organization; the social and school survey; relation of the school to other educational agencies. Prerequisite, course 109. Three credits; spring.
153. Problems in High School Administration.—Problems in secondary education largely non-curricular in character. Prerequisite, course 119. Two credits; spring.

154. The Junior High School.—History of the movement for reorganization and functions and relations of this new organization. Prerequisite, course 119. Two credits, winter; or three credits, spring.

155. Child Development and Adolescence 3 or 4

160. Play in Education.—The psychological and biological meaning of play; values and applications. Two credits; autumn, winter, or spring.

161. History of Education: Ancient and Medieval.—Social interpretation of the historic beginnings of education, the contributions of the Greeks and Romans, the development of Christianity; medievalism, and the beginning of modern education. Three credits; autumn.

162. History of Education: Modern.—Development of educational practices since the Renaissance. The growth of democracy in and through education will be traced. European countries will be treated chiefly from the point of view of influence upon educational progress in the United States. Three credits; winter.

167. Improvement of Teaching.—This course is offered as a substitute for practice teaching for experienced teachers. (Also offered as a five-hour course in the summer.) Supervised teaching and self-supervision will be emphasized. Credits to be arranged; autumn, winter, or spring.

171. Experimental Education.—Designed to show the possibility and value of experimental work in education, to give first hand knowledge in the technique of properly conducting experiments in connection with school work. Three double periods per week. Required of all majors in College of Education. Laboratory fee, $1. Three credits; autumn or winter.

172. Literature of Experimental Education.—Survey of experimental studies which furnish the basis for current methods in reading, spelling, arithmetic, penmanship, foreign languages, etc., and their bearing. Prerequisite, course 171. Three credits; spring.

176. Vocational Guidance.—A study of the vocational guidance movement in the public schools. Two credits per quarter; winter, spring.
181-182-183. Educational Problems of Adolescence.—A critical consideration of the physical, intellectual, emotional, moral and social characteristics of adolescence, and the educative activities suited to the period of secondary school education. Two credits per quarter; autumn, winter, and spring.

Bolton

184. Elementary Educational Measurements.—Marks and grading; standardization and standardized tests. Course designed for teachers with little or no experience. Others admitted on consent of the instructor. Laboratory deposit, $1. Three credits; spring.

185. Educational Statistics.—Statistics needed by the graduate student in conducting research or the teacher, principal, or superintendent in the every day problems of the school room. An introduction to the course in educational measurements and other courses in which statistics are needed. Two credits; autumn.

Wood

186-187. Educational Measurements.—Lectures, discussions, reading, class experiments, and projects. Primarily for experienced teachers, principals or those preparing for such positions. Prerequisite, course 241. Two credits per quarter; winter and spring.

190. Special Problems.—A course for advanced undergraduates, especially majors in education, who wish preliminary training in individual research methods. Supervised by the instructor representing the special field selected. Credits to be arranged.

Koos

191. Educational Administration: State and County.—The principles of administration of school systems in states and counties, including a comparison of school laws and school systems in several states with special attention to Washington and neighboring states. Three credits; autumn.

Koos

192-193. Educational Administration: City Schools.—For those preparing for superintendencies, principalships, and other supervisory positions, as well as those desiring an acquaintance with the larger problems of city school administration. Three credits per quarter; winter, spring.

Koos

COURSES FOR GRADUATES ONLY

*211-212-213. Comparative Education.

*221-222-223. Philosophy of Education.

231-232-233. Advanced Educational Psychology.—A survey of the latest contributions to educational psychology, with especial emphasis upon the contributions of Thorndike. Two credits per quarter; autumn, winter, spring.

Wood
Financial Aspects of School Administration.

Seminar in Educational Surveys.—This course will include a consideration of the purpose and method of the school survey and a study of the principles of educational practice exhibited in the reports of typical school surveys. Two credits per quarter; autumn, winter, and spring.

Seminar in Secondary Education.—A research course in the problems of high-school administration. Two credits per quarter; autumn, winter.

Individual Research or Thesis Work.—Intensive study and original investigation of special problems. Results are usually reported in one of the seminars and when especially meritorious may be published. The special problems are directed by the members of the department representing the fields of work chosen by the students. Credits to be arranged.

SMITH-HUGHES COURSES IN TRADES AND INDUSTRIES

The following courses conforming to the methods of teaching trades and industries will be credited toward the bachelor's degree in education if all other requirements for admission and graduation are fulfilled:

3. Industrial Education.—The purpose, history, organization, and the promotion of industrial education and its articulation with the traditional school system, with industry and with the Smith-Hughes Law. Brief space will be devoted to the continuation school, prevocational school and vocational guidance. Three credits; autumn.

4. Methods of Teaching Trades and Class Management.—This course will include some of the general principles of education that apply particularly to trade education and general methods in teaching trade subjects. It will include the development of lesson plans as an outgrowth of the study of methods of trade teaching. Daily preparation, including both oral and lesson sheets, will be emphasized throughout. (Thirty-six hours in class room.) Three credits; winter.

5. Trade Analysis and Teaching Program.—Each member of the class will develop a teaching program or detailed course of study following the analysis of the trade that he expects to teach. (Thirty-six hours in class room.) Three credits; spring.

* Not offered during 1919-1920.
6. Practice Teaching in Trades and Industries.—Work in practice teaching will be carried on under conditions as nearly like the conditions that the individual teachers meet in their respective trades after certification, as possible, and will be closely supervised at all times. (Thirty-six hours in class room.) This course is not a substitute for the regular required practice teaching, Education 145. Three credits; autumn, winter, or spring.

**Electrical Engineering**

*Engineering Hall*

**Professor Magnusson, Associate Professor Low, Assistant Professor Kirsten, Curtis, Mr. Schuck**

16. Elementary Direct Currents.—(Night Class).\(^1\) The laws of the electric and magnetic circuits with application to direct current machinery without the aid of advanced mathematics. For electricians having at least two years of practical experience with electrical machinery. Laboratory deposit, $4. Four credits per quarter.

20. Elementary Alternating Currents.—(Night Class).\(^1\) An introduction to alternating current theory with experimental work on alternating current machinery. Prerequisite course 15. Laboratory deposit, $4. Four credits per quarter.

99. Direct Currents.—Theory of the electric and magnetic circuits; construction, operation and characteristics of direct current generators and motors. Prerequisite, Physics 98. Four credits; autumn, winter, spring.

100. Direct Currents Laboratory.—Laboratory work on direct current machinery. Prerequisite, Physics 98. Laboratory deposit, $3. Two credits; autumn, winter, spring.

103. Direct Currents.—Continuation of 99 in direct current machinery. Storage batteries. Regulation and control of direct current systems. To be taken in connection with course 104. Prerequisite, course 99. Five credits; autumn, winter, spring.

104. Direct Currents Laboratory.—Experimental work on direct current dynamo machinery and on storage batteries. Prerequisite, course 99. Five credits; autumn, winter, spring.

121. Alternating Currents.—A short course in alternating currents for non-electrical students. To be taken in connection with course 122. Prerequisite, course 99. Four credits; autumn, winter.

122. Alternating Currents Laboratory.—Experimental work on alternating current machinery. Prerequisite, course 100. Laboratory deposit, $8. Two credits; autumn, winter.

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\(^1\) Will be offered, provided twelve students apply for course.
131. Telephones.—Theory, construction and operation of telephone systems. Central telephone station practice. Prerequisite, courses 99, 100. Junior or senior elective. Three credits; autumn, spring.

132. Telephones and Telegraphs.—Details of automatic and manual switchboards; testing and locating faults; multiplex telegraphy; railway signal systems. Junior or senior elective. Prerequisite, course 181. Laboratory deposit, $2. Three credits.

141. Electric Lighting.—Electric lamps; commercial photometry; adaptation of electric lighting to commercial requirements. Junior or senior elective. Prerequisite, courses 99, 100. Laboratory deposit, $2. Four credits; winter.

151. Electrical Machine Design.—Complete design of one direct current generator or motor. Prerequisite, courses 108, 104. Five credits; autumn, spring.

*152. Design of Electrical Apparatus.—Switchboards, transformers, alternators or alternating current motors. Prerequisite, course 161. Four credits.

161. Alternating Currents.—The theory of singlephase and polyphase system; energy storage in magnetic and dielectric fields; vector diagrams and the symbolic method of analysis; power factor and power measurements; hysteresis and eddy currents; theory of the transformer, singlephase and polyphase induction motors and alternators. Prerequisite, course 108. Five credits; autumn, spring.

162. Alternating Currents Laboratory.—Experimental work with alternating current machinery. Prerequisite, course 104. To be taken in connection with course 161. Laboratory deposit, $4. Four credits; autumn, spring.

163. Alternating Currents.—The theory of rotary converters, synchronous and commutator motors and transmission lines; high tension phenomena; corona; commercial wave forms; unbalanced and interlinked systems. Prerequisite, course 161. Five credits; winter.

164. Alternating Current Laboratory.—Prerequisite, course 162. Laboratory deposit, $4. Winter.

170. Electric Railways.—Equipment, roadbed, construction and operation. Prerequisite, courses 99, 100. Four credits; autumn.

174. Central Stations.—Location, design and operation of electric central stations. Prerequisite, courses 161, 162. Three credits; winter.

* Will be offered, provided twelve students apply for course.
176. Power Transmission.—Theory, design and operation of electric power transmission lines. Prerequisite, courses 163, 164. Four credits; spring.

181, 182. Radio.—Radio systems; lineal, open and complex oscillations; coupled circuits; resonance; transmitters; receivers; vacuum tubes in radio work; quenched and undamped oscillations. Prerequisites, calculus, physics, and direct and alternating currents. Laboratory deposit, $8. Five credits per quarter; winter, spring.

195. Thesis.—After consultation with the head of the department each student selects a suitable topic for investigation. Reports of progress are made weekly to the instructor in charge of the work selected. A complete report of the work is typewritten and bound and a copy deposited in the University library. Five credits; autumn, winter, spring.

196. Electric Transients.—The exponential law of simple transients; single and double energy transients; current oscillations and traveling waves; natural period of transmission lines; short circuit transients; surges; corona; lighting phenomena. Prerequisite, courses 161, 162. Three credits; autumn, spring.

197. Electric Transients Laboratory.—To be taken in connection with course 196. Prerequisite, courses 161, 162. Laboratory deposit, $2. Two credits; winter.

200, 201, 202. Research.—Five credits per quarter; autumn, winter, spring.

ENGLISH

Denny Hall

Professors Fadenford, Farrington, Fiirst, Benham; Associates Professors Milliman, Cox; Assistant Professors Garrett, Darby, Chittick; Mr. Harrison,
Mr. Ennest, Dr. Gregg, Mrs. Haggett, Miss Kellem, Miss Rochester, Miss Struble

REQUIREMENTS FOR MAJOR STUDENTS

At the conclusion of the course in their senior year, all major students will be required to pass a departmental examination in the history of English literature and literary criticism.

Candidates for the teacher's certificate are required to take 188-189-190.

It is expected that senior major students will take 191-192-198, but the work is not a definite prescription.
1-2-3. **Freshman English.**—Composition and Literature. A course in the principles and practice of composition, based upon the reading and discussion of works representative of the main currents in contemporary thought. Accompanied by conferences for personal criticism. The work done in this course is regarded as belonging rather to the high school than to the university. Those whose preliminary training has been superior will be excused from the course. Those who receive a grade of A in course 1 will be excused from course 2. Three credits per quarter; autumn, winter, spring.

Padenford in charge

21. **An Introduction to Poetry.**—Three credits; autumn.

Parrington

24-25-26. **Victorian Essayists.**—Studies in Carlyle, Ruskin, Arnold, and others. Three credits per quarter; autumn, winter, spring.

Crittuck

37. **Argumentation.**—Prerequisite, English 1. Five credits; autumn.

Priest

38. **Debating.**—Prerequisite, course 37. Three credits; winter.

Priest

39. **Debating.**—Prerequisite, course 38. Three credits; spring.

Priest

40-41. **Development of the Oration.**—In this course a study is made of the oration as a distinct type of literature. Three or four weeks will be given to the analysis of modern orations. The remainder of the quarter will be devoted to the development of original orations. Two credits per quarter; winter and spring.

Priest

51-52-53. **Advanced Composition.**—Composition based upon model English and American essays. Prerequisite, courses 1-2-3. Three credits per quarter; autumn, winter, spring.

Harrison Milliman

57-58-59. **Dramatic Composition.**—Experiments in playwriting and studies in dramatic technique. Three credits per quarter; autumn, winter, spring.

Padelford

61-62-63. **Versification.**—A study of the principles of English versification, with practice in verse writing. Prerequisite, courses 1-2-3. Two credits per quarter; autumn, winter, spring.

Parrington

67-68-69. **Great American Writers.**—Studies in the works of Emerson, Hawthorne, Longfellow, Lowell, Whitman, Poe, Bryant, Whittier, Mark Twain, and others. Two credits per quarter; autumn, winter, spring.

Milliman
70. Shakespeare.—A study of Shakespeare’s comedies. Three credits; winter.  

71. Shakespeare.—A study of Shakespeare’s tragedies. Three credits; spring.  

73-74-75. Contemporary Literature.—Reading and discussion of significant works of the past thirty years. Three credits per quarter; autumn, winter, spring.  

76-77-78. Contemporary Literature.—For teachers. Two credits per quarter; autumn, winter, spring.  

81-82-83. English Colonial Literature.—Canada, South Africa, Australasia. Two credits per quarter; autumn, winter, spring.  

101-102-103. The Short Story.—(Journalism 160-161-162.) (See Journalism for description.)  

103-104-105. Contemporary Literature.—Special studies in contemporary literature for advanced students. Three credits per quarter; autumn, winter, spring.  

*107. Recent Poetry.—Tendencies in modern English and American verse. Three credits; autumn.  

108-109-110. Romantic Literature.—The origin of romance in Europe; its affiliation with folk literature, etc., and its importance in the development of the modern novel. Two credits per quarter; autumn, winter, spring.  

111-112-113. History of English Prose.—A study of the changes in prose style from Malory to the present. Two credits per quarter; autumn, winter, spring.  

123. Philosophy in English Literature of the Nineteenth Century.—(Philosophy 123.)  

124. Chaucer.—A special study of Chaucer in relation to his time. Three credits; autumn.  

125. Medieval Literature.—Three credits; winter.  

126. The Medieval Revival.—Three credits; spring.  

* Not offered in 1919-1920.
127-128-129. Milton and His Age.—The historical background of Milton's poetry and prose. Three credits per quarter; autumn, winter.

130-131-132. The English Drama.—A study of plays representative of the origin and development of English drama. Three credits per quarter; autumn, winter, spring.

133-134-135. Main Tendencies in English Literature.—A study in national ideals, with consideration of significant literary figures and works. Three credits per quarter; autumn, winter, spring.

*135-136. The Novel.—An attempt to trace to their source the various tendencies in modern fiction. Two credits per quarter; autumn, winter.

141-142-143. Social Ideals in English Literature.—A study of model commonwealths and such other literature as illustrates the growth of English social and economic thought. Three credits per quarter; autumn, winter, spring.

*144-145-146. The Romantic Movement.—Expression of romanticism in England, France, and Germany. Three credits per quarter; autumn, winter, spring.

161-162-163. American Literature from the Beginning to 1870. A study primarily in the democratic ideals of America. Any quarter may be taken separately. Three credits per quarter; autumn, winter, spring.

164-165-166. American Literature from 1870 to the Present.—An introduction to current literary ideals and tendencies in America. Two credits per quarter; autumn, winter, spring.

168-169. The Eighteenth Century.—Literary and social movements of the period. Three credits per quarter; spring.

174-175-176. Romantic and Victorian Poets.—Studies in Wordsworth, Coleridge, Shelley, Keats, Byron, and English poetry from 1830 to 1890. Three credits per quarter; autumn, winter, spring.

*177-178-179. The Nineteenth Century.—Three credits per quarter; autumn, winter, spring.

183-184-185. General Literature.—Readings in European literature, with conferences and reports. Three credits per quarter; autumn, winter, spring.

* Not offered in 1919-1920.
DEPARTMENTS OF INSTRUCTION

187. Philosophy in Contemporary Drama.—(Philosophy 126.) Social and philosophical ideas in the contemporary drama. Five credits; spring.

188-189-190. Teachers' Course.—Methods and problems in the teaching of English in the high school. Two credits per quarter; autumn, winter, spring.

191-192-193. Senior Conference.—For senior major students. Individual conferences for the purpose of effecting a correlation of studies, and for guidance in original investigation. Each student is expected to meet the instructor once a week in conference. One-third credit per quarter; autumn, winter, spring.

201-202-203. English Literature from 1550 to 1660.—For graduates. Two to eight credits per quarter; autumn, winter, spring.

221-222-223. Modern English Literature.—For graduates. Two to eight credits per quarter; autumn, winter, spring.

FISHERIES

Fisheries Hall

PROFESSORS COBB, KINCAID, MR. ANDERSON

1-2. Introduction to Fisheries.—A general review and history of the world's fisheries. Two credits per quarter; autumn, winter.

3-4-5. Ichthyology.—The structure, classification and habits of economic fishes. Course 5 will also include other economic marine animals. Prerequisite, Zoology 1, 2. Laboratory deposit, $2. Five credits per quarter; autumn, winter, spring.

6. Pacific Fisheries.—A general review and history of the fisheries of the Pacific. Prerequisite, course 1-2. Two credits; spring.

101-102-103. Fish Culture.—The developmental history and artificial propagation of economic fishes. Prerequisite, courses 3-5, and Zoology 5. Laboratory deposit, $2. Five credits per quarter; autumn, winter, spring.

104-106. Fishery Methods.—The construction and uses of apparatus; handling and transportation of products, etc. Prerequisite, courses 1-2, 6. Three lectures and two laboratory periods. Laboratory deposit, $2. Five credits; winter, spring.

106. Preparation of Fishery Products.—The curing and preservation of fishery products. Prerequisite, courses 3-5. Three lectures
and two laboratory periods. Laboratory deposit, $2. Five credits; autumn.

COBB AND ANDERSON

107, 108, 109. Problems in Fish or Shellfish Culture.—Students with the proper preparation, which should include at least 15 hours work in fish culture or 15 hours work in shellfish culture and course 5, will be assigned special topics to be worked upon under the direction of one of the instructors. Five credits per quarter; autumn, winter, spring.

110, 111, 112. Problems in Fisheries.—Students with the proper preparation, which should include at least 15 hours work in fishery methods and preparation of fishery products, will be assigned special topics to be worked upon under the direction of the instructor. Five credits per quarter; autumn, winter, spring.

*112-113. Shellfish Culture.—The development and propagation of shellfish and crustaceans. Elective. Prerequisites, junior standing and course 5. Laboratory deposit, $2. Five credits per quarter; autumn, winter.

*114. Terrapin, Turtle, Frog, etc., Culture.—The developmental history and propagation of terrapins, turtles, frogs, etc. Elective. Prerequisite, course 5. Laboratory deposit, $2. Five credits; spring.

FORESTRY AND LUMBERING

Forestry Hall

PROFESSOR WINKINWHEEDEH, ASSOCIATE PROFESSOR KIRKLAND, ASSISTANT PROFESSORS CLARK, GRONDAI, MR. ZIMMERMAN

1. Elementary Dendrology.—Nomenclature and classification of trees, with a study of one type species of each genus of the important timber trees of North America. Prerequisite, high school botany. Required of freshmen. Two recitations, four laboratory periods per week, field trips additional. Laboratory deposit, $1. Five credits; autumn or spring.

WINKINWHEEDEH, GRONDAI

2-3. General Forestry.—To familiarize the student with the field of work he is about to enter. Required of freshmen. Three credits per quarter; autumn, winter.

WINKINWHEEDEH

4. Forest Protection.—Its economic importance; forest fires, their prevention and control. Required of freshmen. Three credits; spring.

WINKINWHEEDEH

5. Woodcraft.—Food and clothing, camp equipment and sanitation, packing a horse, and general woodcraft. A section will be arranged for students not enrolled in forestry if not less than six apply. Two lectures per week; demonstrations and practice work additional. Laboratory deposit, $1. Two credits.

CLARK

* Not offered in 1919-1920.
51-52. **Forest Mensuration.**—Principles and methods of computing, scaling, estimating, mapping. Required of freshmen. Principally field work given at the college demonstration forest. Laboratory deposit, $8. Five credits per quarter; winter and spring.

**Kirkland, Clark**

53. **Construction.**—Trails, roads, logging railroads, telephone lines, wooden bridges, cabins, barns, and fences; clearings from the standpoint of United States Forest Service improvement work, and logging construction. Required of sophomores. Laboratory deposit, $1. Three credits; autumn.

**Clark**

55. **First Aid.**—Lectures and demonstrations. Winter. Instructor to be assigned.

57-58. **Silviculture.**—The individual tree, the forest as a whole, and cultural practices. Required of sophomores. Laboratory deposit, $1. Three credits, autumn; five credits, spring.

**Kirkland**

101. **Wood Technology.**—Wood structure, leading to identification of the commercial timbers of the United States; physical properties of woods. Each student is required to prepare permanent microscopic mounts of fifty species. Required of juniors. Prerequisite, College of Botany, 8 hours. Laboratory deposit, $2. Five credits; autumn.

**Grondal**

102. **Wood Identification.**—This course includes the laboratory work only of course 101. Open to students in other departments of the University who can show ability to carry on the work. Prerequisite, botany, 8 hours. Laboratory deposit, $2. Two credits, autumn.

**Grondal**

103. **Wood Analysis.**—Identification, physical properties and characteristics of woods used in building construction. For juniors in architecture. Two credits.

**Grondal**

104. **Timber Testing.**—Stresses, tests, theory of flexure, moisture and strength; mechanical properties of wood. Prerequisite, mathematics. Required of juniors. Laboratory deposit, $1. Five credits; winter.

**Zimmerman**

105. **Wood Preservation.**—Nature of decay of timber and methods and economics of preservation. Laboratory work with the college treating plant and reports on local creosoting plants. Required of seniors and graduates. Prerequisites, course 101 and one year of chemistry. Laboratory deposit, $2. Five credits; spring.

**Grondal**

109. **General Forestry.**—Lectures, assigned readings, and reports. Occasional field trips. Offered only to students not enrolled
in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two credits; autumn.

110. Characteristics of Trees.—The identification, distribution, life habits, and uses of trees of the Pacific Northwest. Offered only to students not enrolled in the College of Forestry, and may be taken at the University or as an extension course by correspondence. Two lectures weekly and occasional field trips. Two credits; spring.

111. Teachers' Course.—Offered only as a correspondence course. Must be accompanied or preceded by course 109. One credit.

112. Properties and Uses of Woods.—Offered only as a correspondence course.

119. Forest Administration.—Objects, principles, and methods of administering private and public forests. Prerequisite, course 126. Three credits; autumn.

120. National Forest Administration.—National Forest land regulations, protection, fiscal matters, improvement. Three credits; winter.

126. Forest Economics.—The forests of the United States, their uses, their relation to industries and resources. Required of juniors or seniors in forestry and open to students in other departments. Prerequisite, Economics 51. Two credits; autumn.

151-152. Forest Management.—Forest finance, organization, methods of silviculture, administration. Required of students in senior or graduate year. Prerequisites, courses 51-52, 57-58. Five credits, autumn; three credits, spring.

153. General Lumbering.—Comparative methods of logging on the Pacific Coast and in other lumbering regions of the United States. Required of seniors and graduates. Prerequisites, courses 51-52. Five credits; autumn.

158. Forest Utilisation.—Paper making, wood distillation, tanbark, naval stores, and other secondary forest products; lumber and its economic uses in construction. Required of seniors and graduates. Prerequisites, course 101, and one year in chemistry. Five credits; winter.

159. Scientific Management.—Fundamental principles of scientific management, with special reference to the lumber industry. Given in alternate years, not in 1920-1921. Two credits; autumn.
160. Camp Sanitation.—Primarily for students in commerce specializing in employment management. One credit; winter.

G. H. Clark

188. Milling.—The sawmill; yard arrangements; practical operation. Primarily for graduates. Three credits; winter.

A. C. Grondal

185-186-187. Logging Engineering.—Logging machinery and equipment, organization of logging companies, construction of railroads, camps, etc. Lectures, demonstrations at plants, manufacturing logging machinery, and field work in nearby logging camps. During the third quarter the work is transferred to the field, where extensive work in logging engineering is carried on. No credit is given for 186 unless followed by 187. Primarily for seniors and graduates. Prerequisites, courses 51, 52, 58, 158. Laboratory deposit for 187, $2. Five credits per quarter, autumn and winter; fifteen credits, spring.

G. H. Clark

188. Advanced Forest Products.—Advanced studies in wood technology and utilization, with individual problems. A laboratory course. Prerequisite, courses 101, 158. Laboratory deposit, $8. Five credits; spring.

A. C. Grondal

208. Advanced Dendrology.—An extension of course 1, covering the identification and distribution of all important commercial tree species of the United States. Elective. Prerequisite, course 1. Given in alternate years, not in 1920-1921. Three credits; autumn.

A. C. Grondal

208-209. Seminar.—Reviews, assigned readings, reports, and discussions on current periodical literature and the more recent Forest Service publications. Prerequisite, senior or graduate standing. Two credits per quarter; autumn, winter.

W. H. Winkinweder, Kirkland, A. C. Grondal

221. Forest History and Policy.—Forest policy of the United States; forestry in the states and island possessions; the rise of forestry abroad. Prerequisite, courses 107-108. Two credits.

D. D. Kirkland

228. Advanced Forest Management.—About one week of field work on a tract of 50,000 to 100,000 acres on which data concerning different soil classes, forest types, etc., and volume of timber is already available. This work will be followed by the actual formation of a working plan providing for regulation of the yield and organization of all forest work on the area, with estimates of outlay and income. Prerequisite, courses 151-152. Eight credits; spring.

D. D. Kirkland
Courses in the department are grouped to lead into the different fields of geological work, as follows:

General Geology: Courses 1-9, 100-109, 200-209.
Paleontology and Stratigraphy: 30-39, 130-139, 230-239.

For the required earth science in the College of Science: Courses 1-2, 12 and 2; or one quarter with laboratory work, together with one quarter of astronomy.

For the third year of Science in Liberal Arts: Any of the elementary courses to make the required number of credits: Courses 1 and 2, 3 and 4; 11 and 12.

1. **General Geology**.—Dynamical. Geological agencies and processes affecting the earth. Lectures and laboratory work, with occasional half-day field trips. Laboratory deposit, $1. Five credits; autumn or winter.

2. **General Geology**.—Historical. Continuation of course 1, dealing with the origin and evolution of the earth. Lectures and laboratory work, with some field excursions. Prerequisite, 1, 5 or 12. Laboratory deposit, $1. Five credits; autumn, winter or spring.

3. **Principles of Geology**.—Dynamical and Structural. The fundamental facts and principles of geology given without laboratory work. Three credits; autumn.

4. **Principles of Geology**.—Historical. The earth's origin and the general history of the continent. Lectures and recitations, without laboratory work. Three credits; winter.

5. **Engineering Geology**.—A survey of the field of general geology. Occasional field trips. This course, modified to fit the special needs of students in forestry, is repeated in the spring quarter. Primarily for mining students, chemical and civil engineers. Laboratory deposit, $1. Five credits; autumn or spring.


11. **Meteorology and Elementary Climatology**.—Weather elements and controls; causes and effects of atmospheric conditions. With or
without laboratory. Laboratory deposit, $1. Three to five credits; winter.

12. Physiography.—Land forms or earth's features with reference to origin and characteristic changes under different agencies during geographic cycle. Occasional field trips. With or without laboratory. Laboratory deposit, $1. Three or five credits; spring.

14. Economic and Commercial Geography.—The topographic and climatic factors influencing the production of commodities of commerce. Five credits; autumn.

17. Geography of Asia.—A study of the continent by natural regions based on topography and climate. Prerequisite desirable, 10 or 14. Three credits; spring.

18. Geography of South America.—Physiographic features, climate and resources of the continent and their effects on development and relations of different countries. Prerequisite desirable, 10 or 14. Three credits; winter.

21. Mineralogy.—A brief study of crystallography followed by descriptive mineralogy and blowpipe methods. A knowledge of chemistry is essential and general geology is desirable. One or more field trips to some mineral center. Laboratory deposit, $8. Five credits; winter.

107. Geology of Washington.—Lectures with assigned readings and laboratory study. Prerequisite, one quarter of general geology or physiography. Three credits; spring.

110. Teachers' Course in Geography.—The teaching of geography, physical geography, and commercial geography in the schools. Prerequisites, one term in geology, physiography and geography. Two credits; winter.

111. Climatology.—The broader aspects of climate controls and characteristics of different climates and climatic provinces, with special references to United States and the Pacific Coast. Prerequisite, Geology II. Three credits; spring.

112. Physiography of the United States.—The physiographic regions of the United States and their effects on development and history of the country. Lectures and map study. Prerequisite, Geology 10 or 12, or 1, 3, or 5. Laboratory deposit, $1. Three credits; autumn.

113. Physiography of Europe.—The physiographic regions of Europe and effects of topography and climate on development and
relations of different countries. Lectures and map study. Prerequisite, Geology 10 or 12 or 1, 3 or 5. Laboratory deposit, $1. Three credits; winter.

114. Oceanography.—Study of the ocean, oceanic circulation and temperatures in their geographic relations and influence. Prerequisite, Geology 2 or equivalent work. Two credits; spring.

116. Economic Geography of Washington.—The economic and industrial development of the state, based on the geological, physiographic and climatic conditions. Three credits; autumn.

123. Optical Mineralogy.—The use of the polarizing microscope in the examination of minerals and rocks in thin sections. Prerequisite, courses 5, and 21. Laboratory deposit, $2. Three credits; autumn.

124. Petrography.—The principles of petrography and petrographic methods in the systematic study of igneous, sedimentary and metamorphic rocks. Prerequisite, course 123. Laboratory deposit, $2. Four credits; winter.

125. Advanced Petrography.—A continuation of the work in petrography for majors in mining and geology. Prerequisite, course 124. Two credits with additional credits optional; spring.

126. Economic Geology.—Economic deposits of non-metallic minerals, their production and use. Lectures and discussions of papers. Prerequisites, courses 1 or 5, and 21. Three credits; autumn.

127. Economic Geology.—Economic deposits of metals, their production and use. Lectures and discussion of papers. Prerequisite, course 1 or 5, and 21, 124. Five credits; winter.

128. Economic Geology.—An intensive study of certain economic minerals or of particular areas of great importance. Prerequisite, course 126 or 127. Two credits; spring.

130. Field Geol.—Graduate courses

210.—Advanced or research work in geography, climatology or physiography. Credits and hours to be arranged. Each quarter.

220.—Advanced or research work in mineralogy, petrography and metamorphism. Credits and hours to be arranged. Each quarter.

225.—Advanced or research work in economic geology. Credits and hours to be arranged. Each quarter.
SPECIAL SHORT COURSES

S. C. 1. Geology.—Two lectures per week. Laboratory deposit, $1. Two credits; winter.

S. C. 2. Mineralogy.—A laboratory course in physical determination of minerals and the use of blowpipe methods. Two laboratory periods per week. Laboratory deposit, $2. Two credits; winter.

GERMANIC LANGUAGES AND LITERATURE

REQUIREMENTS OF THE DEPARTMENT

For a major: 35 to 60 credits, including at least 30 credits in courses above 100.

For the normal diploma: The same as for a major, including course 160-161-162.

Credit is allowed for any quarter in any course except 1-2.

All courses are conducted in German unless otherwise specified.

1-2. First Year.—Stage pronunciations, grammar, reading of easy prose and verse, conversation. Five credits per quarter; autumn and winter, winter and spring.

3. First Year Reading.—Reading of modern prose, conversation, composition, continuation of grammar. Prerequisite, course 1-2 or one year in high school. Five credits per quarter; autumn, spring.

5. Second Year Reading.—Pronunciation, review of grammar with emphasis on syntax, reading of modern prose, simple conversation. Prerequisite, course 3 or one and one-half to two years high school. Five credits; winter.

6. Second Year Rapid Reading.—Special sections with suitable prose for students in colleges of Science, Engineering and Forestry. Prerequisite, course 5 or two and one-half to three years high school. Three credits; winter, spring (combined with 7).

7. Second Year Rapid Reading.—Modern prose and at least one drama by Schiller, Goethe or Lessing. Prerequisite, course 5 or two and one-half to three years high school. Three credits; spring.

*10-11. Second Year Supplementary Reading.

*100-102. Schiller and Goethe.

103-4-5. Recent Writers.—Social problems as represented in the works of Hauptmann, Sudermann, Fulda, Wolzogen, Lienhard, Schnitzler, Paul Ernst. Prerequisite, courses 6 or 7, or four years high school. Three credits; autumn, winter, spring.
**110-111. Advanced Grammar and Composition.**

112-113-114. Scientific German.—Scientific essays, monographs and technical periodicals. Each student does private reading in his own field under the guidance of the instructor and major professor. Prerequisite, course 5 or two to two and one-half years in high school. Two or three credits per quarter; autumn, winter, spring.

*116-117-118. German Prose Reading.*

*120. Phonetics.*

*130-131-132. German Institutions.*

*133-134-135. Modern Novels.*

*136-137-138. Modern Drama.*

*140-141. History of German Literature.*

*149. Lyrics and Ballads.*

151. Lessing.—Dramas and prose. A study of the life of the author. For advanced students. Two credits; autumn.

*152. Goethe's Faust.—Parts I and II.*

*160-161. Teachers' Course.*

*170-171-172. German Classics in English.*


*203-204-205. Storm and Stress Period.*

*206-207-208. Romantic School.*

*220-221-222. Inter-relations of German and English Literature.*

*250-251-252. History of the German Language.*

*253-254-255. Middle High German.*

*256-257-258. Gothic.*

*259. Old Saxon.*

**HISTORY**

Denny Hall

PROFESSORS MANT, RICHARDSON, SCHOLS; ASSOCIATE PROFESSOR McMAHON; ASSISTANT PROFESSOR LUTZ; PROFESSOR GOWEN

REQUIREMENTS OF THE DEPARTMENTS

The University requirements in history may be satisfied by one of the following courses:

History of Europe and the Near East (1-2-3). It is desirable that this course be selected in fulfillment of the history requirements and that it be taken in the freshman year. This course is repeated beginning with the winter quarter.


* Not offered in 1919-1920.
DEPARTMENTS OF INSTRUCTION

English Political and Social History (5-6-7). Open without prerequisites to freshmen, sophomores and upper classmen.

Ancient History (71-72-73). Open without prerequisites to sophomores and upperclassmen.

For a major at least ten credits shall be obtained in the most advanced undergraduate courses. Course 1-2-3 is required of all history majors.

It is recommended that all history majors shall take, in excess of departmental requirements, additional work in history, political and social science, philosophy, modern languages, and English literature. Medieval Latin is desirable for those who intend to study history for advanced professional purposes.

Prospective teachers of history as a major subject in high schools who desire the recommendation of the department of history must become acquainted with the elementary facts requisite for the teaching of all courses in history and in civil government taught in the high schools of the state, and have specialized knowledge in their chosen fields. Courses in history, government and economics should be elected with this aim in view.

The work in undergraduate courses consists of lectures, papers, assigned and collateral readings, with quiz sections organized for the larger classes. Graduate courses are devoted to research work and reports thereon.

1-2-3. History of Europe and the Near East.—A general survey from the Roman world empire of Augustus to our own times. Three credits per quarter; autumn, winter and spring quarters.

The above course is repeated beginning with the winter quarter.

5-6-7. English Political and Social History.—A survey of the political, social, economic and intellectual development of the English people from the Saxon conquest to the present time. Three credits per quarter. (By performance of special work under direction of the instructor upper division students may receive upper division credit.) Autumn, winter and spring.

Richardson

21-22. History of China.—From the earliest time to the present. Three credits per quarter; autumn and winter.

Gowen

23. History of Japan.—Three credits per quarter; spring.

Gowen

57-58-59. History of the United States.—A general survey with emphasis upon political history. Not open to freshmen. Three credits per quarter; autumn, winter and spring.

McMahon
60-61-62. *Makers of the Nation.*—American history through the biographies of prominent characters. Not open to freshmen. Two credits per quarter; autumn, winter and spring.

71-72-73. *Ancient History.*—A survey during the first quarter to about 400-387 B.C., during the second quarter to the death of Augustus, during the third quarter to Justinian. Not open to freshmen. Three credits per quarter; autumn, winter and spring.

105-106-107. *English Constitutional History.*—The development of the legal and governmental institutions of the English people to the present time. A course valuable for students of political science and law as well as history. Prerequisite, 5-6-7, except for upper division students who are majoring in economics, sociology and political science. Open also to upper division students who are taking 5-6-7, and to pre-law sophomores who have taken 5-6-7 in freshman year. Three credits per quarter; autumn, winter and spring.

*109-110. Economic and Social History of the Middle Ages.*

*111. Medieval Civilization.*

*114. Medieval France.*

*115. The Renaissance.*

*116. The Reformation.*

117-118-119. *France from the Reformation to the French Revolution.*—An advanced course which deals not only with the internal history of France but also with its relations to the larger problems of European history. Prerequisite, 1-2-3. Two credits per quarter; autumn, winter and spring.

121-122-123. *Prussia and Northern Europe.*—Two credits.

126-127-128. *England Since the Accession of George III.*—The development of recent English institutions and of social reform, foreign relations and the British “Commonwealth of Nations” from 1760 to the present time. Prerequisite, 1-2-3 or 5-6-7-. Two credits per quarter; autumn, winter, spring.


130. *Europe, 1814-1870.*—European development from the Congress of Vienna to the foundation of the German Empire at the close of the Franco-German war. Prerequisite, 1-2. Three credits; winter.

131. *Europe Since 1870: the War and Its Background.*—The

* Not offered in 1919-1920.
DEPARTMENTS OF INSTRUCTION

historical background, fundamental causes and progressive development of events and issues in the world war. Peace problems and current events will be discussed and related to their historical antecedents. Prerequisite, 1-2-3, or upper division standing. Not open to freshmen. Five credits; spring.

139-140-141. The American Colonies.—The planting, development and the growth of independence. Open only to juniors, seniors and graduates. Three credits per quarter; autumn, winter and spring.

142-144-145. History of the United States.—Three credits.

147. History of the Civil War Period.—Open only to juniors, seniors and graduates. Three credits per quarter; autumn.

148. History of the Reconstruction Period.—Open only to juniors, seniors and graduates. Three credits per quarter; winter.

149. History of National Development.—The development of the American nation from the close of the reconstruction period to the present time. Open to juniors, seniors, graduates and to such sophomores as have completed courses 57-58-59. Five credits per quarter; spring.

153. Spain in America.—The rise and fall of Spanish power in America, and an outline of the history of the Spanish-American republics. Three credits per quarter; autumn. Open to juniors, seniors and graduates.

154. Development of the Pacific.—History of the countries bordering upon the Pacific Ocean with especial reference to recent changes. Open to juniors, seniors and graduates. Three credits per quarter; winter.

155. History of Canada.—Canadian development to the present time. Open to juniors, seniors and graduates. Three credits per quarter; spring.

157-158-159. History of American Diplomacy.—American relations with foreign powers from colonial times to the present. Open to juniors, seniors and graduates. Two credits per quarter; autumn, winter and spring.

163-164-165. Northwestern History.—From the earliest voyages to the Pacific Northwest to the organization of the present form of government. Open to juniors, seniors and graduates. Two credits per quarter; autumn, winter and spring.

* Not offered in 1919-1920.
*171-172-173. Hellenism.—The spread and transformation of Greek civilization from its beginning to the fall of Constantinople (1453 A. D.). Open to juniors, seniors and graduates. Two credits per quarter; autumn, winter and spring.

*175. Ancient Imperialism.—Two credits.

*176. History of Ancient Law.—Two credits.

*196-197. Methods of Teaching History.—Required of advanced students who expect to teach history. Two credits per quarter; autumn, winter.

201-202-203. Historical Criticism and Historiography.—Two credits per quarter; autumn, winter and spring.

215-216-217. Seminar in English History.—A graduate course which lays more stress upon the constitutional than upon the political side of the subject. The course will deal with topics in the Tudor and Stuart period and with the antecedents of the Puritan Revolution. Two to four credits per quarter; autumn, winter and spring.

221-222-223. Seminar in American History.—Two credits per quarter; autumn, winter and spring.

227-228-229. Seminar in State History.—Two credits per quarter; autumn, winter and spring.

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* Not offered in 1919-1920.

HOME ECONOMICS

Home Economics Hall

Professor Raitt; Assistant Professors Dentt, Patty, Amery, Fitzgerald; Miss Shank, Mrs Elder, Miss Dreslar

(For curricula in Home Economics see College of Science)

1-2-3. General Course.—This course is planned for those students who will elect no other work in this department. It will include consideration of the selection, decoration and furnishing of the home; the organization of the household; the principles of food selection and preparation; elements of nutrition; textiles and clothing; home care of the sick. Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring.

DENTT, DRESSLER

4. Foods: Principles and Practice of Food Preparation.—Pre-requisite or parallel, Chemistry 3. Laboratory deposit, $4. Three credits; spring.

DRESSLER
5-6. Foods: Selection and Preparation.—Continuation of course 4. Prerequisite, course 4, or two years' high school domestic science, or equivalent, Chemistry 5-6. Laboratory deposit, $6. Five credits per quarter; autumn, winter, spring.


11-12. Needlework.—History and art of needlework. Problems: Marking of household linens, decorative stitches, fine mending. Consult instructor before electing. Prerequisite, H. E. 8. Laboratory deposit, $1. Two credits per quarter; winter, spring.

20. Laundering and Dyeing.

25. Textiles.—Fabrics and fibers; economic phases of textile industry. Laboratory deposit, $2. Five credits per quarter; autumn, winter or spring.

27. Non-Textiles.—A study of merchandise from non-textile sources, such as leather, rubbers, paper and metals. Raw materials, sources of supply, manufacture, methods of judging. A classification of departmental stock. Four credits; winter.

32. Economics of Clothing.—The evolution of dress, its economic and physiological importance. Three credits; spring.

48. Housewifery.—Materials used in the household; selection, sanitation, and care. Three credits; autumn.

61-62. Clothing: Selection and Construction.—Patterns, fitting, simple tailoring, construction of dresses. Prerequisite, course 8, or two years' high school clothing. Laboratory deposit, $2. Five credits; autumn and winter.

*101. General Survey.—The social, economic and educational function of the household, traced from primitive ages to modern times.

*103. Foods: Comparative Studies of Food Materials and Cooking Processes.—Prerequisite, course 5-6. Laboratory deposit, $4. Three credits per quarter.

106. Nutrition: Elementary Dietetics.—Functions and nutritive value of food. For those who wish to obtain a practical knowledge of nutrition as part of a liberal education but who are not preparing to teach the subject. Prerequisite or parallel, course 4, Chemistry 5-6, Zoology 7. Laboratory deposit, $3. Five credits; autumn.
107. Nutrition: Dietetics.—Principles of human nutrition. Prerequisites, course 5-6, Chemistry 144. Laboratory deposit; $8. Five credits; spring.

108. Diet for the Sick and Convalescents.—Two credits; winter.

*110. Nutrition.—The development of the science of nutrition. Original sources; library research. Prerequisite, course 107. Three credits.

119. Methods for Training Teachers of Part Time Classes in Vocational Home Economics.—Subject matter, organization of courses and methods of teaching suitable for part time and evening classes in vocational home making. The investigation will be carried on by means of class discussions, laboratory work, readings and supervised field work. Three credits; autumn.

121. Large Quantity Cookery.—Preparation of food in large quantities for cafeterias, tea rooms, dormitories, hospitals and camps. Laboratory practice. Laboratory deposit, $4. Three credits.

122. Buying and Dietaries.—Marketing, buying, institution equipment and supplies. Planning menus for dormitories, hospitals, cafeterias and tea rooms. Three credits; spring.

*123. Institutional Management.

124. Practice Work I.—At least nine hours per week spent in the different departments of the University Commons and university dormitories, under supervision of the instructor in charge. Conferences, service in food preparation. Three credits; autumn, winter, or spring.

125. Practice Work II.—Eight hours' work off the campus among the following: Tea rooms, cafeterias, school lunch rooms, hospitals. Conferences, services in food preparation. Three credits; autumn, winter, or spring.


133. Clothing: Costume and Design.—Development of fashion from ancient times to the present with emphasis upon the best art periods. Prerequisite, Fine Arts III. Laboratory deposit, $5. Five credits; spring.

* Not offered in 1919-1920.
135. Clothing: Millinery.—The making and covering of frames, fitting and trimming of hats and a study of trade methods and materials. Prerequisite, course 8, Fine Arts III, 8. Laboratory deposit, $4. Three credits; autumn.

143. Home Furnishing.—Application of structural art principles to choice and arrangement of household furnishings. Prerequisite, Fine Arts III, 8. Laboratory deposit, $1.50. Autumn or spring.

145. Household Management.—Organization of the household and application of the principles of scientific management. Prerequisite, courses 5-6, 61-62, 107 or 106, 148, Fine Arts II, Physics 89-90. Three credits; autumn, winter.

146-147. Teachers' Course.—Curricula, methods of teaching and equipment. Prerequisite, courses 5-6, 107, 61-62, 148, 144; Fine Arts II 1; Physics 89-90; Bacteriology 101. Three credits; autumn, winter.

148. Practice Cottage.—Students required to live in Practice Cottage one month.

189. Special Food Problems.—Marketing, cold storage, dietaries, adulterations, preservatives. Prerequisite, course 106 or 107. Laboratory deposit, $1. Three credits; spring.

*150. Foods: Problems in Feeding Industrial Groups.—Principles of food preparation; selection of food; meal planning; marketing; equipping kitchens. Laboratory deposit, $4. Three credits.

200. Special Food Problems.—Investigation of local food products. Prerequisite, courses 5-6, 107, 189, Chemistry 83. Laboratory deposit, $1. Three credits.

202. Seminar.—A study of the present status of home economics education with special attention to the work in the elementary and high schools of the state of Washington. Prerequisite, 80 credits in home economics, including course 146-147. Four credits.

203. Research.—Investigations of recent discoveries in the biological or physical sciences of immediate value to the housewife and consideration of methods for their utilization. Credits to be arranged.
101-102-103. Elements of Journalism.—A general introduction to the newspaper business, and a course in practical reporting. The year course is required of all majors. Non-majors of junior or senior standing, particularly home economics students, may take two quarters. The emphasis is on actual reporting. Three credits per quarter; autumn, winter, spring Laboratory deposit, $2.

104-105-106. Mechanics of Publishing.—Heads; practice in the journalism laboratory; proofreading; modern appliances; history of printing, with thesis. Required of all majors. One credit per quarter; autumn, winter, spring. One lecture and two laboratory periods per week. Laboratory deposit, $2.

General Advertising.—See Economics and Business Administration 76-77-78.


151-152-153. Editing and Advanced Newswriting.—Copyreading, headwriting, and other desk work, with a study of types of newswriting and practice in getting and writing news stories involving difficulties. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2.

154-155-156. Magazine and Feature Writing.—Study of the writing of feature stories, with special reference to Sunday sections and the magazines. Study of contemporary magazines and their policies. Fortnightly assignments. Three credits per quarter; autumn, winter, spring. Laboratory deposit.

157-158-159. History of Journalism, Editorial Writing, Newspaper Policy.—A course that covers the allied fields of editorial writing (with practice); the history of journalism with especial reference to newspapers that have been made or unmade by their editorial policies; a general study of newspaper policy, with emphasis on the ethics of journalism, and the history of newspaper ethics; newspaper campaigns; a study of current tendencies through the editorial page. Credits and hours to be arranged. Laboratory deposit.

160-161-162. Short Story.—A critical appreciation of the composition, human aspects, and tendencies of the short story, and its
place in literature. Short stories must be produced throughout the year at regular intervals, and are graded in proportion to their probable marketability. Open to non-majors above sophomore rank who bring a recommendation from the department of English. (English 101-102.) Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2, which covers prescribed textbooks, short story periodicals, library facilities, and use of typewriters.

163-164-165. The Business Office.—Cost finding; estimating; simplified accounting for newspaper plants; business office management; buying and selling; efficiency; plant hygiene; letter composition. This course is intended primarily for students who aspire to ultimate ownership or management of newspaper or job plants. Open to students in the School of Business Administration who have had prerequisite training. Compulsory for majors on the business side. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2.

166-167-168. Advanced Advertising and Publicity.—An intensive study of mediums and markets is made, campaigns are prepared and copy is written. Two credits per quarter; autumn, winter, spring. One lecture and one discussion per week. Laboratory deposit, $2.

169-170-171. Country Journalism and Circulation Management.—Study of successful country newspapers; methods of handling local advertising, and of securing and handling foreign business; circulation; scientific management as applied to a newspaper plant; office systems and simple front office accounting. Compulsory for majors on the business side. Three credits per quarter; autumn, winter, spring. Two lectures and one discussion per week. Laboratory deposit, $2.

176. Senior Conference.—A course in practical newspaper problems and procedure in all departments. One credit; autumn, winter, or spring. One recitation per week. Required of all senior majors.

178-179-189. Advanced News Writing.—Special stories; political writing; interpretative news.

**Subjects Presented by Other Departments**

54-55-56. Business Law.—The law of libel, with copyright, postal, advertising, circulation, and state and federal statutes generally as they relate to the publishing industry, will be covered in the first quarter of this course. Majors are advised to take all three quarters, however. Open to journalism majors of sophomore standing. For detailed description see curriculum of the College of Law. Three credits per quarter; autumn, winter, spring.
179-180-181. Freehand Drawing.—A foundation course for newspaper and magazine illustrating and cartooning. For further description, see curriculum of the College of Fine Arts.

*54. Newspaper Photography.—The course aims to give a familiarity with the construction and use of cameras, with the technique of picture-taking for still and moving objects, and with methods of developing and printing. Some attention will be given to the making of halftones, three color work, and newspaper reproduction. Class limit, 16. Credits and hours to be arranged. Laboratory deposit.

LAW
Commerce Hall

Professors Condon, Lantz, Goodner, Bissett, Aher; Mr. O'Brien

First Year

All first year courses required

100. Agency.—Wambaugh's Cases. Five credits; spring.

103-104. Contracts.—Williston's Cases. Five credits per quarter; autumn and winter.


108-109. Pleading.—Sunderland's Cases on Common Law Pleading, winter. Sunderland's Cases on Code Pleading, spring. Two and five credits, respectively, for winter and spring quarters.

110. Persons.—Woodruff's Cases on Domestic Relations and the Law of Persons, supplemented by Washington Cases. Three credits; spring.

112. Procedure II.—This course is a laboratory study in aid of the course in pleading. Two credits, spring.

115-118. Property I.—Warren's Cases. Three credits per quarter; autumn and winter.

117-118. Torts.—Ames' and Smith's Cases. Four and two credits, respectively, for autumn and winter quarters.

Second Year

156. Bankruptcy.—Holbrook and Aigler's Cases on Bankruptcy and Selected Cases. Three credits; spring.

* Not offered in 1919-1920.
180. **Damages.**—Mechem and Gilbert's Cases on Damages, supplemented by Washington Cases. Three credits; spring.

125-126. **Equity.**—Ames' Cases in Equity Jurisdiction, Volumes I and II. Three credits per quarter; autumn and winter.

129-130. **Evidence.**—Wigmore's Cases. Four and five credits respectively, for autumn and winter.

161. **Procedure IV.**—This course relates to procedure in civil actions in the Superior Court and is prerequisite to Procedure V. Three credits; autumn.

135-140. **Property II.**—Gray's Cases, Volumes III and V. Four and two credits, respectively, for autumn and winter quarters.

142-143. **Public Utilities.**—Green's Cases on Carriers and Wyman's Cases on Public Service Companies. Three credits per quarter; winter and spring quarters.

138. **Quasi-Contracts.**—Woodruff's Cases on Quasi-Contracts. Three credits; spring.

146-147. **Sales.**—Woodward's Cases. Three credits per quarter; winter and spring.

**THIRD YEAR**

165. **Admiralty.**—Ames' Cases. Three credits; autumn.

168. **Conflict of Laws.**—Lorenzen's Cases. Five credits; winter.

170-171. **Constitutional Law.**—Three credits per quarter; winter and spring.

166. **Office Practice.**—Conveyancing and examination of abstracts, care of a law office generally, drawing wills and contracts, preparation of briefs and office accounts. Spring.

187-188. **Private Corporations.**—Canfield and Wormser's Cases. Four and two credits, respectively, for winter and spring quarters.

169. **Procedure V.**—A continuation of Procedure IV, with jury in attendance. Course also includes the taking of appeals to the Supreme Court and practice in the extraordinary legal remedies of habeas corpus, mandamus, quo warranto, and prohibition. Procedure IV is a prerequisite. Autumn.
163. Procedure VI.—A course in probate proceedings, covering administration of estates, probate of wills, appointment of guardians, etc. Three credits; autumn.


191. Property: Community.—Washington Statutes and selected cases on community property. Five credits; spring.

195-196. Trusts.—Kenneson's Cases. Three credits per quarter; autumn and winter.

(The following courses not counted toward the degree of LL. B.)

54-55-56. Business Law.—This course covers the fundamental principles of law. The more general and practical principles are developed from problems and selected cases, particularly as related to the law of contracts, property, agency, negotiable paper, insurance, partnership and corporation, with special lectures as to the statutory regulations. Three credits per quarter; autumn, winter and spring.

Note.—Courses in Bills and Notes, Irrigation Law, Mining Law, Negligence, Partnership, Taxation, and Wills, heretofore offered, will not be offered until further notice, except upon petition of students for same and subject to action of the law faculty. Such courses when offered will be in substitution of the foregoing.

Note.—Courses in Insurance, History of the Law, Jurisprudence, Mortgages, Municipal Corporations, and Suretyship, heretofore offered, will not be offered until further notice except on petition of the students, and then in substitution of the foregoing courses and subject to action of the law faculty.

Fifteen hours or credits in each quarter are required, making a minimum total of 135 hours or credits for completion of the law course.

Students are limited to fifteen hours per quarter, except upon special permission of the dean.

Library Economy

Library

Professor Henry, Associate Professor Smith, Miss Howr, Miss Spencer, Miss Andrus

101. Order Accession and Circulation.—In this course the routine of ordering, receiving, checking, accessioning and mechanical preparation of books and elements of trade bibliography are treated. Also loan administration, covering charging systems, registration of borrowers, circulation of books and circulation records are dealt with. Two credits; autumn.

102. Classification and Subject Headings.—The work in classification is mainly a study of the decimal system. An exercise in classifying selected books follows each lecture with later revision, correction and discussion. Other classification systems are briefly described.
Under subject-headings lectures and practice work with selected books are given. Three credits; autumn.

103-104. Cataloguing.—The course in cataloguing, including book numbers, shelf-listing, alphabetizing and name lists consists of lectures, recitations and practice work selected as illustrative examples of rules given in class. The A. L. A. rules are used as a basis for study. Three credits per quarter; winter and spring.

105-106-207. Reference.—The purpose of these courses is to give a working knowledge of important types of reference books and to develop the power of research. Lectures cover books and methods. Practical problems are assigned and worked out. These courses include also the work with government documents. Two credits per quarter; autumn, winter, spring.

208. Subject Bibliography.—Practical work in the preparation of bibliographic lists; lectures on sources and methods of work. Problems cover arrangement and form of entry. One piece of independent bibliographic work is required of each student. Two credits; spring.

109-110.212-213. Practice.—Each student is expected to do approximately an hour of practice or laboratory work under expert personal supervision for each class period of instruction as a test of practical ability and as an opportunity to exhibit personality in service. The practice work is given in both the University Library and the Seattle Public Library, and consists of six hours per week for five quarters or twelve hours per week for thirty weeks. Twelve credits; inter and spring quarters of senior year; autumn, winter, and spring of graduate year.

Books and Libraries.—Lectures, readings and reports on the evolution of the book and the library. One credit; autumn.

216. Library Organization and Extension.—In this course subjects are treated as legalization and organization of a general library system for city, county or state, as the unit of organization; also the organization of various types of libraries with varying degrees of extent. One credit, autumn; two credits, winter.

16-217-218-219. Book Selection.—Designed to cultivate taste and judgment in the evaluation of books through a study of the principles of book selection, annotation and book reviewing. One credit, summer quarter of senior year; two credits per quarter, autumn, winter, and spring of graduate year.
220. *Library Administration and Library Literature.*—Lectures, readings and discussions upon library legislation, local taxation, library budget, and all means and instruments for realizing the educational and social functions of the library. Reading and class discussion of the literature of libraries and librarianship, including library periodicals and the publications of library organizations, with special emphasis upon the best papers in the A. L. A. Proceedings for recent years. Two credits; spring.

221. *Work with Children and Schools.*—This course is planned to meet the needs of general library assistants and librarians in charge of small libraries. It deals with principles of book selection with special attention to choice of books for children of various ages. Students read and discuss children's books with these ideals in mind. Two credits; winter.

222. *Special Lectures by Active Librarians.*—Ten lectures are given by as many persons, each upon some vital problem of library service or administration. These persons are selected because of their experience and success in dealing with the problem treated. One credit; spring.

223. *Study of a Selected Public Library.*—Each student is assigned to make a study of some specific public library reasonably near Seattle, and write a report upon its general policy and plans of organization, extension and administration. One credit; spring.

**Mathematics**

*Science Hall*

Professor Mortz; Associate Professor Carpenter; Assistant Professor Gavitt, Wingers, Nesikirke, Bell; Dr. Small; Associate, Dr. Mullens

**Requirements of the Department**

For a major in mathematics, 36 credits, including courses 1, 2, and 9. Candidates for the normal diploma must complete one course 127 (teachers' course) in addition to the major requirement.

Candidates who are not majors in mathematics but wish to teach mathematics as a minor subject must have earned at least 12 credits in mathematics, including Math. 4 and Math. 5, before receiving the recommendation of the department.

Major students in mathematics should, if possible, select their courses in mathematics in the following order: Math. 4, 5, 6, 9. In addition they should elect physics as their freshman science and take solid geometry (Math. 2) in their freshman year.
1. **Advanced Algebra.**—Algebra from quadratics on. Prerequisite, one year of high school algebra. Five credits; each quarter.  

2. **Solid Geometry.**—Prerequisite, one year of plane geometry. Five credits; winter or spring.

3. **Plane Trigonometry.**—For students in the Colleges of Liberal Arts, Science, Education, Fisheries, Law, and Pharmacy. Prerequisite, one year of algebra and one year of geometry. Five credits; each quarter.

4. **College Algebra.**—Prerequisite, course 1 or one and one-half years high school algebra. Five credits; winter.

5. **Analytical Geometry.**—Primarily for students in the College of Science. Prerequisite, courses 1, 2 and 4. Five credits; spring.

6. **Calculus.**—Elements of differential and integral calculus, primarily for students in the College of Science. Prerequisite, course 6. Five credits per quarter; autumn, winter, spring.

7. **Theory of Investment.**—Primarily for students in Commerce. Preliminary processes of algebra with the application of this preliminary work to problems of compound interest, annuities, amortization, bonds, sinking funds, depreciation, and building and loan associations. Prerequisite, one year algebra, one year geometry. Five credits per quarter; autumn, winter, spring, or spring and autumn.

8. **Elements of Statistical Methods.**—Data obtained by observation, enumeration or estimate, and their application to interpreting social or natural phenomena. Prerequisite, one year algebra, one year plane geometry.

9. **Algebra and Trigonometry.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, one and one-half years algebra, one year plane geometry. Three credits; each quarter.

10. **Trigonometry and Analytical Geometry.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, course 51. Three credits; each quarter.

11. **Analytical Geometry.**—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, course 52. Three credits; each quarter.

12. **Mathematics for Foresters.**—A study of advanced numerical and graphical methods and solution of plane triangles by trigonometric methods. Prerequisite, one and one-half years algebra,
one year plane geometry. Three credits per quarter; autumn, winter and spring.

57-58-59. Mathematics for Architects.—Algebra through quadratic equations and plane trigonometry through solution of triangles. Advanced topics in algebra; the elements of analytical geometry; elementary differential and integral calculus. Prerequisite, one year algebra, one year plane geometry. Three credits per quarter; autumn, winter, spring.

61-62-63. Calculus.—Primarily for students in the Colleges of Engineering and Mines. Prerequisite, courses 2 and 58. Three credits per quarter; autumn, winter, spring.

101. Spherical Trigonometry, with Applications.—Prerequisite, courses 2 and 4. Two credits; autumn.

102-103. Solid Analytical Geometry.—Prerequisite, course 8 or 68. Two credits per quarter; winter, spring.

111-112-113. Applications of Mathematics to Physics and Chemistry.—Topics and processes most needed by the student of the physical sciences in working, or in reading scientific papers in which mathematics is applied. Prerequisite, course 8 or 61. Two credits per quarter; autumn, winter, spring.

114-115-116. Ordinary and Partial Differential Equations.—With applications to problems in physics, chemistry, astronomy and engineering. Prerequisite, course 8 or 68. Two credits per quarter; autumn, winter, spring.

117-118-119. Projective Geometry.—An analytic treatment. The relation of projective to metric geometry is emphasized. Prerequisite, course 8 or 61. Two credits per quarter; autumn, winter, spring.

121-122-123. Higher Plane Curves.—The projective properties of algebraic curves. Prerequisite, course 8 or 61. Two credits per quarter; autumn, winter, spring.

124-125-126. Real Variables.

127. Teachers’ Course.—Required of those who make mathematics their major study and who are applicants for the teachers’ certificate. Prerequisite, course 9. Five credits; autumn.

*133-134-135. Analytical Mechanics.—Prerequisite, course 9. Two credits per quarter; autumn, winter, spring.


*204-205-206. Modern Algebra.

207-208-209. Infinite Series.—Prerequisite, courses 5 and 9. Two credits per quarter; autumn, winter, spring.

*211-212-213. Foundations of Mathematics.—Prerequisite, course 9. Two credits per quarter; autumn, winter, spring.

*214-215-216. Complex Variable.—Prerequisite courses 5, 9. Two credits per quarter; autumn, winter, spring.

217-218-219. Elliptic and Theta Functions.—The theory will be developed in the lectures and amplified in the seminar by a study of the classical memoirs in the subject. Credit for seminar to be determined in each case. Prerequisite, one year of graduate work in mathematics. Two to four credits per quarter; autumn, winter, spring.

251-252-253. Mathematical Journal and Research Club. Meets on the third Tuesday of each month in Science Hall, room 2, at 8 p.m. The club consists of advanced students and teachers in the department of mathematics. The purpose of the club is primarily to discuss the research work carried on by members of the club, and secondarily to review important recent mathematical literature. Prerequisite, open to all graduate students in mathematics. No credit; autumn, winter, spring.

MECHANICAL ENGINEERING

Engineering Hall

Professor Eastwood; Associate Professor, Wilson; Assistant Professor Winslow; Mr. Biattie, Mr. Kabe

1, 2, 3. Woodwork.—Bench work; cabinet work; pattern making. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring.
4. **Woodwork.**—Mine timber framing. Prerequisite, Mining 50. Laboratory deposit, $2. One credit; spring.  

**Daniels, Beattie**

53, 54, 55. **Metalwork.**—Foundry; forge; machine work. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring.  

**Kane**

81. **Mechanism.**—The operation of machines involving the transmission of forces and the production of determinate motions. Prerequisite, C. E. 2, Math. 52. Three credits; autumn, winter or spring.  

**Wilson, Winslow**

82. **Steam Engineering.**—The various forms of steam apparatus used in modern steam plants; their construction, use, and reason for their installation. Not open to freshmen. Prerequisite, C. E. 2. Three credits; autumn, winter, or spring.  

**Eastwood, Winslow**

83. **Steam Engineering Laboratory.**—Calibrations of thermometers, gages, indicator springs, etc.; tests of the simple steam engine; one complete engine and boiler test with report. Preceded or accompanied by course 82. Laboratory deposit, $2. Three credits; autumn, winter, or spring.  

**Wilson**

90, 91. **Machine Design.**—The design of machine details. Preceded or accompanied by course 81. Prerequisite, C. E. 2. Three credits per quarter; autumn, winter or spring.  

**101-102-103. Machine Design.**—The design of hoisting and pumping machinery; special machines. Prerequisite, course 90, C. E. 181, 182. Three credits per quarter; autumn, winter, spring.  

**Kane**

**106-106-107. Metalwork.**—Advanced machine shop practice. Prerequisite, course 55. Laboratory deposit, $2. One credit per quarter; autumn, winter, spring.  

**Kane**

108. **Metalwork.**—Manual arts for teachers. Prerequisite, course 107. One credit; autumn, winter, or spring.  

**Kane**


**Beattie**

115. **Machine Design.**—Special problems in the design of chemical machinery. Prerequisite, course 90, C. E. 181. Three credits; autumn.  

* Not offered in 1919-1920.
123-124-125. Engines and Boilers.—The generation and use of steam in various types of boilers and engines. Three lectures per week first quarter; one lecture and six laboratory periods per week second and third quarter. Prerequisite, courses 82, 91, C. E. 131. Three credits per quarter; autumn, winter, spring.

151-152-153. Experimental Engineering.—A continuation of M. E. 83, involving more extended and complete investigations. Prerequisite, M. E. 83. Laboratory deposit, $2. Three credits per quarter; autumn, winter, spring.

179. Steam Turbines.—The theory, construction and design of steam turbines. Prerequisite, course 82. Three credits; autumn.

180. Refrigeration.—The theory and application of mechanical refrigeration. Prerequisite, Physics 98. Two credits; spring.

182. Heating and Ventilation.—The various systems of heating and ventilating, methods of design and tests. Prerequisite, course 82. Three credits; winter.

183. Thermodynamics.—The fundamental principles underlying the transformation of heat into work, with special application to engineering. Prerequisite, M. E. 82. Three credits; autumn.

184. Power Plants.—The design of steam power plants, involving their location, buildings, prime movers, power transmission, etc. Prerequisite, courses 123, 140. Three credits; spring.

185-186-187. Naval Architecture.—The theory of naval architecture, as pertains to displacement, stability and strength, and the usual calculations involved in construction. Not open to freshmen. Three credits per quarter; autumn, winter, spring.

188, 189. Ship Design.—Application of the principles of naval architecture to the design of a ship for a definite purpose. Prerequisite, M. E. 186. Two credits per quarter; autumn and winter.

190. Marine Engineering.—The power plant equipment of ships, including boilers, engines, auxiliaries and propellers. Prerequisite, courses 82, 185. Three credits; spring.

199. Gas Engineering.—The development of gas engineering, including stationary, marine, automobile and airplane motors, and gas producer plants. Prerequisite, course 82. Three credits; winter.
201. **Gas Engine Design.**—Calculations and plans for the design of a given type of motor. Prerequisite, course 199. Three credits; spring.

**Wilson**

210. **Thesis.**—An investigation, design or experiment under the direction of the professor in charge. Three credits; senior year.

### Military Science and Tactics

**The Armory**

**Colonel Phillips; Lieutenant Colonel Frazer; Major Butcher; Captain Meredith; Sergeants Kent and Mshiehir**

All students in the University who are American citizens, and not physically disqualified, are required to take military training during their first two years. The present requirement is five hours per week. Three hours of the work is given by lecture and textbook instruction and the remainder in practical work.

The instruction of these two years, together with that provided for the third and fourth years, constitute the courses prescribed by the War Department, Committee on Education and Special Training, for institutional units of the Reserve Officers Training Corps.

Two R. O. T. C. units have been established in the University, one leading to commissions in the Infantry Officers Reserve Corps and one leading to commissions in the Coast Artillery Officers Reserve Corps. The advanced courses provided in either of these for the third and fourth years are open to all students who have completed the first two years of instruction and training.

These advanced courses are mainly composed of subjects taught in the regular collegiate courses, and to this extent do not impose additional work upon students who elect to pursue the R. O. T. C. courses for the purpose of securing reserve officers' commissions in connection with their other collegiate work.

Several electives are provided so that students in nearly every department of the colleges of the University will find subjects in the R. O. T. C. course consistent with the normal professional work of the regular course. These electives will be published later.

In addition to the above courses, the University has provided for those students who desire to major in military science a four-year curriculum which will give a good general college education upon which any line of professional or technical study may be based and which will give to the graduate the degree of B. S. in Military Science, and at the same time enable him to obtain a commission as second lieutenant in the Officers Reserve Corps of the United States Army in accordance with the provisions of the National Defense Act.

I-2-3. **Theoretical Military Science.**—Autumn Quarter.—Infantry Drill Regulations through the School of the Battalion, close order; ceremonies; military courtesy, individual and by units of troops; care
of arms, care of small arms, general care of material and equipment of the various service branches. **Winter Quarter.**—Morale, nature and importance, responsibility of officers and N. C. O.'s, means of developing in soldiers; guard duty, principles of; hygiene and sanitation personal hygiene, care of troops, camp sanitation and first aid. **Spring Quarter.**—Use of small arms, theory and principles; organizations, elements of military organization, functions of the various service branches; administration, interior economy of the company, mess management; laws, regulations and orders, pertinent laws and the more important army regulations and orders. One credit per quarter. Three hours per week.

4-5-6. **Practical Military Science.**—Required during first year of all men. **Autumn Quarter.**—Disciplinary close order drill; care of arms and equipment; bayonet drill. **Winter Quarter.**—Disciplinary close order drill; care of arms and equipment; guard duty; first aid. **Spring Quarter.**—Disciplinary close order drill; care of arms and equipment; gallery practice. Two hours per week. One credit per quarter.

51-52-53. **Theoretical Military Science.**—Autumn, winter, spring quarters. Courses to be announced. Required during second year of all men who elect to take Infantry course R. O. T. C. Three hours per week. One credit per quarter.

54-55-56. **Practical Military Science, Infantry.**—Autumn, winter, spring quarters. Courses to be announced. Required during second year of all men who elect to take Infantry course, R. O. T. C. Two hours per week. One credit per quarter.

61-62-63. **Theoretical Military Science, Coast Artillery.**—Autumn, winter, spring quarters. Courses to be announced. Required during second year of all men who elect to take Coast Artillery course, R. O. T. C. Three hours per week. One credit per quarter.

64-65-66. **Practical Military Science, Coast Artillery.**—Required during second year of all men who elect to take Coast Artillery course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Two hours per week. One credit per quarter.

71. **Practical and Theoretical Military Science, Infantry.**—Prerequisite for advanced courses, third and fourth years, Infantry, R. O. T. C. Summer quarter: Encampment for six weeks, following close of second year, place and time to be announced, for intensive practical and theoretical training.

81. **Practical and Theoretical Military Science, Coast Artillery.**—Fourth quarter: Encampment for six weeks following close of second year, place and time to be announced, for intensive practical and theoretical training. Prerequisite for advanced courses, third and fourth years. Coast Artillery, R. O. T. C.
101-102-103. Theoretical Military Science, Infantry.—Required during third year of all men electing to take Infantry Course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced later. Three hours per week.

104-105-106. Practical Military Science, Infantry.—Required during third year of all men electing to take Infantry Course R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Two hours per week.

121-122-123. Theoretical Military Science, Coast Artillery.—Required during third year of all men electing to take Coast Artillery course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Three hours per week.

124-125-126. Practical Military Science, Coast Artillery.—Required during third year of all men electing to take Coast Artillery course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Two hours per week.

171. Practical and Theoretical Military Science, Infantry.—Required of all men electing to take Infantry course, R. O. T. C. Summer quarter: Encampment for six weeks following close of third year, place and time to be announced, for intensive, practical and theoretical training.

181. Practical and Theoretical Military Science, Coast Artillery.—Required of all men electing to take Coast Artillery course, R. O. T. C. Summer quarter: Encampment for six weeks following close of third year, place and time to be announced, for intensive practical and theoretical training.

111-112-113. Theoretical Military Science, Infantry.—Required of all men, during fourth year, electing to take Infantry course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Three hours per week.

114-115-116.—Practical Military Science, Infantry.—Required during fourth year of all men electing to take Infantry course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Two hours per week.

131-132-133. Theoretical Military Science, Coast Artillery.—Required during fourth year of all men electing to take Coast Artillery course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Three hours per week.

134-135-136. Practical Military Science, Coast Artillery.—Required during fourth year of all men electing to take Coast Artillery course, R. O. T. C. Autumn, winter, spring quarters: Courses to be announced. Two hours per week.
DEPARTMENTS OF INSTRUCTION

MINING AND METALLURGY

Mines Hall

PROFESSOR ROBERTS; ASSOCIATE PROFESSOR DANIELS; ASSISTANT PROFESSORS COBB, WILLIAMS, WILSON; LECTURERS, MR. GLENN, MR. KERR, MR. POWELL; ASSISTANTS, MR. PATTY, MR. WILCOX

I. MINING

20. Mine Timbering.—Materials and methods used in timbering shafts, tunnels, and drifts in hard and soft ground. Particular attention is paid to those methods used by military engineers. One credit per quarter; winter.

DANIELS

21. Mine Timber Framing.—Shop practice in framing mine timbers. One laboratory period. Laboratory deposit, $2. One credit; spring.

DANIELS

51. Elements of Mining.—A general study of the field of mining, considering prospecting, boring, drilling, explosives, rock breaking, methods of development and working, transportation and drainage. Prerequisite, sophomore standing. Three credits; autumn.

DANIELS

101. Milling.—A preliminary course designed to familiarize all students in the department with the principles and uses of the various types of crushing, sampling, concentrating and washing machinery in the Mines Building. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $8. Three credits; autumn.

ROBERTS

103. Mine Rescue Training.—Twenty-five hours of instruction. Practice in the care and use of oxygen rescue apparatus, smokeroom training, and first-aid-to-the-injured work in the U. S. Bureau of Mines Rescue Station. Required of all students in the College of Mines. One credit; winter.

DANIELS, CHISHOLM

106. Mining Excursion.—A two-weeks excursion taken in June of each year to a neighboring mining region; detailed examinations of mining and metallurgical industries. Expenses, $20 to $40. Three credits; spring.

ROBERTS, DANIELS, COREY

120. Coal Resources of North America.—The occurrence of coal in North America with especial reference to geographic and geologic distribution and structure; classification and commercial requirements of coals. Prerequisite, course 51. Three credits; winter.

DANIELS

122. Coal Mining Methods.—Prospecting and development. A detailed study is made of a nearby mine. Prerequisite, courses 51, 120.

DANIELS
151. Mining Engineering.—Lectures on exploration, mine development and operation, with mining costs, power generation, air compression, hoisting and transportation. Practice with air compressors, machine drills and mine equipment in laboratories and local plants. Prerequisite, senior standing. Three recitations, one laboratory period and excursions. Laboratory deposit, $3. Five credits; autumn.

152. Ore Dressing.—A detailed study of certain branches of ore dressing accompanied by mill tests of ores checked by assays. Prerequisite, senior standing. Three recitations and two laboratory periods. Laboratory deposit, $5. Five credits; spring.

153. Thesis Outline.—The outlining of senior thesis, the gathering of material, study of references, making of drawings, maps, etc. See course 154-155. Prerequisite, senior or graduate standing. One laboratory period. One credit; autumn.

154-155. Thesis.—A continuation of course 153. Weekly consultation and seminars. Prerequisite, course 153. A deposit of $5 or $10 will be required to cover cost of materials and equipment in thesis work involving the use of mining or metallurgical equipment. Two laboratory periods. Two credits per quarter; winter and spring.

158. Mining Law.—A series of lectures on the mining laws of the United States and Alaska; illustrated by diagrams and mine maps. Two lectures. Two credits; winter.

162. Mining Methods.—An advanced study of mining methods. Prerequisite, senior or graduate standing. Three credits; winter.

163. Mine Operation.—The complete operations at a few typical mines, including mining, transportation and treatment of ore, disposal of products, company finances and management. Illustrated by ores and products, maps and photographs, cost sheets, engineering and financial reports of the mines studied. Prerequisite, senior or graduate standing. Three credits; spring.

171. Mine Gases and Ventilation.—Composition and properties of mine gases, methods of testing; lighting of mines; principles of ventilation; ventilating machinery. Prerequisite, course 122. Three recitations. Three credits; winter.

178. Coal Mining Plant.—Design of plant and machinery employed in mining and preparing coal for market. Prerequisite, senior standing. Three drafting periods. Three credits; spring.
Methods of Dancing.—Prerequisite Dancing 64-65-mine locomotives, fans, hoists, pumps and tipple or breaker machinery with especial reference to application to coal mining. Prerequisite, senior standing. Three recitations; three credits; spring.

176. Coal Washing.—Methods of preparing coal for market, together with laboratory tests and runs on various coals to determine best methods of preparation. Prerequisite, course 101, Met. 103. Three recitations and two laboratory periods. Laboratory deposit, $5. Five credits; winter.

182. Mine Management.—The organizations and administration of engineering plants, involving the keeping and interpretation of cost accounts, the efficiency of labor and methods, the financial, legal and social aspects of engineering operation. Prerequisite, senior standing. Three recitations. Three credits; spring.

201-202-203. Seminar.—Lectures and discussions by Bureau of Mines staff, College of Mines faculty and fellows. Required of Bureau of Mines fellowship holders. Prerequisite, senior or graduate standing. One credit; autumn, winter, spring.

II. Metallurgy

101: Fire Assaying.—The testing of reagents, the crushing, sampling and assaying of ores, furnace and mill products. Prerequisite, Chemistry 101. One recitation and three laboratory periods. Laboratory deposit, $20. Five credits; autumn.

102. General Metallurgy.—The properties of metals and alloys, fuels, refractory materials, furnaces, and the extraction of the common metals from their ores. Visits to smelters. Prerequisite, course 101. Three recitations and two laboratory periods. Laboratory deposit, $10. Five credits; spring.

103. Metallurgical Fuels.—The analysis of fuels and a consideration of the most effective utilization of the country’s present supplies. Prerequisite, junior standing. Two recitations and one laboratory period. Laboratory deposit, $5. Three credits; autumn.

104. Copper and Lead.—The metallurgy of copper and lead, especially the methods of roasting, smelting and refining. Prerequisite, junior standing. Three credits; spring.

106. Refractories.—Methods of testing clays, refractory materials, cement-making materials. One recitation and one laboratory period. Laboratory deposit, $5. Two credits; spring.
151. Gold and Silver.—Amalgamation, cyaniding and chlorination of gold and silver ores. Prerequisite, course 102. Three credits; autumn.

152. Wet Assaying.—Technical methods for the determination of copper, lead, zinc, etc., in ores and furnace products. For students in ceramics, the analysis of clays and ceramic products. Prerequisite, course 102, Chemistry 101. One recitation and two laboratory periods. Laboratory deposit, $12. Three credits; autumn.

155. Iron and Steel.—The metallurgy and manufacture of commercial iron and steel, with especial reference to their properties and uses in engineering work. Prerequisite, junior standing. Three recitations. Three credits; autumn.

157. Design of Plant.—The designing of a piece of equipment or a structure for mining, milling, or metallurgical purpose. Prerequisite, senior or graduate standing. Three drafting periods. Three credits; spring.

158. Minor Metals.—The metallurgy of zinc, antimony, tin, aluminum, nickel, etc.; a study of the plant required, the methods and costs of treatment. Three credits; winter.

160. Metallurgical Analysis.—Technical methods of analysis of slags and industrial products. Prerequisite, Chemistry 101. One recitation and two laboratory periods. Laboratory deposit, $12. Three credits; winter.

162. Metallography.—The constitution and microstructure of metals and alloys, especially iron and steel. Prerequisite, junior standing. Two recitations. Two credits; winter.

163. Metallography.—The preparation and study of metal sections, photomicrography and the use of the microscope to aid in testing industrial alloys. Two laboratory periods per week. Laboratory deposit, $5. Two credits; spring.

164. Pyrometry and Alloys.—Methods of measuring high temperatures; union of metals by fusion, compression and electro-deposition; the behavior of metals and alloys under heat. Laboratory practice in thermal measurements, synthesis and testing of alloys. One recitation and one laboratory period. Laboratory deposit, $5. Two credits; spring.

165. Metallurgy Calculations.—Physical chemistry for the metallurgist, slag calculations, etc., illustrated by figures quoted from the present practice at a number of smelting plants. Prerequisite, course 102, Chemistry 101. Two credits; winter.
166. Electro-Metallurgy.—A study of methods and practice with special consideration of the possibilities of electrometallurgical industries in the Pacific Northwest. Prerequisite, senior or graduate standing. Three credits; spring.

Thesis.—See Mining 153 and 154-155.
Summer Field Work.—See mining 106.

III. Ceramics

101. Ceramic Raw Materials.—The occurrence, properties and winning of clays, shales, limestones, silica and other ceramic raw materials. Two credits; autumn.

102. Raw Materials Testing.—Laboratory and occasional lectures. Laboratory deposit, $8. Prerequisite, Ceramics 101. Two credits; spring.

105. Pottery.—Compositions and properties of materials used in making pottery and glazes. Prerequisite, junior standing. Optional for students in Fine Arts. Two credits; autumn.

111. Manufacture of Clay Products.—Principles governing the manufacture of clay wares; equipment, drying, and burning. Three credits; spring.

121. Ceramic Calculations.—Calculations involved in the blending of raw materials for pottery bodies, glazes, enamels, etc. Practical ceramic problems. One credit; spring.

151. Clay Products Laboratory.—Practice in the actual processes of manufacture of the various clay wares. Prerequisite, course 111. Two recitations and three laboratories. Laboratory deposit, $7. Five credits; autumn.

152. Clay Products Testing.—Requisite qualities of structural clay products and refractories. Standard tests. One recitation and one laboratory. Laboratory deposit, $8. Two credits; autumn.

161. Thesis.—A detailed study of some special or original ceramic problems. Prerequisite, senior or graduate standing. Laboratory and conference. Laboratory deposit, $5 to $10, depending upon the nature of the work. Two credits; autumn.

162-163. Thesis.—A detailed study of some special or original ceramic problem. Prerequisite, senior or graduate standing. Laboratory and conference. Laboratory deposit, $5 to $10 per quarter, depending upon the nature of the work. Three credits per quarter; winter, spring.

164. Field Work.—Visits to and reports upon individual plants. Prospecting trips. Two credits; spring.
17B. Cements and Limes.—Lime, Portland cement, plaster and other cementing materials, and sand-lime products. Production, properties, and uses. Four lectures. Four credits; winter.

18S. Glasses and Glazes.—Classification, production, properties and defects. Application to ceramic waves. Two lectures and one laboratory. Laboratory deposit, $8. Three credits; winter.

18S. Enamels.—Composition and properties of enamels. Application to clay and metal wares. Prerequisite, course 811. Three credits; spring.

Music
Moody Hall
Professor Glen; Assistant Professors Wood, Rosen, Vening, Dickey; Mrs. Boguebus, Mrs. van Ogil, Mr. Adams; Assistant, Miss Finleyman

1-2-3. Music Appreciation.—This course is planned to aid not only music students but also all interested in music to become intelligent and discriminating listeners. Musical masterpieces, both instrumental and vocal, of different periods and forms, will be presented and discussed. Two credits per quarter; autumn, winter, spring.

4-5-6. History of Music.—The progress of musical development from the primitive period to the modern. Two credits per quarter; autumn, winter, spring.

7-8-9. Sight Singing.—For prospective grade supervisors and for music students. Two sections—one for beginners and the other for students who have had some experience in sight singing. Two credits per quarter; autumn, winter, spring.

10. Choral Study.—The university chorus provides the opportunity, for those qualified, to study the more serious as well as the lighter forms of choral composition. Candidates must satisfy the director as to the extent of their musical ability. One credit; autumn or winter.

14-15-16. Ear Training and Melody Writing.—Principles of melodic invention and training in hearing accurately; study in notation. Two credits per quarter; autumn, winter, spring.

17. Choral Study.—Part songs for men's voices. Candidates admitted only upon examination. Two credits; autumn.

31-32-33. Applied Music (Freshman).
118-119-120. Applied Music (Junior).
Students of other colleges and schools may earn one or two credits per quarter in the applied music courses. Students of the College of Fine Arts carry a larger number of credits—one and one-half to three—as indicated in the set courses. Students enrolled in these courses will be given opportunity, upon demonstration of the required ability, to participate in the public recitals of the department.

Unless excused by reason of advanced standing upon entrance, students who major in courses in applied music will require two lessons a week, ordinarily, in order to cover the work necessary for a degree. One to three credits per quarter.

Piano—Venino, Van Ogle, Ferryman
Violin—Rosen
Voice—Glen, Bogardus

19-20-21. *University Orchestra.*—The University orchestra affords to the qualified students an unusual opportunity for the study of the better grades of orchestral composition. None is eligible to enter the course unless the director is satisfied of the ability of the applicant. One credit per quarter; autumn, winter, spring.

22-23-24. *University Band.*—Competent players of band instruments are admitted to the band upon consent of the bandmaster. Two credits per quarter; autumn, winter, spring.

25-26-27. *Chamber Music.*—Advanced study of the musical literature for string trios, quartets and quintets. One credit per quarter; autumn, winter, spring.

28-29-30. *Ensemble Singing.*—A choral course for women. Only advanced students will be admitted. One credit per quarter; autumn, winter, spring.

51-52-53. *Harmony.*—Ear training, analysis, and keyboard practice. Prerequisite, courses 7-8-9 and 14-15-16. Three credits per quarter; autumn, winter, spring.

54-55-56. *School Music.*—A course for supervisors. Two credits per quarter; autumn, winter, spring.

101-102-103. *Advanced Harmony.*—Prerequisite, courses 51-52-53. Three credits per quarter; autumn, winter, spring.

104-105-106. *History of Music, Advanced.*—A detailed study of important periods and composers of modern music. Two credits per quarter; autumn, winter, spring.

107-108-109. *Counterpoint.*—Prerequisite, courses 51-52-53. Two credits per quarter; autumn, winter, spring.
110-111-112. Instrumental Form.—Analysis of many examples and simple exercises in composition. Prerequisite, courses 51-52-53. Two credits per quarter; autumn, winter, spring.

Wood

113, 114, 115. Music Education.—Psychological and pedagogical principles and their application to the teaching of music. Two credits per quarter; autumn, winter, spring.

Dickey

151, 152, 158. Musical Appreciation.—An appreciative study of some modern composers and schools. Two credits per quarter; autumn, winter, spring.

Van Ogle

154, 155, 156. Music Education and Supervision.—This course is for seniors and students of experience. High school, normal school and institute music. Two credits per quarter; autumn, winter, spring.

Dickey

157-158-159. Free Composition.—Choral work, piano accompaniment idioms, vocal and instrumental solos and pieces in the smaller forms. Prerequisite, courses 101-102-103. Two credits per quarter; autumn, winter, spring.

Wood

160-161-162. Polyphonic Forms.—Free counterpoint applied to the invention, canon, fugue, etc. Analysis and composition. Prerequisite, courses 107-108-109. Two credits per quarter; autumn, winter, spring.

Wood

Nursing

Assistant Professor Bartlett

1. Nursing as a Profession.—An informational course dealing with the traditions and development of nursing, the newer branches of public health work, and the opportunities for college women in the nursing profession. Prerequisites, none. Open to any women student in the University. Two credits; winter, spring.

Mrs. Bartlett

5. Home Nursing.—A practical course in home nursing for women students. Object of course is to enable these women to care for patients in their own home. The course also gives instruction in care of chronics, invalids and babies. Prerequisites, none. Three credits; winter and spring.

Mrs. Bartlett

208. Administration in Public Health Nursing Organizations.—Course deals with the organization and administration of societies organized for visiting nursing, methods of collecting funds, boards of directors, and various committees of these associations, office equipment, records, vital statistics, and supervision of staff nurses will be dealt with. Prerequisites: Open to public health nurses who have had one year of public health nursing. Three credits. Hours to be arranged.

Mrs. Bartlett
The requirement of one year's work in ancient languages and literature may be satisfied by courses 50, 51 and 52. Courses 1, 2 and 3 count for credits in the department of history; courses 40, 41 and 42 in the College of Business Administration; and courses 114, 115 and 116 in the department of philosophy. Courses above 100 are for juniors, seniors and graduates.

1. History of China I.—History of China from the earliest times to the Manchu Conquest. Three credits; autumn.

2. History of China II.—History of China from the Manchu Conquest to the present day. Three credits; winter.

3. History of Japan.—Japan from the earliest times to the present day. Three credits; spring.

30-31-32. Semitic Literature.—A study of the literature of the Old Testament. Continuous through the three quarters, but each course independent and self-contained. One credit per quarter; autumn, winter, spring.

40-41-42. Oriental Institutions—Japan, Russia, and China.—The physical geography, social character and commercial resources of the Orient. Two credits per quarter; autumn, winter, spring.

50. Literature of India.—Five credits; autumn.

51. Literature of Egypt and Babylonia.—Five credits; winter.

52. Literature of Arabia and Persia.—Five credits; spring.

100-101-102. Hebrew or Arabic.—The giving of these courses depends upon registration. Five credits per quarter; autumn, winter, spring.

104-105-106. Sanscrit.—The giving of these courses depends upon registration. Five credits per quarter; autumn, winter, spring.

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UNIVERSITY OF WASHINGTON

PAINTING, SCULPTURE AND DESIGN

Book Store Building

Miss Edens, Miss Zemper, Miss Worman, Mr. Gustin, Mr. Whin

Advanced students applying for credit must present work to head of the department.

3. Principles of Design.—The principles of design in line, dark and light, and color. For students in home economics. Three credits; winter.

5-6-7. Freehand Still Life and Cast.—The technique of drawing from elementary forms, with all mediums—water color, oil, pen, etc. Prerequisite for any subsequent course in drawing and painting; cast drawing from models of antique and modern sculpture, preparatory to drawing from living model. Three credits per quarter; autumn, winter, spring.

9-10-11. Art Structure.—A study of the principles of design in line, dark and light, and color, to develop power of appreciation and creation of good design. Prerequisite for any subsequent course in art structure. Laboratory deposit, $1. Four credits per quarter; autumn, winter, spring.

16-17-18. Art Appreciation.—Historical development, from the art of primitive man to the present day, including the anatomical structure and function of the human body as related to artistic construction. One credit per quarter; autumn, winter, spring.

53. Art Structure.—Working out simple units, borders, and all-over patterns with needle and cloth as medium. Four credits; autumn.

54. Art Structure.—Bookbinding and woodblock printing. Four credits; winter.

55. Art Structure.—Woodblock printing and furniture decoration. Designing of woodblocks and printing on textiles. Four credits; spring.

56-57-58. Illustration and Life Study.—Drawing and painting, from the model in various mediums, for reproductive processes such as magazines, newspapers and commercial work, including a study of the anatomy of the human figure. Prerequisite, freshman freehand. Laboratory deposit, $3. Three credits per quarter; autumn, winter, spring.

72. Clay Modeling.—Construction of plaster moulds, elementary construction; modeling in clay and wax. Three credits; autumn.

101. Public School Drawing.—For drawing supervisors. The working out of such drawings as would be used in the public schools. Three credits; spring.
108-104. Art Structure. Pottery.—Advanced students will be allowed to work for advanced credits. Laboratory deposit, $2. Three credits per quarter; autumn, winter.

105. Art Structure.—Design as applied to lettering, advertising, and cartooning. Three credits; autumn.

106. Art Structure.—Posters. Advanced

107-108-109. Portrait.—Portraiture in all mediums. Prerequisite, freshman freehand. Laboratory deposit, $8. Three credits per quarter; autumn, winter, spring.

111-112. Art Structure.—Interior decoration. Three credits per quarter.

*151-152. Landscape.—Design.

153. Methods of Teaching Art.—Courses of study, methods and material. Five credits; autumn.

154. Practice Teaching.—Teaching under supervision in city schools. Five credits; winter.

157. Art Structure.—Simple metal work—etching, sawing, and hammering of copper and brass. Laboratory deposit, $2. Three credits; autumn.

158. Art Structure.—Jewelry. Three credits; winter.

159. Art Structure.—Landscape composition. Three credits; spring.

160-161-162. Portrait and Life.—Three credits per quarter; autumn, winter, spring.

163-164-165. Mural Decoration.—Decorative compositions done in oil, applied to the beautifying of wall spaces, in harmony with the scheme of architecture. Prerequisite, junior standing. Four credits per quarter; autumn, winter, spring.

166. Landscape.

169-170-171. Textile and Costume Drawing.—Two credits per quarter; autumn, winter, spring.

Pharmacy, Pharmaceutical Chemistry, Materia Medica and Food Chemistry

Bagley Hall
Professor Johnson, Associate Professor Linton, Miss Hindman, Mr. Goodrich, Mr. OsBw, Assistants

1-2. Theoretical and Manufacturing Pharmacy.—The study of the principles of pharmacopoeial operations, and the manufacture of

*Not offered in 1919-1920.
Pharmacopoeial and National Formulary preparations. Three lectures and two laboratory periods per week. Pharmacy 1 is repeated in the winter quarter. Pharmacy 2 is repeated in the spring quarter. Laboratory deposits, $5 per quarter. Five credits per quarter; autumn, winter.

Linton, Goodrich

4. Materia Medica.—A study of crude drugs, their source, methods of collecting and preserving identification, active constituents and adulterations. Five credits; autumn, spring.

Linton

5-6-7. Drug Assaying.—Experiments in gravimetric and volumetric analysis are given with the idea of training the students in the fundamental principles of quantitative chemistry, and at the same time making them familiar with the analysis of substances of pharmaceutical importance. Two recitations and three laboratory periods per week in autumn and winter quarters; one recitation and one laboratory period per week in spring quarter. Laboratory deposit, $5 per quarter. Five credits, autumn and winter; three credits, spring.

Johnson, Goodrich


Linton


Johnson

10-11. Prescriptions.—Special attention will be given to incompatibilities and to the more important of the "new remedies." The students are required to criticise and compound approximately two hundred difficult prescriptions. One recitation and one laboratory period per week during winter quarter; two recitations and two laboratory periods per week during spring quarter. Laboratory deposit: Winter quarter, $2.50; spring quarter, $5. Two credits, winter; four credits, spring.

Linton, Goodrich

13. Pharmacology and Therapeutics.—The action and uses of chemicals, drugs and their preparations on the human organism in health and disease. Five credits; autumn.

Linton

14. Toxicology.—The action of poisons, methods of treatment in cases of poisoning, and methods of identification and separation of poisons from tissue. Two credits; winter.

Linton

15. Field Materia Medica.—A study of the native medicinal plants of Washington and also of plants under cultivation in the drug
garden. One laboratory period per week, consisting largely of work in the drug garden and field trips. Laboratory deposit, $1. One credit; spring.

16. Food Laws.—National, state and foreign food laws. For students in the department of fisheries. One credit; winter.

104. Food Analysis.—For students in the Department of Home Economics. Two lectures and two laboratory periods per week. Laboratory deposit, $5. Four credits; autumn.

105-106-107. Chemistry and Analysis of Food.—Methods of analysis of food products and the study of federal and state laws regulating the sale of foods and drug products. Methods of the Association of Official Agricultural Chemists are used. Graduate students, if prepared, may elect a research problem in food analysis. Laboratory deposit, $5 per quarter. Five credits per quarter; autumn, winter, spring.

109-110-111. Toxicology.—A laboratory course in the separation, identification and estimation of inorganic and organic poisons and in the analysis of alkaloids. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.

113-114-115. Advanced Prescriptions.—Extensive practice in difficult and incompatible prescriptions; also a study of special problems. Laboratory deposit according to credit. Credit to be arranged; autumn, winter and summer.

117-118-119. Current Problems.—A lecture and recitation course on current problems of scientific importance. One credit per quarter; autumn, winter, spring.

*118-119-120. Manufacturing Pharmacy.—An advanced course in pharmaceutical manufacturing, including the manufacture of some of the more difficult of the Pharmacopoeial and National Formulary preparations, as well as a number of organic and inorganic compounds used in pharmacy and medicine. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.

201-202-203. Investigation.—Senior and graduate students may undertake some original investigation in pharmacy, pharmaceutical chemistry or chemistry of foods under the direction of one of the instructors. Laboratory deposit according to credit. Credit to be arranged; autumn, winter, spring.
Philo80phy

Donnfl Ball
Professor Hall, University Health Office, Administrative Head; Assistant Professor

The Liberal Arts requirements are a total of ten credits in the departments of philosophy and psychology. The College of Science requirements are five credits in philosophy. These requirements may be satisfied from the following courses: Philosophy 1, 2, 3, 5 (all introductory courses).

Philosophy 1, 2, and 5 are suited to arts-law students.
Psychology 1 is required of majors in philosophy and will satisfy a part of the major requirement.

1. Introduction to Philosophy.—Five credits; autumn, winter, or spring.

2. Introduction to Social Ethics.—Social ideals and problems, with special emphasis upon the opposition of democracy and aristocracy in government, industry, law, education, art, and religion. Five credits; winter.

3. Introduction to Ethics.—Ethical principles and their application to the problems of life. Five credits; spring.

5. Introduction to Logic.—The conditions of clear statement, adequate evidence, and valid reasoning, and their establishment in the mental processes of the student. Five credits; winter.

101-102-103. History of Philosophy.—Ancient, medieval and modern. Prerequisite, Philosophy 1. Three credits per quarter; autumn, winter, spring.

104-105-106. Philosophy of Nature.—A course in metaphysics, with special reference to the concepts and principles of science. For advanced students in philosophy or in the physical or biological sciences. Three credits per quarter; autumn, winter, spring.


118. Philosophy of Religion.—(1) The religious experience; (2) the truth of religion. Prerequisite, Philosophy 1. Five credits; spring.

*188. Philosophy in English Literature of the Nineteenth Century.—Alternates with course 126 as requirement for seniors in the Library School.) Prerequisite, Philosophy 1. Five credits; spring.  

126. Philosophy in Contemporary Drama.—(Identical with English 187.) Social and philosophical ideas in the contemporary drama. (Alternates with course 128 as requirement for seniors in Library School.) Prerequisite, Philosophy 1 previous or concurrent. Five credits; spring.

129. Esthetics.—The origin and motives of art and the esthetic principles of the different forms of art. Five credits; spring.

133. Ethical Theory.—An advanced course in the fundamental concepts and principles of ethics. Prerequisite, Philosophy 2 or 3. Two credits; spring.

134-135-136. Typical Philosophies of Life.—Interpretations of life in terms of the romantic, the aesthetic, the religious, and other fundamental human values, will be considered as found in literature. The reading will include portions of the works of such writers as Amiel, Omar Khayyam, Goethe, Nietzsche, Schopenhauer, Oscar Wilde, etc. The course may be entered any quarter. Prerequisite, one course in philosophy or psychology. Two credits per quarter; autumn, winter, spring.

141. Contemporary Philosophy.—Readings from authors representing the main tendencies in contemporary philosophy. Three credits; autumn.

PHYSICAL EDUCATION AND HYGIENE

Requirements for Graduation.—All students, both men and women, are required to take a prescribed amount of directed physical exercise, not less than two hours per week during their entire college course.

Military Training.—Requirements in military science and tactics take precedence over the requirements in physical education. (See Military Science and Tactics.)

Requirements for a Major.—The completion of thirty-six hours, exclusive of the work prescribed for all students for exercise.

Zoology 3-4 and 5-6 are prerequisite for courses 151-152-153-154, and should be completed during the first two years. Students wishing
to major in physical education should begin the work in their freshman year. It is quite difficult to begin later on account of the prerequisite courses in the first two years.

**Hygiene.**—All freshmen are required to complete a given amount of hygiene during their freshman year. This is carried out in conjunction with the prescribed work.

**Courses for Men**

A physical examination is given to each student upon entering college, segregating them into divisions A, B and C, according to their health and development. Work appropriate for each division is then prescribed.

1-2-3. *Calisthenics and Athletics.*—Introductory course for first year men. One credit per quarter; autumn, winter, spring.

51-52-53. *Gymnastics and Athletics.*—For second year men. Pre-requisite, course 1-2-3. One credit per quarter; autumn, winter, spring.

*104. *Hygiene: Emergencies.*

115-116-117. *Intramural Athletics.*—Corrective gymnastics, systematic exercise in class. Required of all junior men. Two periods per week; autumn, winter, spring.

121-122-123. *Recreation.*—Healthful exercises and games. Required of all junior men. One credit per quarter. Two periods per week; autumn, winter and spring.

154. *Games of Skill and Supervision of Athletics.*


161-162-163. *Recreation.*—A continuation of courses 121-122-123. Required of all senior men. Two periods per week. One credit per quarter; autumn, winter, spring.

**Courses for Women**

All women are required to participate in some form of healthful exercise during their college course. The kinds of exercise is determined by the result of the physical examination. Entering students are required to have a physical and medical examination.

A uniform suit for women is required. The fee, which will depend upon the market price of suits (approximately $8 to $10) is to be paid upon registration. It consists of: 2 white middie blouses, black serge bloomers, black gymnasmium shoes. No part of suit should be purchased before entering college.
SPORT FOR SPORT’S SAKE

All students are urged to secure at least two hours of recreative exercise each day, and the facilities of the department are open for this purpose, whenever not required for prescribed activities. Advice and direction may be secured by any student at any time.

TOURNAMENTS AND CONTESTS

Intramural tournaments and contests are conducted in all sports under the supervision and control of the department. The Women’s League and the Women’s Athletic Association coöperate with the department in the conduct of women’s activities.

Freshmen: Three periods per week, one period hygiene, two periods practice. Courses 1 to 11.

Sophomores: Three periods per week, one period food, two periods practice. Courses 51 to 65.

COURSES

1-2-3. Gymnastics.—Required of all first year women. Athletics may be added second and third quarters. One credit per quarter. Two hours of floor work. Autumn, winter, spring.

4-5-6. Hygiene.—Required of all first year women. Parallel requirement with 1-8 or 7-9 or 12-13. One hour of lecture. One credit per quarter; autumn, winter, spring.

7-8-9. Corrective Gymnastics.—Supplement 1-2-3. Two hours of practice. One credit per quarter; autumn, winter, spring.

12-13. Athletics.—Two hours of practice. One credit per quarter; winter, spring.

51-52-53. Gymnastics.—Second year women. Two hours of floor work. One credit per quarter; autumn, winter, spring.

54-55-56. Food.—Required of all second year women. Parallel requirement with 51-53 or 57-59 or 61-63. One hour of lecture. One credit per quarter; autumn, winter, spring.


61-62-63. Athletics.—Two hours of practice. One credit per quarter; autumn, winter, spring.

64-65-66. Dancing.—Two hours of practice. One credit per quarter; autumn, winter, spring.

71a. Hockey.—Autumn quarter; basketball, winter quarter; hockey, spring quarter. Credit to be arranged.

71b. Baseball.—Autumn quarter; basketball, winter quarter; baseball, spring quarter. Credit to be arranged.

91. Gymnastics.—Autumn, winter, spring quarters.
98. *Apparatus.*—One hour lecture, two hours practice in theory and practice of gymnasium apparatus. Two credits; spring.

94. *Dancing.*—Autumn, winter, spring quarters.

101-102-103. *Methods of Gymnastics.*—Drill in gymnastic floor work. Gymnastic terminology and survey and classification of gymnastic material. Principles and technique and teaching. Required of majors. One hour lecture and one hour practice per week. One and one-half credits per quarter for a year.


121-122-123. *Kinesiology.*—Required of majors. Lectures and recitations on the science of joint movement, muscular action, gravity, inertia and resistance applied to gymnastic movements.

104-105-106. *Methods of Folk Dancing.*—Dances of the nations arranged for teaching in the public schools. Fundamental steps, methods of teaching, relation of music to dancing, costuming, school festivities, etc. One hour lecture and two hours practical work per week. Two credits per quarter for a year.

109. *History of Physical Education.*—Purpose of course is to trace history of physical education as a science, to familiarize students with the literature bearing on physical education. Emphasis on health movement. Required of majors. Lectures and assigned reading. Two credits for one quarter; spring.

131-132-133. *Corrective Gymnastic Theory.*—Deviations from the normal remedial gymnastics and application of exercises for correction. Required of majors. Two lectures per week. Two credits per quarter for a year.


154-155-156. *Methods of Dancing.*—Prerequisite Dancing 56-58-59. Technique of natural dancing, based on natural movements and expression of the body. Festival and pageantry for school and com-
munity. Normal course. Required of majors. One hour lecture and one hour practice. One and one-half credits per quarter for a year.

161. Normal Diagnosis.—Treatment of the normal and deviations from the normal. Required of majors. Three credits for autumn quarter.


163. Personal Hygiene and Health Problems of School and Community.—The problem of the communicable disease in the home, school and community. Required of majors. Three credits for the spring quarter.

PHYSICS

Denny Hall

Professor Osborn, Associate Professor Brackel, Assistant Professor Anderson, Mr. Utterbach, Mr. Hogg

1, 2. General Physics.—Course 1, 2 will satisfy the physical science requirement in the College of Liberal Arts and Science. Prerequisite, high school physics. Five credits per quarter; autumn, winter.

3. General Electricity.—Course 3 is required of physics majors, and of mathematics majors taking physics as a minor, and also for pre-medical students. Prerequisite, course 1, 2. Five credits; spring.

47-48-49. Elementary Physics.—For students without high school physics these courses will satisfy the entrance condition in physics or the physical science requirement in the College of Liberal Arts and Science. Five credits per quarter; autumn, winter, spring.

50-51. Sound and Music.—For students in the College of Fine Arts only. Five credits per quarter; winter, spring.

Anderson

89-90. Physics of the Home.—For students in home economics. These courses will also satisfy for women the physical science requirement in the College of Liberal Arts. Five credits per quarter; autumn, winter.

Osborn

92-93. General Physics.—For students in forestry and pharmacy. Prerequisite, high school physics. Five credits per quarter; winter, spring.

Brackel

97. Physics for Engineers.—Prerequisite, high school physics and fifteen hours of college mathematics. Five credits; autumn, spring.

98. Physics for Engineers.—Prerequisite, course 97. Three class and two three-hour laboratory periods. Five credits; winter.
99. Physics for Engineers.—Prerequisite, course 97. Five credits; autumn, spring.

101. Mechanics.—Prerequisite, courses 1-2 or 47, 48, 49 and trigonometry. The laboratory work may be omitted by non-majors. Five credits; autumn.

102. Light. Prerequisites, courses 1-2, and ten hours of college mathematics. Five credits; spring.

104. Vibratory Motion and Sound.—Prerequisites, courses 1-2, and calculus.

114. Electrical Measurements.—Prerequisite, courses 97, 98, 99. Three credits; autumn or spring.

205. Theoretical Electricity and Magnetism.—Prerequisites, graduate standing and calculus. Five credits; winter.

209. Electron Theory.—The important researches leading to the electron theory are presented and its applications in explaining the varied phenomena of physics and chemistry are considered. Prerequisite, courses 1, 2, 3 and senior standing. Three credits; winter.

Political Science
Denny Hall
Professor J. Allen Smith and Mr. Laub

The work in the department of political science is designed to give a scientific account of the activities of the state and of the functioning of the electorate and legislative bodies in determining state action. Some of the courses are planned to give that knowledge of public affairs which ought to be a part of a liberal education, while others lead to the special study and investigation of problems and methods in the different branches of the government. The aim is to train the powers of observation and reasoning, to develop correct methods of research, and to apply the knowledge gained to the solution of practical problems.

1. Elements of Government.—An introductory course in which special attention is given to the citizen's part in government. Five credits; autumn, winter, or spring.

10. American Government.—A general study of the American system of national government. Prerequisite, course 1. Three credits; winter.
11. **State Government.**—A general study of the American system of state government. Prerequisite, course 1. Three credits; spring.

50. **Comparative Government.**—The constitutional organization of the principal governments of Europe; with emphasis on political parties and current questions. Prerequisite, course 1. Three credits; autumn, spring.

51. **Principles of Political Science.**—The state; political organization. Prerequisite, course 1. Three credits; winter.

52. **Political Parties.**—Organization and methods of modern political parties; growth and theory of the party system. Prerequisite, course 1. Three credits; spring.

100. **Municipal Government.**—Municipal organization and administration in the United States and Europe with some consideration of functions and problems. Prerequisite, eight credits in political science. Five credits; autumn.

102. **Municipal Problems.**—Problems of city government, with special attention to municipal utilities. Prerequisite, eight credits in political science. Three credits; winter.

109. **Colonial Politics.**—Colonization and colonial government, with special attention to the colonial problems of the United States.

110. **International Law.**

111. **International Politics.**—The economic basis of international relationship; nationalism; imperialism; political relationship between advanced and backward peoples; self-determination; cultural interchange; community of policy. Prerequisite, eight credits in political science. Three credits; winter.

112. **Oriental Politics.**—Relations of the European powers and the United States to China and Japan. Prerequisite, eight credits in political science. Three credits; spring.

125. **Public Finance and Taxation.**—Prerequisite, course 1, Econ. 51. Five credits; autumn.

126. **Problems in Taxation.**—Advanced problems in taxation, with special reference to the state of Washington. Prerequisite, course 125. Three credits; winter.

127. **Municipal Finance.**—Prerequisite, course 125. Three credits; spring.

* Not offered in 1919-1920.
160-161-162. Reading Course.—Discussions based on selective readings in political theory. Prerequisite, eight credits in political science. Two credits per quarter; autumn, winter, spring.

163-164-165. Political Problems.—Prerequisite, eight credits in political science. Two credits per quarter; autumn, winter, spring.

181-182-183. Research in Public Finance.—Two credits per quarter; autumn, winter, spring.

201-202-203. Seminar.—Graduates; first, second and third quarter.

PSYCHOLOGY

Science Hall Attic

Professor Smith, Assistant Professor Guthrie, Dr. Wilbank, Miss Wilkinson

The Liberal Arts requirements are a total of ten credits in the departments of philosophy and psychology.

The College of Science requirements are five credits in psychology.

For psychology as prerequisite to education, see announcement of department of education.

Majors in psychology may count five hours in Philosophy 1, or in 101-102-103 toward satisfying their major requirement.

1. General Psychology.—A survey of the science as a whole. No prerequisites. Four lectures, one discussion section, and one two-hour laboratory a week. Five credits; course repeated every quarter.

101. Physiological Psychology.—Man's behavior viewed as a result of his neurological mechanism. Students who so desire will be offered an opportunity for individual work in dissection and microscopic study. Prerequisite, Psychology 1. Two credits; winter.

106. Experimental Psychology.—Students taking this course receive training in laboratory methods, are made familiar with the more important kinds of psychological apparatus, and perform many of the classical experiments in psychology. Prerequisite Psychology 1. Three credits; spring.

109. Mental Tests.—Training in applying tests for intelligence and for mental analysis. The principles of experimental procedure, methods of measurement, and statistical treatment of results form the major part of this course. The course is essential to work in clinical psychology. Prerequisite, Psychology 1. Three credits; spring.

111. History of Psychology.—The origin and development of psychology, beginning with the primitive conceptions of mind, and in-
cluding a comprehensive view of the sources of scientific psychology. Prerequisite, Psychology 1. Two credits; autumn.

112. Modern Psychological Theory.—A criticism of psychological theories in the light of recent experimental findings. The significance of behaviorism and of the concept of the unconscious in psychology. Prerequisite, Psychology 1. Three credits; spring.

114. Current Psychological Literature.—This course offers each student the opportunity of reading and discussion in the direction of his particular interests, and at the same time makes him familiar with a wide range of subjects treated in recent journals and with the new developments in psychology. Prerequisite, Psychology 1. Three credits; winter.

116. Animal Behavior.—The mind of animals as shown by their behavior under natural conditions and in the laboratory. A discussion of current theory concerning insect societies, bird migration, and other obscure capacities of animals. Prerequisite, Psychology 1. Three credits; autumn.

118. Folk Psychology.—A psychological study of social human nature; language, custom, public opinion, morals, war, nationalism, classes, religion. Prerequisite, Psychology 1. Two credits; autumn.

121. Applied Psychology.—Psychology as applied to personal efficiency, vocational guidance and the measurement of vocational fitness, scientific management, the psychology of advertising, legal testimony and the mental states affecting its reliability. The significance of sex and individual differences in practical life. Prerequisite, Psychology 1. Five credits; winter.

124. Psychology of Learning.—The principles of learning and the transfer of training, based upon experimental results, and an examination of the various explanations of learning. Prerequisite, Psychology 1. Two credits; spring.

126. Abnormal Psychology.—The explanation of unusual behavior and the influence of the subconscious mind upon conduct. The nature of instinct and an analysis of learning. Prerequisite, Psychology 1. Five credits; winter.

131. Child Psychology.—A study of mental development from infancy to adult age with the purpose of giving the student a scientific understanding of childhood. Prerequisite, Psychology 1. Five credits; autumn.
132. *Psychology of Exceptional Children.*—The nature and cause of mental defects and peculiarities of children, with special reference to methods of diagnosis and to physical pathology. Prerequisite, Psychology 1. Three credits; spring.


201-202-203-204. *Graduate Research.*

**PUBLIC SPEAKING**

*Denny Hall*

(See Dramatic Art)

**ROMANIC LANGUAGES AND LITERATURE**

*Denny Hall*

**Professors Frein and Omer; Associate Professors Umphrey and Patern; Assistant Professors Ratti, Helmingoe, Santander, Goggio; Mr. Whittlesby and Mr. Philbrick**

Students entering with high school credits in French or Spanish will be admitted to classes upon the basis of one high school semester counting as the equivalent of one university quarter. Exceptional cases will be determined by the head of this department.

Students may not begin French 1 and Spanish 1, nor Italian 1, during the same quarter, and it is better to have three quarters of one Romanic language before beginning another.

Course 117-118-119, listed under Italian, belongs also in French and Spanish.

**I. FRENCH**

**Requirements of the Department.**—Courses 41, 101, 102, 103, 191, 192, 193 are required of majors and those who wish to be recommended to teach.

1-2-3. *Elementary.*—As much as possible French will be used in the class room, but one section of the class will be devoted exclusively to those who wish only the ability to translate French. Each of the courses 1, 2, 8, is repeated each quarter. No credits will be given for course 1 until course 2 has been completed. Five credits per quarter; autumn, winter, spring.

4-5-6. *Reading of Modern Texts.*—One section of the class will be devoted to translation, exclusively, while the other sections will read and be questioned in French. Each of the courses 4, 5, 6, is repeated each quarter. Course 4 may be combined with 7, making a five-hour course. The same is true of 5 and 8, 6 and 9. Prerequisite to course 4 is course 3, or equivalent. Three credits per quarter; autumn, winter, spring.

* Not offered in 1919-1920.
DEPARTMENTS OF INSTRUCTION

7-8-9. Grammar and Composition.—These courses must be taken by those who intend to major in French, unless they have already done the equivalent in high school. Course 7 may be combined with course 4. The same is true of 8 and 5; 9 and 6. Prerequisite to course 7 is course 3, or equivalent. Two credits per quarter; autumn, winter, spring.

41. Phonetics.—This course is intended to furnish the student an opportunity to acquire a reasonably correct pronunciation, and to bring more order out of what seems a mass of exceptions. Prerequisite, course 1. Three credits; repeated each quarter.

101-102-103. Composition and Conversation.—With each of these courses is offered (at the same hour, but not on the same days) a course in literature, with lectures in French by the same professor who gives these courses. See courses 171, Helmlinge; 161, Patzer; 151, Ratti. These courses in literature are substitutes for courses 104, 105, 106, and several books per quarter will be assigned to each student for outside reading and reports. Prerequisites, 6 and 9. Three credits per quarter; autumn, winter, spring.

*104-105-106. Advanced Reading.


*121-122-123. The French Novel.

124-125-126. The Short Story.—Lectures in French upon the origin and development of the French short story. Many of the short stories will be read outside of class and reports made to the class. Students may enter at the beginning of any quarter. Prerequisite, course 101, or equivalent. Three credits per quarter; autumn, winter, spring.


*141-142-143. The French Drama.

151-152-153. History of the French Literature of the Nineteenth Century.—Lectures in French, and assignments of reading to be done outside of class. Intended to give an opportunity to hear French spoken connectedly, though slowly. This course may be taken with 101-102-103, making a five-hour course. See 101-102-103. Students may enter at the beginning of any quarter. Prerequisite, 6 and 9, or equivalent. Two credits per quarter; autumn, winter, spring.

161-162-163. History of the French Literature of the Eighteenth Century.—Lectures in French, with assignments of reading to be done outside of class. Intended to give an opportunity to hear French spoken

* Not offered in 1919-1920.
connectedly, though slowly. This course may be taken with 101-102-108, making a five-hour course. See 101-102-108. Students may enter at the beginning of any quarter. Prerequisites, 6 and 9, or equivalent. Two credits per quarter; autumn, winter, spring.

**171-172-173. History of the French Literature of the Seventeenth Century.**—Lectures in French and assigned reading to be done outside of class. Intended to give an opportunity to hear French spoken connectedly, through slowly. This course may be taken with 101-102-103, making a five-hour course. See 101-102-103. Students may enter at the beginning of any quarter. Prerequisites, 6 and 9, or equivalent. Two credits per quarter; autumn, winter, spring.

**191-192-193. Teachers’ Course.**—Emphasis on the methods of teaching pronunciation and syntax; review of phonetics and syntax, with students conducting the recitations. Prerequisite, courses 41, 101, 102, 108, and at least one of the literature courses. Two credits per quarter; autumn, winter, spring.

**201-202-203. Middle and Sixteenth Century.**

**221-222-223. Old French Readings.**—One of the most helpful courses for teachers of French. Open to graduates and seniors who have studied French at least four years. Five credits per quarter; autumn, winter, spring.

**231-232-233. History of Old French Literature.**

**241-242-243. Seminar.**

**II. SPANISH**

**Requirements of the Department.**—Courses 191, 192 are required of majors and of all who wish to be recommended as teachers.

**1-2-3. Elementary.**—No credit will be given for course 1 until course 2 has been completed. Each of the courses 1, 2, 3, is repeated each quarter. Five credits per quarter; autumn, winter, spring.

**4-5-6. Reading of Modern Authors.**—Reading some of the best works of the nineteenth century. If desired, courses 4, 5, 6 may be combined with courses 7, 8, 9, making a five-hour course each quarter. Prerequisite to 4 is 3, or equivalent. Three credits per quarter; autumn, winter, spring.

**7-8-9. Grammar, Composition, Conversation.**—These courses may be combined with courses 4, 5, 6, making a five-hour course. Prerequisite to course 7 is course 3. Course 7 is prerequisite to course 8. Two credits per quarter; autumn, winter, spring.

**118-119. Commercial Spanish.**—Commercial terms and business correspondence. Prerequisite, course 9. Three credits per quarter.

* Not offered in 1919-1920.
115. Outline History of Spanish Literature.—Selected texts, collateral reading, lectures. Prerequisite, 6. Three credits; spring.


*131-132. Lyrics and Ballads.

141-142-143. Drama.

181-182-183. Spanish-American Institutions.—Lectures, in Spanish, upon the institutions, history, and government of Spanish-American republics. Collateral reading and reports. Prerequisites, courses 6, 9. Two credits per quarter; autumn, winter, spring.

184-185-186. Spanish-American Literature.—The literature of one or more Spanish-American countries will be studied each quarter, with special attention to present day writers. Prerequisite, course 6. Two credits per quarter; autumn, winter, spring.

191-192. Teachers’ Course.—Methods of teaching Spanish; practice teaching; observation; review of linguistic difficulties. Open to major students. Two credits per quarter; winter, spring.


III. ITALIAN

Requirements of the Department.—No student will be allowed to begin Italian and French or Spanish the same year. Upper classmen who have had considerable French or Spanish may elect elementary Italian. Not enough courses are offered to major in Italian.

1-2-3. Elementary.—No credits given in 1, 2, until 3 is complete. Five credits per quarter; autumn, winter, spring.

117-118-119. Renaissance Literature of Italy, France and Spain. —This course will be conducted in English. It is intended to give students an opportunity to become acquainted with the Renaissance literature of the principal three Romanic countries. Prerequisite, two years of French or Spanish or one year of Italian. Two credits per quarter; autumn, winter, spring.

* Not offered in 1919-1920.
1-2-3. Elementary Swedish—Grammar and reading; composition and conversation. Courses, 1, 2 are so arranged that they may be taken with courses 4, 5, making a five-hour course. Three credits per quarter; autumn, winter, spring.

4-5. Swedish Reading Course for Beginners.—Reading of easy texts. These courses are supplementary to courses 1, 2, but may also be taken separately by students desiring a reading knowledge of Swedish with a minimum of grammatical study. No previous knowledge of Swedish necessary. Courses 4, 5 are especially adapted to meet the needs of students in the Colleges of Science, Education, Business Administration, and in the Library School. Two credits per quarter; autumn and winter.

10-11-12. Elementary Norwegian-Danish.—Grammar and reading; composition and conversation. Courses 10, 11 are so arranged that they may be taken with courses 18, 14, making a five-hour course. Three credits per quarter; autumn, winter, spring.

18-14. Norwegian-Danish Reading Course for Beginners.—Reading of easy texts. These courses are supplementary to courses 10, 11, but may also be taken separately by students desiring a reading knowledge of Norwegian-Danish with a minimum of grammatical study. No previous knowledge of Norwegian-Danish necessary. Courses 18-14 are especially adapted to meet the needs of students in the Colleges of Science, Education, Business Administration and in the Library School. Two credits per quarter; autumn and winter.

20-21-22. Norwegian-Danish Literature.—Representative authors are read in connection with a survey of the Norwegian-Danish literature. Prerequisite, ability to read easy Norwegian-Danish. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

23-24-25. Swedish Literature.—Representative authors are read in connection with a survey of the Swedish literature. Prerequisite, ability to read easy Swedish. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

30. Scandinavian Culture and Institutions.—A lecture course dealing with the literature, art, political, social, commercial, and industrial development of Scandinavia. Lectures in English, collateral reading, slides. Especially adapted to meet the needs of students in the College of Business Administration. Knowledge of the Scandi-
navian languages not necessary. Two credits; autumn; repeated winter and spring.

*31-32-33. Reading Course in Norwegian and Swedish.

103-104-105. Recent Swedish Writers.—Representative writers of the nineteenth and twentieth centuries are read, including Strindberg, Fröding, Selma Lagerlöf. Study of cultural movements and social problems of modern Sweden. Course may be entered at the beginning of any quarter. Two credits per quarter; autumn, winter, spring.

106-107-108. Recent Norwegian-Danish Writers.—Representative writers of the nineteenth and twentieth centuries are read, including Ibsen, Björnson, Kielland, Jacobsen, Drachman. Study of cultural movements and social problems of modern Norway and Denmark. Course may be entered at the beginning of winter or spring quarter. Two credits per quarter; autumn, winter, spring.

109-110-111. Study of Modern Scandinavian Authors in English Translation.—A study of Ibsen, Björnson, Strindberg and Selma Lagerlöf the main feature of the course. A brief survey of Scandinavian culture and literature. Open to all. No knowledge of the Scandinavian languages necessary. Course may be entered at the beginning of winter or spring quarter. One credit per quarter; autumn, winter, spring.

*201-202. Old Norse. Scandinavian and Comparative Philology.

*203. History of the Swedish Language.

205-206. Scandinavian Literature in the Nineteenth Century.—Two credits per quarter; winter and spring.

*207. Scandinavian Lyric Poetry.

209. History of Scandinavian Literature.—Lectures in Scandinavian or English. Some of the masterpieces assigned for outside reading and report. One credit per quarter; spring.

180. Recent Scandinavian Literature in English Translation.—The principal writers of recent Scandinavian literature will be read with special attention to literary and social movements and to the interrelation of English and Scandinavian literature. Lectures, reports, and discussion. For advanced students. Two credits; autumn; repeated winter and spring.

* Not offered in 1919-1920.
For a major in Sociology, 36 credits are required. Major students should include course 197-198-199 (the pro-seminar) in their program. Courses numbered above 100 are for advanced students, and course 1 or its equivalent is prerequisite throughout. Courses numbered above 200 are for graduates purely. Candidates who wish the recommendation of the department for teaching credentials, should complete the major requirement.

For students working in heredity, statistics, social surveys, and public welfare, appropriate courses in the biological sciences, mathematics, and psychology, may, with the approval of the dean, be counted toward the major requirement. Such matters should be arranged by conference with the department. Attention is especially called to the following: Psychology 118 (Folk Psychology), Psychology 106 (Experimental Psychology), Zoology 15 (Evolution and Eugenics), Economics 55 (Economic and Social Standards of Living), Economics 155 (Women in Industry), History 110 (Economic and Social History of the Middle Ages).

1. **Introductory Sociology.**—The principal features of the science of social institutions, including folk psychology, customs, and folkways, the social problems arising from industries, the family, crime, immigration, welfare work. Five credits; autumn, spring.

2. **The Study of Man.**—Human populations from the standpoint of heredity and race; Mendelian heredity in human beings; various forms of defectiveness as problems of heredity; inheritance of traits in cases of racial crossing; the problem of the half-breed. Five credits; winter.

3. **Evolution of Material Culture.**—The origin and evolution of devices, implements, and arts, the stages in industrial history. Three credits; autumn.

4. **Primitive Social Life.**—The social institutions of primitive folk, including various forms of marriage, the family, the clan, totemism, blood-revenge, primitive systems of writing, folkways among savages. Three credits; winter.

5. **Fossil Man.**—Evolution as illustrated in the skeletal remains of early man and his forerunners. Primitive life as shown by prehistoric implements and other remains. Three credits; spring.

6. **Program of Social Reform.**—A critical examination of individualism, conservation, philanthropy, social justice, liberalism, union-
ism, the co-operative movement, the single tax, socialism and syndicalism. Three credits; autumn.

56. Criminology.—A study of the social, economic, and heredity causes of crime; various theories and plans of prison reform; the relations of prisons and criminals to society. Three credits; winter.

57. Municipal Sociology.—A study of the social conditions and problems of modern social life in American cities, and a discussion of the various agencies developed to deal with them. Three credits; spring.

60. Social Psychology.—The instinctive and psychological side of man, and his adjustment to civilization. Three credits; autumn.

70. History of Sociology.—The principal contributions to sociological science, from the standpoint of their background. Three credits; autumn.

91. Cultural History.—The origin and diffusion of certain concepts and inventions. The topics for 1919 will include concepts of geography, and the nature of the world, from primitive times. Discussions and reports. Primarily for teachers. Two credits; autumn.

93. Race Problems in America.—Race as a factor in human behavior; the negro; legislation on race mixture. Discussions and reports. Primarily for teachers. Two credits; spring.

106. American Social Conditions.—An analytical and descriptive study of social conditions in America today and their relation to social progress. Primarily for teachers. Two credits; winter.

129. Social Statistics.—A study of the elements of statistical theory and practice, with special reference to the problems encountered by the practical worker in the field of economics and sociology. Three credits; spring.

155. Community Organization.—A study of the principles of community organization, forms of community action, essentials of leadership, and the social survey. Three credits; autumn.

156. The Family.—The origin of marriage, the family and its status, the effects of the industrial revolution, and the functions of the
modern family; three credits; winter.


171-172-173. Methods of Social Service and Field Work.—The purpose of the course is to train students for social work, by enabling them to observe the methods of local organizations and to do practice work under supervision in conjunction with these agencies. Two afternoon a week will be required in the field. Open to mature students who have had work in sociology. Four credits per quarter. Hours to be arranged.

181. The North American Indian.—A study of the Indian and his mode of life; dwellings, warfare, architecture, ceremonies, and art; the problem of cultural relations. Discussions and reports. Three credits; autumn.

182. The Indians of Mexico and Central America.—The ancient cities of the Aztec and Mayan region. Architecture, writing, calendar systems, ceremonies, government, poetry, and art of the ancient and modern peoples. Discussions and reports. Three credits; winter.

183. Ethnography of the Old World.—The peoples and types of Europe, Asia and Africa, with emphasis on the uncivilized tribes. Discussions and reports; three credits; spring.

184. Phonetics of Indian Languages.—A study of the anatomy of the speech organs, and the vocal mechanics of languages, from the standpoint of American Indian dialects. The course includes experience in recording information in the Indian idioms of the Puget Sound region. Two credits; autumn.

185. Structure of American Indian Languages.—The course intended for the practical training of students in recording the rapidly disappearing native tongues of North America. Two credits; winter.

186. North American Mythologies.—The myths and songs of the North American Indian studied (1) from the comparative standpoint; (2) for their literary interest, and (3) as illustrating the beginnings of style. Two credits; spring.

197-198-199. Pro-Seminar.—Enrolment is limited to students majoring in sociology. The essential feature is the prosecution of independent investigations, limited in scope by the ability and leisure of the student. The work for 1919-20 will concern the geographical diffusion of culture, or similar problems. Credits will be adjusted in indi-
vidual cases, depending upon the time expended by the student, but
must be arranged in advance. Autumn, winter, spring quarters.

201-202-203. Seminar in Sociology.—Research in special topics. The emphasis is on current problems and methods. Two credits; au-
tumn; winter, spring.

204-205-206. Seminar in Ethnography.—The special problem of
1919-20 is the relation between the Indian cultures of the Northwest
coast of North America and California. Two credits; autumn, winter, spring.

ZOOLOGY

Science Hall

PROFESSOR KINGAID, ASSISTANT PROFESSORS E. V. SMITH AND FASTEN

1-2. Elements of Zoology.—A general review of zoological
science, stressing the economic and philosophic aspects of the subject. Laboratory deposit, $2. Five credits per quarter; autumn, winter, re-
peated winter, spring.

Woolston

3. Pre-Medical Zoology.—For students entering upon a medical
course. Laboratory deposit, $2. Five credits; autumn.

Waterman

4. Vertebrate Zoology.—The structure of vertebrates, with em-
phasis on mammalian organization. For students in medicine and
physical education. Prerequisite; course 3. Laboratory deposit, $2. Five credits; winter.

Kingaid, Anderson and Assistants

5. General Embryology.—The comparative developmental history
of animals, with emphasis on vertebrate forms. For students in medici-
ne, pharmacy and fisheries, but open to others. Prerequisite, course
1-2 or 3-4. Five credits; spring quarter.

Fasten

16. Evolution.—A series of lectures upon the more important
biological problems related to the general theory of evolution. Two
credits; autumn.

Kingaid

17. Eugenics.—The principles of evolution in their relation to
human welfare. Two credits; spring.

51. Elementary Entomology.—The structure, classification and
economic relations of insects. Prerequisite, course 1-2 or its equivalent. Labora-
tory deposit, $2. Five credits; spring.

Kingaid

101. Cytology.—The anatomical, physical and chemical proper-
ties of the animal cell with special reference to the problems of develop-
ment and inheritance. Prerequisite, course 1-2 or 3-4. Laboratory
deposit, $2. Five credits; winter.

Fasten
108. Forest Entomology.—The classification and economic relations of insects injurious to forests. For students in forestry, but open to others. Laboratory deposit, $2. Three credits; winter. 

109. Diseases of Fish.—A study of the nature and causes of disease in fishes. For students in fisheries, but open to others. Prerequisite, course 1-2. Laboratory deposit, $2. Five credits; spring.

154. Advanced Entomology.—The morphology and ecology of insects, with emphasis on forms of economic importance. Prerequisite, course 51. Laboratory deposit, $2. Five credits; autumn.

155-156-157. Elementary Problems.—Students will be assigned minor problems which will be worked upon under the direction of one of the instructors in the department. Prerequisite, twenty hours in zoology or physiology. Three credits; autumn, winter, spring.

201-202-203. Research.—Students capable of carrying on independent research will be assigned special problems to be worked upon under the direction of one of the instructors. Prerequisite, twenty-five hours of zoology or physiology. Credit to be arranged.

PHYSIOLOGY

7. Elementary Physiology.—A general survey of the structure and functions of the human body. Special emphasis will be placed on the processes of metabolism. A course especially designed for students in home economics, but open to others. Laboratory deposit, $2. Five credits; autumn, winter, spring.

54-55. General Physiology.—Adapted to meet the needs of students expecting to teach the subject in high school. Required of
students majoring in physical culture, and recommended for students majoring in home economics who desire more extended training than is offered in course 7, and for students in sanitary science. Laboratory deposit, $3. Five credits; autumn, winter.

Smith

151-152-153. Advanced Physiology.—Designed to meet the needs of students in medicine. Open to others prepared to carry on the work. Prerequisites, Zoology 2, Chemistry 3 or 23, and Physics 3. Laboratory deposit, $5. Five credits; autumn, winter, spring.

Smith

165. Principles of General Physiology.—The application of the laws of physics and chemistry to physiological problems. Prerequisites, Zoology 2, Chemistry 3 or 23, Physics 3, and Physiology 55. Laboratory deposit, $5. Three or five credits; spring.

Smith
THE BULLETIN OF THE UNIVERSITY OF WASHINGTON INCLUDES THE FOLLOWING PUBLICATIONS

ENTRANCE INFORMATION

THE CATALOGUE

Bulletins of

COLLEGE OF LIBERAL ARTS

COLLEGE OF SCIENCE

COLLEGE OF EDUCATION

LIBRARY SCHOOL

COLLEGE OF BUSINESS ADMINISTRATION

SCHOOL OF JOURNALISM

COLLEGE OF ENGINEERING

COLLEGE OF FINE ARTS

COLLEGE OF FISHERIES

COLLEGE OF FORESTRY

SCHOOL OF LAW

COLLEGE OF MINES

SHORT MINING SESSION

COLLEGE OF PHARMACY

GRADUATE SCHOOL

EXTENSION SERVICE

SUMMER SESSION

PUGET SOUND BIOLOGICAL STATION

UNIVERSITY DIRECTORY (price 25 cents)

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
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UNIVERSITY CALENDAR
1919·1920

AUTUMN QUARTER
Examinations for admission..............................Thursday, Friday and Saturday, September 25, 26 and 27, at 9 a. m. and 2 p. m.
Registration of new first year students..............Friday and Saturday, September 26 and 27
Registration of all other students..................Monday and Tuesday, September 29 and 30
Instruction begins.............................................Wednesday, October 1
President's annual address.............................Friday, October 3, 10 a. m.
Women's assembly...........................................Friday, October 10, 11 a. m.
Thanksgiving recess.............Wednesday, November 26, 8 p. m., to Monday, December 1, 8 a. m.
Quarter examinations...Tuesday, Wednesday, Thursday and Friday, December 16, 17, 18 and 19

WINTER QUARTER
Registration days...........................................Friday and Saturday, January 2 and 8
Instruction begins.........................................Monday, January 5
Quarter examinations...Monday, Tuesday, Wednesday and Thursday, March 22, 28, 24 and 25

SPRING QUARTER
Registration days...........................................Friday and Saturday, April 2 and 3
Instruction begins.........................................Monday, April 5
Campus Day.....................................................Friday, April 23
Junior Day......................................................Saturday, May 29
Quarter examinations....Tuesday, Wednesday, Thursday and Friday, June 15, 16, 17 and 18
Class Day and President's reception............................Saturday, June 19
Baccalaureate Sunday........................................June 20
Commencement and Alumni Day..............................Monday, June 21

SUMMER QUARTER
Registration days...........................................Tuesday and Wednesday, June 22 and 23
Instruction begins.........................................Thursday, June 24
Quarter examinations....................................Monday and Tuesday, August 30 and 31
BOARD OF REGENTS

WINLOCK W. MILLER, President............................................Seattle
Term ends March, 1920

WILLIAM T. PERKINS.........................................................Seattle
Term ends March, 1920

ELDRIDGE WHEELER .........................................................Montesano
Term ends March, 1921

OSCAR A. FECHTER...............................................................Yakima
Term ends March, 1922

JOHN A. REA.................................................................Tacoma
Term ends March, 1922

WILLIAM A. SHANNON........................................................Seattle
Term ends March, 1923

RUTH KARR McCREE............................................................Olympia
Term ends March, 1923

WILLIAM MARKHAM, Secretary to the Board..........................
........................Office, Administration Hall, at the University, and 1041 Henry Building
OFFICERS OF ADMINISTRATION

THE UNIVERSITY

HENRY SUZZALLO, Ph. D., LL. D. ........................................ President of the University
Administration Hall

JOHN THOMAS CONDON, LL. M. ........................................ Dean of Faculties
Administration Hall

HERBERT THOMAS CONDON, LL. B. ................................. Comptroller
Administration Hall

EDWARD NOBLE STONE, A. M. ........................................ Registrar
Administration Hall

EDWIN BICKNELL STEVENS, A. M. ................................. Executive Secretary
Administration Hall

ARTHUR RAGAN PRIEST, A. M. .................................... Dean of Men
Administration Hall

ETHEL HUNLEY COLDWELL, A. M. ................................. Dean of Women
Administration Hall

WILLIAM ELMER HENRY, A. M. ................................... Librarian
Library

FRANK STEVENS HALL .................................................. Director of Museum
Museum

JAMES GARFIELD FLETCHER, A. B. ................................. Vocational Secretary
Administration Hall

THE COLLEGES AND SCHOOLS

DAVID THOMSON, B. A. ................................................ Dean of the College of Liberal Arts
Denny Hall

CARL EDWARD MAGNUSSON, Ph. D. ............................. Acting Dean of the College of Engineering
Engineering Hall

MILNOR ROBERTS, A. B. .............................................. Dean of the College of Mines
Mines Hall

CHARLES WILLIS JOHNSON, Ph. C., Ph. D. ......................... Dean of the College of Pharmacy
Bagley Hall

JOHN THOMAS CONDON, LL. M. .................................. Dean of the School of Law
Commerce Hall

HUGO WINKENWERDER, M. F. ...................................... Dean of the College of Forestry
Ball Hall

J. ALLEN SMITH, Ph. D. ............................................. Dean of the Graduate School
Denny Hall

HENRY LANDES, A. M. ................................................ Dean of the College of Science
Science Hall

FREDERICK ELMER BOLTON, Ph. D. ............................. Dean of the College of Education
Home Economics Hall

IRVING MACKEY GLEN, A. M. ...................................... Dean of the College of Fine Arts
Meany Hall

WILLIAM ELMER HENRY, A. M. .................................. Director of the Library School
Library

COLIN VICTOR DYMENT, B. A. .................................. Director of the School of Journalism
Commerce Hall

STEPHEN IVAN MILLER, A. B., LL. B. ........................... Director of the College of Business Administration
Commerce Hall

FREDERICK MORGAN PADELFORD, Ph. D. ......................... Acting Dean of the Graduate School
Commerce Hall

Denny Hall

J ohn NathAn COBB .................................................. Director of the College of Fisheries
Commerce Hall

THE EXTENSION SERVICE

EDWIN AUGUSTUS START, A. M. ................................. Director
Administration Hall

EVERETT FRANCIS DAHM, A. B. ................................. Assistant Director

OTHER ADMINISTRATIVE OFFICERS

LILLIAN BROWN GETTY, Secretary to the President.

MAX HIPKOB, Assistant Purchasing Agent.

WILLIAM BEACH JONES, A. B., Cashier.

AIMED WILSON, Secretary to the Comptroller.

MARK SMITH, A. B., Secretary to the Registrar.

MAY WARD, A. B., Assistant Dean of Women.

1 Absent on War Service, autumn, winter, spring.
2 Absent on leave 1918-19; resigned 1919.
3 Detached on special service 1917-19.
4 In charge of service 1918-19; resigned July 31, 1919.
BUILDINGS AND GROUNDS

WILLIAM WORTH DUMM, Superintendent.

SANDY MORROW KANG, Engineer.

L. R. KETTLEENNIO, Acting Electrician.

STANLEY O. CARPENTER, Head Carpenter.

GEORGE LEWIS MOTTET, Head Gardener.

UNIVERSITY COMMONS AND RESIDENCE HALLS

CHLORUS CLARK, B. S., Supervisor of Dining Halls.

UNIVERSITY OF WASHINGTON STATION OF THE UNITED STATES FOREST SERVICE

CONRAD W. ZIMMERMAN, A. B., Engineer in Timber Tests, in Charge.

UNITED STATES NAVAL RESERVE UNIT

ROBERT DUDLEY LONGYEAR, Lieutenant (J. G.) U. S. Navy.

ALFRED COLES HAVEN, Ensign, U. S. Navy.

STATE FOOD AND DRUG WORK

CHARLES WILLIS JOHNSON, Ph. C., Ph. D., State Chemist.

FRANCIS EMILE HINTON, M. S., Assistant State Chemist and Bacteriologist.

MARGARET OSBORN, Ph. C., Assistant State Chemist.

ENGINEERING EXPERIMENT STATION

CARL EDWARD MAGNUSEN, Ph. D., Acting Director.

LIBRARY STAFF

WILLIAM ELMER BENING, A. M. (Indiana); Librarian and Director of the Library School.

CHARLES WESLEY SMITH, A. B., B. L. S. (Illinois); Reference Librarian and Associate Professor of Library Economy.

EMMA FEARL MCDONNELL, A. B. (Washington); Periodicals Librarian.

EVERLY MARY BLOMBETT, A. B. (Yasaur); Pratt Institute Library School; Catalogue Librarian, and Instructor in Library Economy.

LOUISE PENNIDE SCHWARTZ, A. B. (Knox College), B. L. S. (Illinois); Circulation Librarian.

MABEL ASHLEY, A. B. (Kanaw) (Washington) Graduate in Library Economy; Order and Accession Librarian and Instructor in Library Economy.

MARGARET SCHATMACHER, A. B. (Washington); Assistant Reference Librarian.

ROBINSON SPENCER, A. B. (Wesleyan), B. L. S. (Illinois); Assistant Catalogue Librarian.

HELEN MORRILL STONE, A. B. (Washington); Assistant Circulation Librarian.

THE MUSEUM

FRANK STEVENS HALL, Director of the Museum.

CLARENCE JOHN ALBERSTON, A. B. (Iowa); Taxidermist, in charge of Invertebrate Exhibits.

UNITED STATES ARMY RESERVE OFFICERS' TRAINING CORPS

CHARLES LEONARD PHILLIPS, Colonel C. A. C., U. S. A., Professor of Military Science and Tactics.

KEVIN TAYLOR SMITH, Lieutenant Colonel, Infantry, U. S. A., Professor of Military Science and Tactics.

HERBERT CLARENCE BARNES, Major, Infantry, U. S. A., Professor of Military Science and Tactics.

EVAN KIRKPATRICK MERRITT, Captain, Infantry, U. S. A., Assistant Professor of Military Science and Tactics.

BYLAND OSCAR SCOTT, Captain, Infantry, U. S. A., Assistant Professor of Military Science and Tactics.

ELI DUPAR, First Sergeant, U. S. A., Assistant in Military Science and Tactics.

SINCE WINDSOR, Sergeant, U. S. A., Assistant in Military Science and Tactics.


DAVID E. MULLENK, Sergeant, U. S. A., Assistant in Military Science and Tactics.

UNITED STATES BUREAU OF MINES SEATTLE MINING EXPERIMENT STATION

FRANK E. OVERTZ, Superintendent.

GEORGE W. EVANS, Engineer.

W. H. COHILL, Metallurgist.

EDWARD P. BARRETT, Assistant Chemist.

U. S. WHITE, Chief Clerk.

KINSLEY H. CHIROL, Foreman Miner.

IRA W. WILLIAMS, Corrumin.

UNITED STATES SHIPPING BOARD SCHOOLS

JAMES E. GOULD, A. M., Special Expert in charge of Navigation Classes.

EVERETT O. EASTWOOD, A. M., C. E., in charge of Marine Engineering Classes.

UNITED STATES DEPARTMENT OF AGRICULTURE BUREAU OF PLANT INDUSTRY

JAMES THOMPSON, B. S., Specialist in charge of Medicinal Plants.

UNITED STATES GEOLOGICAL SURVEY

HUNTER LANDIS, A. M., State Geologist.

1 Relieved during the year.

UNITED STATES BUREAU OF EDUCATION PACIFIC NORTHWEST RESEARCH STATION

CLIFFORD WOODY, Ph. D., Supervisor.
UNIVERSITY FACULTY

In this list the names of the faculty are arranged in six groups—professors, associate professors, assistant professors, associates, lecturers, and instructors — followed by the names of the teaching fellows and assistants. In each of the six groups the names occur in the order of academic seniority.

Emma T. Suzzallo, President of the University, ex-officio Chairman.
Edward Noble Stone, Registrar, ex-officio Secretary.

PROFESSORS

HENRY LANDES
EDMOND STEPHEN MEANY

J. ALLEN SMITH
CAROLINE HAYEN OBER
JOHN THOMAS CONDON
HORACE G. BYERS
TREVOR KINCAID
FREDERICK MORGAN PADSELPORD
WILLIAM SAYREY
MILNO ROBERTS
FREDERICK ARTHUR OSBORN
DAVID THOMSON
CHARLES WILLIS JOHNSON
PHERES JOSIAH FREN
THEODORE CHRISTIAN FEETH
ROBERT EDGAR MOREZE
CARL EDWARD MAGNUSON
HARVEY LANTZ
EVERETT OWEN EASTWOOD
WILLIAM BLAISE HENRY
DAVID CONNELL HALL
HERBERT HENRY OWEN
OLIVER HUNTINGTON RICHARDSON
IVAN WILBUR GOODMAN
LIDA MACKAY GLEN
EDWIN AUGUSTUS STANT

Absent on war service.
Absent on leave 1918-19.

ASSOCIATE PROFESSORS

LOREN DOUGLAS MILLMAN
SAMPSON LATIMER BOWREN
BURL FREMONT KIRKLAND
THOMAS KAY SIDES
WILLIAM MADRICH DEHN
EDWARD McMAHON
CHARLES WESLEY SMITH
JACOB NIBLESS BOWMAN
ARTHUR WILSON LINTON
GEORGE SAMUEL WILSON
GEORGE WALLACE UMPhREY

Absent on leave 1918-19.
Absent on government service.
Absent winter and spring quarters 1918-19.

ASSISTANT PROFESSORS

EDWIN JAMES SAUNDERS
OSSIE HERBERT BACKERS
GEORGE IVING GAYDITT
ROBERT EVANSTELF ROSE
ROBERT MAX GARNETT
ELIAS THOMAS CLAY
ELI VICTOR SMITH
HENRY LOUIS BRAAK
CHARLES MUNCH STRONG
WILLIAM THOMAS BABR
HARRY ROBERT DAVIES
CLARENCE RAYMOND CORBY
GEORGE BURTON RIGS
GRACE GOLDMEN DENBY
GINO ARTURO RATTI

J. CHARLES CHURCH MORE
HENRY KENNETH BENSON
JOHN WEINREB
HUGO WINKENBERGER
WILLIAM RUTHER HARRINGTON
FREDERICK BLAISE BOLTON
EDWIN JOHN VIGNER
EFFIE ISABELLE ROBERT
WILLIAM FRANKLIN ALLISON
STEVENSON SMITH
WILLIAM FREDERICK GOSCHER
CLARK FRANCIS BISSETT
ERICH HUNLEY COWDELL
ARThUR RAGAN PRIEST
ALLEN ROGERS BENHAM
L. JAMES AYRE
COLIN VICTOR DEMENT
STEPHEN IAN MILLER, Jr.
RICHARD FREDERICK SCHULZ
LEONARD VINCENT KOOG
FRA J. CARLETON AYER
JACOB ANTON DE HAAS
LAURA EMMA LOCKWOOD
JAMES DUFF BARNETT
HERBERT CLARENCE BARNISH
JOHN NATHAN COON
CHARLES LEONARD PHILLIPS

Otto Patzer
CHARLES WILLIAM HARRIS
VANDERBILT CURTIS
EDGAR ALLEN LOW
JOSEPH DANIELS
THOMAS TALBOT WATERMAN
CHARLES EDMOND WEAVER
EDWARD GOREY COX
HORACE JAMES MACINTYRE
ALLEN FILLER CAPPITEN
J. FRANKLIN THOMAS

Absent, winter and spring quarters 1918-19.

Resigned.

ALBERT FRANCIS YOUNG
SAMUEL HENRY ANDERSON
UNIVERSITY OF WASHINGTON

FRANK MELVILLE WARNER
FREDERICK KURT KIRKSTEN
SHERRO BURTON CLARK
CLIFFORD WOODY
MACK MILLIMORE SKINNER
HAMILTON ACHILLES WOLF
RALPH HAYWORTH LUTTS
HARLAN LEON THOMPSON
COURT JOHN DOWABY
EMIL TEMPLE BELL
BROOK LEONARD GODDARD
LUCAS A. SANTANDER
FRED HARVEY HEATH
LEWIS LITTLE
BRUCE ROBERTS
REXFORD GUY THOMAS
VINCENT LOVEY OAKES GRANT
LESLIE FORREST CURTIS
EVERETT FRANCIS DAVENPORT
WALTER EDWARD BOOTH
FRANCIS PATRICK GOSR

Absent on war service.

Absent on leave 1918-1919.

Absent on government service.

Absent winter and spring quarters 1918-1919.

Resigned.

LECTURERS AND ASSOCIATES

HARVEY GLENN
FREDERICK POWELL
CONRAD OSWALD
LILLIAN COLLISON IRWIN
PHILIP V. PHIL
GUY CURTIS
FRED WYATT CATLETT
CASSID PAINE SMALL
JAMES EDWARD GOULD
ONIFFER PORTER COOKSHILL
FRANCIS WALDON COBB
PAUL ALEXIS UMPOFF
JOHN HENRY FISHER
MARY ELIZABETH CASABOR
THOMAS BARLOW HARRISON
LLOYD LOREN SMITH
PARKER EDWARD HINDMAN
CLARENCE AYER
ALEX ASHLEY
HELEN BALCH CUTLER
NATHAN FASIN
FRANK FREDERICK LAUBER
JOSEPH GRANT Q. BUTT
HALL 0. HUNTSMAN
ALFRED GILLIPTET
CHARLES ALBERT SMITH
DONALD HARDY LESTER
LOUIS VAN GOLS
MABEL ASHLEY
ALGER PORTER ADAMS
KATE LEILA GREGG
MAX PATTON PHILIPSHOCK
MARTY IRENE FRAY

INSTRUCTORS

SAMUEL THOMAS BEATTIE
SANDY MORROW KANS
WALTER BELL WHITLOCK
JESSE BIBB MURRICK
HALE HARRIS OBERG
RUDOLPH HUBERT ENST
JOSEPH HARLOW HARRISON
LODDER LEVY SMITH
FRANCES EDITH HINMAN
CLARENCE AYER
ALEX ASHLEY
HELEN BALCH CUTLER
NATHAN FASIN
FRANK FREDERICK LAUBER
JOSEPH GRANT Q. BUTT
HALL 0. HUNTSMAN
ALFRED GILLIPTET
CHARLES ALBERT SMITH
DONALD HARDY LESTER
LOUIS VAN GOLS
MABEL ASHLEY
ALGER PORTER ADAMS
KATE LEILA GREGG
MAX PATTON PHILIPSHOCK
MARTY IRENE FRAY

Absent on war service.

Absent on leave 1918-1919.

Absent on government service.

Resigned.
ALPHABETICAL LIST OF THE UNIVERSITY FACULTY

FACULTY AND OTHER OFFICERS

HENRY SUZZALLO, President of the University.
A. B., Stanford, 1896; A. M., Columbia, 1902; Ph. D., 1905; LL. D., California, 1918.

ALBERT FORREST ADAMS, Instructor in Music.
CLEMENT AKERMAN, Instructor in Economics.

WILLIAM FRANKLIN ALLISON, Professor of Municipal and Highway Engineering.
B. S., South Dakota State College, 1895; B. S. (C. E.), Purdue, 1897; C. E., Cornell, 1904.
(Major, U. S. A., Engineers, 1917-1919.)

SAMUEL HERBERT ANDERSON, Assistant Professor of Physics.
A. B., Park College, 1902; A. M., 1908; Ph. D., Illinois, 1912.
(2nd Lieutenant, U. S. A., Engineers, 1918-1919.)

JAMES GEORGE ANTHONY, Assistant Professor and Acting Head of the Department of Physical Education and Hygiene.
B. S., Kansas State College, 1904.

MANUEL ASHLEY, Instructor in Library Economy.
A. B., Kansas, 1902.

FRANK ALTON AYER, Professor of Education.
B. S., Upper Iowa University, 1902; M. S., Georgetown University, 1905; Ph. D., Chicago, 1918.

LESLIE JAMES AYER, Professor of Law.
B. S., Upper Iowa University, 1899; J. D., Chicago, 1906.

OSCAR W. BAIRD, Associate in Physics.
A. B., Wisconsin, 1910.

RALPH STEWART BARDWELL, Acting Instructor in Civil Engineering (Winter Quarter).
B. S., University of Michigan; Cambridge Technical Schools.

SAUL WILLIAM BARISS, Acting Research Associate in Business Administration (Spring Quarter).
B. S., Columbia, 1910.

JAMES DUFF BARNETT, Acting Professor of Political Science (Winter and Spring Quarters).
B. S., College of Emporia, 1890; Ph. D., Wisconsin, 1906.

BARBARA HANCOCK BARTLETT, Assistant Professor of Nursing and Public Health.
B. S., Teachers College, Columbia University, 1917.

ARTHUR WILLIS BARTON, Acting Assistant Professor of Chemistry.
Ph. G., Washington, 1897; A. B., 1902; Ph. D., Northwestern, 1918.

ALICE COLEMAN BOGARDUS, Instructor in Singing (Fall Quarter).
B. L., Mills College, 1913; Columbia University.

SAMUEL THOMAS BRATTON, Instructor in Woodwork.

ALLEN ROGERS BENNET, Professor of English.
A. B., Minnesota, 1906; A. M., 1907; Ph. D., Yale, 1908.

(E. M. C. A. Service in France, 1915-1919.)

HERBERT BENNETT, Professor of Industrial Chemistry.
A. B., Franklin and Marshall, 1899; A. M., 1902; Ph. D., Columbia, 1907.
(Captain, U. S. A., Ordnance Department, Fall Quarter.)

CLARK FREDDICK BISBEE, Professor of Law.
A. B., Hobart College, 1896.

EVELYN MAY BLODGETT, Instructor in Library Economy.
A. B., Vassar, 1908; Graduate, Pratt Institute Library School, 1911.

LILLIAN BLOOM, Associate in Physical Education for Women.
Graduate, Medical Gymnastic Institute, Stockholm.

OTTOBER GERTHES BOOTTRESS, Assistant Professor of German.
A. B., University of Washington, 1901; A. M., 1902.

FREDERICK ELMER BOULTON, Professor of Education and Dean of the College of Education.
B. S., Wisconsin, 1899; M. S., 1896; Ph. D., Clark, 1898.

SAMUEL LATIMER BOOTHROYD, Associate Professor of Astronomy.
B. S., Colorado Agricultural College, 1893; M. S., 1904.

JACOB NEUMANN BOWMAN, Associate Professor of European History.
A. B., 1896; B. S., Westminster, 1898; A. M., 1899; Ph. D., Johns Hopkins, 1899.
(Captain, U. S. A., Research Division, Chemical Warfare Service, Fall Quarter, 1918-1919.)

OSMIA H. BOWMAN, Associate in Chemistry.
B. S., University of Washington, 1915.

ALICE MABEL CARPENTER, Associate Professor of Mathematics.
A. B., Hastings, 1901; A. M., Nebraska, 1909; Ph. D., Chicago, 1915.

MULVY WESLEY CASSMORE, Extension Lecturer on Business Administration.
Ferris Institute.

FRANK WATTS CATLIN, Lecturer on Law.

VICTOR LOVITZ KENITZ, Assistant Professor of English.
ELIAS TIBBET CLARK, Assistant Professor of Forestry.
Ph. B., Yale, 1907; M. F., 1908.

SESHO BAYTON CLARK, Assistant Professor of Latin and Greek.
A. B., Michigan, 1901; Ph. D., Harvard, 1907.

CHARLES SHERMAN CLARK, Instructor in Institutional Management.
Ph. B., Alfred University, 1911; B. S., Columbia, 1915.

FRANCIS WALDRON CONN, Extension Lecturer on Business Administration.
B. S., Alma College, 1908.

JOHN NATHAN CONN, Professor of Fisheries and Director of the College of Fisheries.
(U. S. Bureau of Fisheries. Appointment effective March 4, 1919.)

ORELLES PORTER COOKELL, Lecturer in Charge of Debate.
A. B., Ohio State University, 1902; LL. B., 1905.

ETHYL HUNLEY COLDWELL, Dean of Women.
B. L., A. M., Stanford, 1899.

JOHN THOMAS CONDON, Professor of Law, Dean of the School of Law, and Dean of Faculties.
LL. B., Michigan, 1891; LL. M., Northwestern, 1892.

GRACE RUSSELL CONNELLY, Acting Assistant Professor of Home Economics.
B. S., Teachers College, Columbia University, 1905.

CLAUDINE RAYMOND COURTS, Assistant Professor of Mining and Metallurgy.

EDWARD GODFREY COX, Associate Professor of English.
A. B., Wabash, 1899; A. M., Cornell, 1901; Ph. D., 1906.

EDWARD RUSSELL CROSSLELL, Associate in Vocational and Assistant Supervisor of Teacher Training in the Trades and Industries.

HAROLD EUGENE CULVER, Assistant Professor of Geology.
Ph. B., Wisconsin, 1910; Ph. M., 1911.

HELEN BALCH CULVER, Instructor in Design.
Graduate, Pratt Institute, 1905; Graduate, Teachers College, Columbia, 1909.

LESLEY FORREST CURTIS, Assistant Professor of Electrical Engineering.
B. S., Tufts, 1910; M. S. (E. E.), University of Washington, 1918.

VANDRIVBEll CURTIS, Associate Professor of Economics.
B. S., Harvard, 1901; A. M., 1902; Ph. D., 1905.

EVERETT FRANCIS DAHM, Assistant Professor of Business Administration, and Assistant Director of the Extension Service.
A. B., Wisconsin, 1913.

JOSEPH DANIELS, Associate Professor of Mining Engineering and Metallurgy.
S. B., Massachusetts Institute of Technology, 1905; M. S., Lehigh, 1908.

WILLIAM THEODORE DANN, Assistant Professor of English.
A. B., Yale, 1905; A. M., Columbia, 1907.

JACOB DE LA HAAN, Professor of Business Administration.

WILLIAM MAURICE DEN, Associate Professor of Chemistry.
B. S., Hope, 1893; A. M., 1896; Ph. D., Illinois, 1903.

GRACE GOLDENA DENN, Associate Professor of Home Economics.
A. B., Nebraska, 1907; A. M., Columbia, 1919.

HARP BRIDGET DENSMORE, Assistant Professor of Greek.
B. A., Oxford, 1907.

FRANCES DICKET, Assistant Professor of Music.
Graduate, Iowa State Teachers College, 1901; B. S., Columbia, 1912; A. M., 1913.

MARIA ESTELLA DEAN, Instructor in Home Economics.
B. A., University of Southern California, 1913; B. S., University of Washington, 1917;
M. S., Teachers College, Columbia, 1918.

CURT JOHN DUCHAR, Assistant Professor of Philosophy.

WILLIAM ELHIBERST DUHIE, Assistant Professor of Civil Engineering.
A. B., University of Washington, 1905; B. S. (C. E.), 1909; C. E., 1916.

(Second Quarter.)

THEODORO DURAND, Acting Assistant Professor of Fine Arts.
Ecole des Beaux Arts, Paris.

WILLIAM FRANCIS EUGNEON DURAND, Associate in French (Fall and Winter Quarters).

Kings College.

COLIN FULTON DUMF, Professor of Journalism, and Director of the School of Journalism.
B. A., Toronto, 1900.

(Second Quarter.)

HENNING CLAUDE KASHEW, Professor of Military Science (Winter Quarter).
M. S., U. S. A.

EVERTOWN EASTWOOD, Professor of Mechanical Engineering.
C. E., Virginia, 1899, A. B., 1897; A. M., 1899; S. B., Massachusetts Institute of Technology, 1892.

ERNEST OXFORD FOULGEMAN, Assistant Professor of German.
A. B., Northwestern (Watertown, Wis.), 1897; B. L., Wisconsin, 1898; Ph. D., Heidelberg (Germany), 1906.
ANNEWORTH EBENS, Instructor in Drawing.
New York School of Fine and Applied Arts, Columbia.

GRACE HARTLEY EDGINGTON, Associate and Editorial Secretary in the Department of Journalism.
A. B., Oregon, 1913.

RUDOLPH HERMAN EBENEZER, Instructor in English.

VICTOR JOHN FARRIS, Associate in Historical Research.
A. B., Wisconsin, 1911; A. M. 1913.

(Sergeant, U. S. A., Base Hospital No. 50, 1918-19.)

NATHAN EATON, Instructor in Zoology.
B. S., College of New York, 1910; Ph. D., Wisconsin, 1914.

NELLE P. ELLIS, Acting Assistant Professor of Home Economics.
B. S., Teachers College, Columbia University, 1916.

PAUL NEWCOMBE FORD, Acting Instructor in Civil Engineering. (Winter and Spring quarters.)
B. S., Cornell College, 1907; C. E., 1909.

GEORGE EARL FRENZEL, Assistant Professor of Education.
A. B., Kansas Normal, 1909; A. M., Clark, 1913.

FRANK JOSEPH FERRY, Professor of Romance Languages.
A. B., Williams, 1892; Ph. D., Johns Hopkins, 1896.

THEODORE CHRISTIAN FEZEL, Professor of Botany.
B. S., Illinois, 1894; Ph. D., Chicago, 1892.

ROBERT MAX GARRITY, Assistant Professor of English.
A. B., Idaho, 1902; A. M., University of Washington, 1908; Ph. D., Munich, 1909.

GEORGE EDWARD GAVITT, Assistant Professor of Mathematics.
B. S. (C. E.), Michigan, 1898.

ADLERTA GILBERT, Extension Instructor in English.
A. B., Smith, 1907; University of Washington, 1911.

IRVING MAURY GLENN, Professor of Music, and Dean of the College of Fine Arts.
A. B., Oregon, 1894; A. M., 1907.

HAROLD L. GLENN, Lecturer on Assaying of Bullion.
B. S., Iowa State College.

EMILIO GOGO, Assistant Professor of Romance Languages.

IVAN WILLIAM GOLDIN, Professor of Law.
LL. B., Nebraska, 1897.

FOREST JACKSON GORDON, Instructor in Pharmacy.
Ph. C., University of Washington, 1912; B. S. 1914; M. S., 1917.

WILLIAM H. GOOD, Assistant Professor of Physics.
B. S., University of Wisconsin, 1911; A. M., Chemical Warfare Service. (Fall Quarter.)

WILLIAM VINCENT GORSECH, Professor of Public Speaking.
A. B., Knox, 1898.

FRANCIS FREDERICK GODD, Assistant Professor of Journalism.
(Absent winter quarter.)

CARL FREDREICH GOULD, Assistant Professor of Architecture.
A. B., Harvard, 1898.

JAMES EDWARD GOULD, Lecturer on Navigation.
B. Ph., University of Washington, 1906; B. Ph., 1898; M. A., Harvard, 1907.

HERBERT HENRY GOVERN, Professor of Oriental History, Literature and Institutions.
St. Augustine's College (Canterbury); D. D., Whitman College, 1912.

KATHERINE GRACCO, Instructor in English.
A. B., University of Washington, 1908; Ph. D., 1916.

BROO LEONARD GRONDA, Assistant Professor of Forestry.
A. B., Bethany (Kansas), 1910; M. S. F., University of Washington, 1918.

CHARLES ALFRED GUERARD, Instructor in French in the Extension Service.
B. L., University of France, 1876.

EDWIN RAY GUTHRIE, Assistant Professor of Philosophy.
A. B., Nebraska, 1907; A. M., 1910; Ph. D., Pennsylvania, 1912.

WINFRED SUMMERLING HAGGET, Associate in English.
A. B., Olivet, 1897; A. M., Michigan, 1898.

DAVID CONNOLLY HALL, University Health Officer and Director of Physical Education for Men.
Ph. B., Brown, 1901; Sc. M., Chicago, 1903; M. D., Rush Medical College, 1907.

(Jeutenant Colonel, U. S. A. S., 1918-19.)

JAMES BAKER HAMILTON, Instructor in Civil Engineering.
University of Washington.

HILDE HARRINGTON, Instructor in Physical Education for Women.
Wellers College; University of California.

CHARLES WILLIAM HARRIS, Associate Professor of Civil Engineering.
B. S. (C. E.), University of Washington, 1908; C. E., Cornell, 1905.

JOSEPH MARLOW HARRISON, Instructor in English.

(Lieutenant, U. S. A. Full quarter.)

ALFRED COLIS HAVEN, Ensign, U. S. N., Associate in Naval Science. (Winter quarter.)

"A. B. Honoris Causa," Amherst, 1918.

FRANK DOMINICK HAYDEN, Assistant Professor of Civil Engineering.
B. S., Massachusetts Institute of Technology, 1902.

FRED HARRISON HAYES, Assistant Professor of Chemistry.
B. S., New Hampshire, 1905; Ph. D., Yale, 1908.

CHARLES COOLIDGE HAYWOOD, Assistant Professor of Romance Languages.
B. Ph., Wallace College (Ohio), 1911; A. M., University of Washington, 1915.
WILLIAM ELKINS HENRY, Librarian and Director of the Library School.
A. B., Indiana, 1851; A. M., 1862.

FRANCES ETHEL HINDEMAN, Instructor in Pharmacy and Assistant State Chemist and Bacteriologist.
Ph. C., University of Washington, 1910; B. S., 1912; M. S., 1914.

JOHN WILLIAM HOTSON, Assistant Professor of Botany.
A. B., McMaster, 1901; A. M., 1902; Ph. D., Harvard, 1912.

CLAUDE HOUZ, Director of Athletics.
A. B., De Pauw, 1911.

LILLIAN IRWIN, Lecturer on Physical Education for Women.
M. D., Cooper Medical College, 1899.

ETHEL CHURCHMAN JACKSON, Acting Instructor in Singing. (Winter and spring quarters.)
B. M., King Conservatory of Music, 1895.

GEOH BEHN JENSEN, Assistant Professor of Vocational Education and Supervisor of Teacher Training in the Trades and Industries.
B. S., Valparaiso University, 1908.

JOEL MARCUS JOHNSON, Assistant Professor of English.
A. B., University of Washington, 1904.

CHARLES WILLIS JOHNSON, Professor of Pharmaceutical Chemistry and Dean of the College of Pharmacy.
Ph. C., Michigan, 1896; B. S., 1900; Ph. D., 1903.

SANDY MORROW KANE, Instructor in Metalwork.
VERA KALGET, Associate in English.

GUY KEMS, Lecturer on Copper Smelting.
Ph. D., Gottingen.

FRED WASHINGTON KENNEDY, Assistant Professor and Director of the Journalism Laboratories.
TAYLOR KING, Professor of Zoology.
B. S., University of Washington, 1899; A. M., 1901.

ERWIN FREDERICK KIRKLAND, Assistant Professor of Forestry.
A. B., Cornell, 1906.

FRIEDRICH KURT KIRCHWESS, Assistant Professor of Electrical Engineering.
B. S., University of Wisconsin, 1906; E. E., 1914.

NITZUKA KOBAYASHI, Extension Lecturer on the Japanese Language.

LEONARD VINCENT KOG, Professor of Education.
A. B., Oberlin, 1907; A. M., Chicago, 1918; Ph. D., 1916.

HENRY LANDRÉ, Professor of Geology and Mineralogy and Dean of the College of Science.
A. B., Indiana, 1892; A. B., Harvard, 1892; A. M., 1893.

SIRI CHAPIN LANDON, Instructor in Chemistry.
B. S., Northwestern, 1911; A. M., University of Washington, 1913; Ph. D., 1915.

HARVEY LANTZ, Professor of Law.
Ph. B., De Pauw, 1888; A. M., 1891; LL. B., Kent Law School, 1893.

FRANK JOSIAH LAURE, Instructor in Economics.
A. B., Wisconsin, 1898; A. M., University of Washington, 1918.

MORRIS MORGAN LIGHTON, Assistant Professor of Geology.
A. B., University of Iowa, 1912; A. M., 1915; Ph. D., Chicago, 1917.

HOBART HARDY LESSER, Instructor in Physics.
A. B., Minnesota, 1908; A. M., University of Washington, 1912; Ph. D., Princeton, 1916.

LEWIS LILLY, Assistant Professor of Accounting and Finance.
A. B., Wisconsin, 1914.

ARTHUR WILSON LINTON, Associate Professor of Pharmacy.
Ph. G., Highland Park, 1902; B. S., Michigan, 1900; M. S., University of Washington, 1915.

LAURA EMMA LOCKWOOD, Acting Professor of English.
A. B., Kennesaw, 1901; A. M., 1904; Ph. D., Yale, 1908.
(Resigned February 1, 1916.)

EDGAR ALLEN LOWN, Associate Professor of Electrical Engineering.
B. S. (E. E.), Wisconsin, 1906.

ROBERT DUBOIS LUPSE, Lieutenant (J. G.), U. S. N., Associate in Naval Science. (Winter and spring quarters.)
(Hartford University.)

MILDRED WEST LOWING, Instructor in Psychology.
A. B., University of Washington, 1912; A. M., 1918; Ph. D., Johns Hopkins, 1916.

RALPH HARWELL LUTZ, Assistant Professor of History.
A. B., Stanford, 1908; LL. B., University of Washington, 1907; A. M., Ph. D., Heidelberg (Germany), 1910.
(Lieutenant, U. S. A., Intelligence Service, 1918-19.)

ROBERT FULXON McCALLAII, Instructor in Architecture.
Massachusetts Institute of Technology.
(Resign, U. S. A., 1918-19.)

EDWARD MCMAHON, Associate Professor of American History.
Ph. B., University of Washington, 1908; A. M., Wisconsin, 1907.

THURZA SCHMID MCMAHON, Assistant Professor of Economics.
A. B., University of Washington, 1890; A. M., 1901; Ph. D., Wisconsin, 1909.

HOBART JAMES MCKINLEY, Associate Professor of Mechanical Engineering.
B. S., Massachusetts Institute of Technology, 1905; M. S. E., Harvard, 1911.
CARL EDWARD MAGNUSSON, Professor of Electrical Engineering and Acting Dean of the College of Engineering.
B. B. E., Minnesota, 1890; M. S., 1897; E. E., 1905; Ph. D., Wisconsin, 1900.

EDWALD STERLING MEANY, Professor of History.
B. S., University of Washington, 1885; M. S., 1899; M. L., Wisconsin, 1901.

EVAN KENNETH MEERMITH, Captain Infantry, U. S. A., Assistant Professor of Military Science and Tactics.

STANFORD University.
JOHN WILLIAM MILLER, Assistant Professor of Civil Engineering.
B. S. (C. E.), Nebraska, 1906.

(Less fall quarter.

STEPHEN IVAN MILLER, Professor of Transportation, Head of the Department of Economics and Business Administration and Director of the College of Business Administration.

LOREN DOUGLAS MILLMAN, Associate Professor of English.
A. B., Michigan, 1890.

LEON WALLACE MOORE, Acting Instructor in Civil Engineering.
B. S., Cornell College, 1908; C. E., 1908; B. D., Drew Theological Seminary, 1911.

CHARLES HOWARD MOSS, Professor of Civil Engineering.
C. E., Lafayette, 1898; M. C. E., Cornell, 1899; M. S., Lafayette, 1901.

(Major, U. S. A., Ordinance, 1918-19.)

ROBERT EDUARD MOODY, Professor of Mathematics.
B. S., Hastings, 1893; Ph. M., Chicago, 1896; Ph. D., Nebraska, 1901; Ph. D., University of Strasbourg, 1902.

JAMES DOUGLAS MORGAN, Acting Instructor in Mechanical Engineering. (Winter and spring quarter.)
M. E., Cornell University, 1904.

BRUCE MUNROE, Assistant Professor of Insurance.

DAVID JOHN MYERS, Assistant Professor of Architecture. (Fall and winter quarters.)
Massachusetts Institute of Technology.

LAWRENCE NICKERSON, Assistant Professor of Mathematics.
B. S., Colorado, 1898; M. S., 1901; Ph. D., Pennsylvania, 1903.

CAROLINE HAYDEN OBER, Professor of Spanish.

JOSEPH GRATTON O'BRIAN, Lecturer on Law.
A. B., Jesuit College (Denver), 1883.

FREDERICK ARTHUR OSBORN, Professor of Physics and Director of Physics Laboratories.
Ph. B., Michigan, 1890; Ph. D., 1907.

CONSTANCE OSSWORTH, Lecturer on Commercial Pharmacy.
Ph. G., Columbia; Ph. D., Northwestern.

HALMAN LAURIE OTTERBURG, Instructor in Zoology.

FREDERICK MORGAN PASHLEY, Professor of English, and Acting Dean of the Graduate School.
A. B., Colby, 1896; A. M., 1899; Ph. D., Yale, 1899.

VERNON LOUIS PARRINGTON, Professor of English.

OTTO PATZER, Associate Professor of French.
B. L., Wisconsin, 1898; M. L., 1906; Ph. D., 1907.

MAX PATZER Philbrick, Instructor in Romanic Languages.
A. B., Colby College, 1902.

JOHN HUNTER PEERS, Extension Lecturer on Special Education.

FREDERICK POLLOCK, Lecturer on Gold Dredging.
B. A., Columbia.

CHARLES LEONARD PHILLIPS, Colonel, U. S. A., Professor of Military Science and Tactics.
A. B., Colby, 1878; graduate, U. S. Military Academy, West Point, 1881; C. E., University of Maine, 1886; graduate, Coast Artillery School, 1890.

MARY IRVING PFAUTZ, Instructor in Physical Education for Women.
B. S., Teachers' College, Columbia, 1913.

ARTHUR RAGAN PINBST, Professor of Debating and Dean of Men.
A. B., De Pauw, 1901; A. M., 1894.

MARGARET PROSSER, Assistant in English.
A. B., Vassar, 1913.

ERIE ISABEL RATTI, Professor of Home Economics and Director of the Department of Home Economics.
B. S., Columbia, 1912.

GINO ANTONIO RATTI, Assistant Professor of Romanic Languages.
A. B., Middlebury, 1907; A. M., 1909; Docteur de l'Universite de Grenoble, 1911.

OLIVER HUNTINGTON RICHARDSON, Professor of European History.
A. B., Yale, 1889; A. M., Ph. D., Heidelberg (Germany), 1897.

GEORGE BURTON RIGGS, Assistant Professor of Botany.
B. S., Iowa, 1890; B. D., 1899; A. M., University of Washington, 1909; Ph. D., Chicago, 1914.

MILTON ROBERTS, Professor of Mining Engineering and Metallurgy and Dean of the College of Mines.
A. B., Stanford, 1899.
LUTHER LEE ROCHESTER, Associate in English.
A. B., University of Washington, 1915.

WALTER EDWARD ROLOFF, Assistant Professor of German.
A. B., Northwestern, 1904; A. M., 1905; Ph. D., Wisconsin, 1912.

ROBERT EVSTAFIEFF ROSE, Assistant Professor of Chemistry.
Ph. D., Leipzig, 1903.

MORITZ ROSEN, Assistant Professor of Music.
Graduate, Warsaw Conservatory, Russia.

FREDERICK ARTHUR ROUSSELL, Assistant Professor of Economics.

JARVIS PHILIP RUSSELL, Instructor in Architecture.

LUIS A. SANTANDER, Assistant Professor of Spanish.
B. S., and Ph. B., University of Santiago, Chile, 1894; LL. B., 1898; Licenciado in Laws, 1899.

EDWIN JAMES SAVENIUS, Assistant Professor of Geology.

WILLIAM SAVORY, Professor of Philosophy.
A. B., Brown, 1899; A. M., Harvard, 1897; Ph. D., 1899.

RICHARD FREDERICK SCHOLEU, Professor of Ancient History.
A. B., Wisconsin, 1903; A. M., 1908; Ph. D., 1911.

RYLAND OILMAN SCOTT, Captain, U. S. A., Assistant Professor of Military Science and Tactics.
Portland University; Williams University.

HERALD ODELL SEYFERT, Instructor in Architecture. (Fall and winter quarters.)
Armour Institute of Technology; Chicago Art Institute.
(Capital, U. S. A. S.)

MYRTHA DOROTHY SHEPHERD, Instructor in Home Economics for Extension Service.
B. S., Teachers' College, Columbia, 1913.

GORDON HUGHES SHUCK, Instructor in Electrical Engineering.
B. E., Minnesota, 1906.

THOMAS ELY SHEPHERD, Associate Professor of Latin and Greek.
B. A., Toronto, 1891; Ph. D., Chicago, 1900.

ELYNETTE SHROME, Instructor in Russian.
Graduate, St. Anne's Schule; University of Geneva.

MAE MACOMBS SKINNER, Assistant Professor of Chinese and Assistant Dean of Men.
A. B., Harvard, 1894; A. M., 1895; Ph. D., 1897.

CARL PAIN SMALL, Lecturer on Textile and Non-Textile Merchandise.
Teachers College, Columbia University.

LLOYD LEROY SMALL, Instructor in Mathematics.
A. B., University of Washington, 1911; A. M., 1912; Ph. D., Columbia, 1913.

CHARLES WEBLEY SMITH, Reference Librarian and Associate Professor of Library Economy.
A. B., Illinois, 1905; B. L. S., 1906.

ELI VICTOR SMITH, Assistant Professor of Zoology.
Ph. B., University of Illinois, 1907; A. M., University of Washington, 1909; Ph. D. Northwestern, 1911.

J. ALLEN SMITH, Professor of Political Science and Dean of the Graduate School.
A. B., Missouri, 1898; LL. B., 1897; Ph. D., Michigan, 1894.

STEVENSEN SMITH, Professor of Psychology.
A. B., Pennsylvania, 1901; Ph. D., 1904.

WALTER EDMUND SQUIER, Assistant Professor of Music.
Graduate in Music, Northwestern, 1898.

EDWIN AUGUSTUS START, Director of the Extension Service.

CHARLES MONROE STRONG, Assistant Professor of Spanish.
A. B., Missouri, 1897; A. M., 1900.

MILDRED STURBAK, Associate in English. (Spring quarter.)
A. B., University of Washington, 1898.

HERMAN YANCE TARTAR, Acting Assistant Professor of Chemistry.
B. S., Oregon Agricultural College, 1902.

EARL R. THOMA, Acting Instructor in Business Administration.
State Normal, Fremont, Nebraska.

J. FRANKLIN THOMAS, Associate Professor of Sociology.
A. B., Beloit, 1904; Columbia University.

THOMAS GORDON THOMPSON, Acting Instructor in Chemistry. (Winter and spring quarters.)
A. B., Clark College, 1914; M. S., University of Washington, 1915; Ph. D., 1916.

DAVID THOMPSON, Professor of Latin and Dean of the College of Liberal Arts.
B. A., Toronto, 1892.

HARLAN LEON TRUMBULL, Assistant Professor of Chemistry. (Fall quarter.)
A. B., University of Washington, 1907; A. M., 1908; Ph. D., Chicago, 1911.


RAFFORD GUY TURNER, Assistant Professor of Marketing.

PAUL ALEXIS UMPOFF, Extension Lecturer on the Russian Language.
Polytechnic Institute of Petrograd.

GEORGE WALLACE UPHERY, Associate Professor of Spanish.
CLINTON LOUIS OTTENBACH, Associate in Physics.
B. S., Purdue, 1908; M. S., University of Washington, 1918.

LOUIS VAN OGLE, Instructor in Music.
Theoretical Work, Dr. Bridge, Chester, England; Richter, Leipzig; Piano, Godowsky, Berlin; Lhevinne, Berlin; Harold Bauer, Paris.

CHARLES WILCOX VANDER VEER, Track Coach.

Union College.

ALFRED FRANK VENNING, Assistant Professor of Music.
New York College; Pupil, Stuttgart Conservatory of Music; Pupil of Leschetizky.

EDWIN JOHN VICKERY, Professor of the Scandinavian Language.
A. B., Minnesota, 1901; A. M., 1903; Ph. D., 1905.

ELBERT AUGUST VINCENT, Associate in Chemistry. (Fall quarter.)
B. S., University of Washington, 1917; M. S., 1918.

SARA H. VINCENTHAL, Acting Instructor in Drawing. (Winter quarter.)
B. B., University of Washington, 1918.

PHILIP V. VON PAUL, Lecturer on Practical Hygiene.
A. B., St. Louis University, 1893; A. M., 1895; M. D., Missouri Medical College, Washington University, 1896.

FRANK MELVILLE WARD, Assistant Professor of Engineering Drawing.
B. S. (M. E.), Wisconsin, 1907.

THOMAS TABOR WATERMAN, Associate Professor of Anthropology.
A. B., California, 1907; Ph. D., Columbia, 1918.

HALSEY WATSON, Associate in Journalism. (Winter quarter.)

CHARLES EDWIN WATSON, Associate Professor of Geology.
B. S., Colorado, 1904; Ph. D., 1907.

JOHN WEISBRECHT, Professor of Bacteriology.
B. S., Wisconsin, 1899; M. S., 1899; Ph. D., 1908; Dr. P. H., Harvard, 1918.

FREDERICK ERNEST WELCH, Acting Instructor in Civil Engineering. (Winter and spring quarters.)
B. S., Pennsylvania State College, 1893; C. E., 1902.

LIVINGSTON WERNER, Acting Instructor in Civil Engineering. (Winter quarter.)

CLARENCE LOUSTEN WHITE, Instructor in Civil Engineering.
B. S., State University of Iowa, 1909; C. E., 1914.

WALTER BILL WHITETT, Instructor in French. (Fall quarter.)

(Doctor, U. S. A.)

ISA ABRAM WILLIAMS, Assistant Professor of Mining, Ceramist U. S. Bureau of Mines.
B. S., Iowa State College, 1898; M. S., 1908; A. M., Columbia, 1904.

ARTHUR MELVIN WINSLOW, Assistant Professor of Mechanical Engineering.
B. S., Brown University, 1903; B. S., Massachusetts Institute of Technology, 1906.

GEORGE SAMUEL WILSON, Associate Professor of Mechanical Engineering.
B. S., Nebraska, 1906.

RUTLEDGE WINSBANK, Instructor in Psychology.
Ph. B., Bucknell, 1898; Ph. D., Chicago, 1917.

HUGO WITZTUM, Professor of Forestry and Dean of the College of Forestry.
B. S., Wisconsin, 1902; M. F., Yale, 1907.

HAMILTON ACHTILDE WOLF, Assistant Professor of Fine Arts.
National Academy of Design; Art Students' League; Columbia University.

CARL FAYE WOOD, Assistant Professor of Music.
A. B., Harvard, 1908; A. M., 1907.

ROY MARTIN WINGER, Assistant Professor of Mathematics.
A. B., Baker, 1908; Ph. D., Johns Hopkins, 1912.

CLIFFORD WOOD, Assistant Professor of Education.
A. B., Indiana, 1908; A. M., 1913; Ph. D., Columbia, 1918.

JOHN LUCKE WORCESTER, Assistant Professor of Anatomy.
M. D., Birmingham School of Medicine, University of Alabama, 1900.

CONRAD ZIMMERMANN, Lecturer on Timber Physics.
A. B., University of Washington, 1898.

OTHER INSTRUCTORS

CHARLES CHEVALLAZ, Associate in French.
State College, Lausanne, Switzerland; State School of Art and Industry, Bern, Switzerland.

JOHN L. CHOEKER, Associate in Mathematics.

JULIUS FRANCOIS DE JOHES, Associate in French.
College de la Paix, Namur, Belgium; C. E., Universite de Louvain, Belgium.

EDWIN FROST, Associate in Mathematics.
B. S., Swarthmore, 1898; M. A.; Cornell University, 1899.

ALVIN JACKSON LOOMIS, Associate in Mathematics.
A. B., Olivet College, 1906; Washington.

HERMANN WILHELM MULLER, Associate in Mathematics.
Ph. C., Royal University of Utrecht, Holland, 1910; Ph. D., 1913.

LUCIEN PERROT, Associate in French.
College Jean Bosco, Paris.

ROGER WHEELE ROGERS, Associate in Mathematics.
A. B., Wheaton College, 1913.
ALFRED E. SCHERR, Associate in Physics.
Ph. B., Hamline, 1911; M. S., University of Washington, 1915.

EMERY E. SMITH, Associate in Mathematics.
B. S., Cornell College, 1910; University of Washington.

EDWIN LEONARD STRAUBING, Instructor in Civil Engineering.
B. S. (C. E.), University of Washington, 1912.

RALPH W. SWITZMAN, Associate in Mathematics.
Ph. B., Hamilton College, 1907; A. M., Teachers College, 1917.

JOSIAH MARION TAYLOR, Associate in Mathematics.
M. S., Adrian College, 1888; California.

CHARLES AMBROSE WHALLEY, Associate in French.

ASSISTANTS AND TEACHING FELLOWS

MARTHA REESKE, A. B., Assistant in the Museum.

MADGE WILKINSON, Clinical Assistant.

ANNIE VONLICKER, Assistant in Music.

HELEN FISHERMAN, B. M., Assistant in Music.

MABELLE GILB, M. S., Teaching Fellow in Zoology.

STUDENT ARMY TRAINING CORPS

In addition to members of the regular teaching staff, the following served as temporary instructors for the Student Army Training Corps.

Army Unit—

A. B. AUB, Capt., U. S. A.
Commanding Officer.

H. C. DUNBAR, Capt., U. S. A.

A. G. SNOW, Capt., Medical Corps.

ARONER CHATERFORD, Lieut., U. S. A.

JOSEPH H. HARRISON, Lieut., U. S. A.

GERALD B. HARRARD, Lieut., U. S. A.

EUGENE D. BARTON, Lieut., U. S. A.

HARVEY B. FOULKES, Lieut., U. S. A.

EUGENE L. HAMLIN, Lieut., U. S. A.

VICTOR F. LARSS, Lieut., U. S. A.

HENRY S. LEWIS, Lieut., U. S. A.

ALFRED E. McFARLANE, Lieut., U. S. A.

D. W. MEDLEY, Lieut., U. S. A.

LESLIE N. MOB, Lieut., U. S. A.

DOUGLAS OSBORNE, Lieut., U. S. A.

CURTISS A. PETERSON, Lieut., U. S. A.

ALMOS K. RHYNOLES, Lieut., U. S. A.

MELVILLE K. SPINDL, Lieut., U. S. A.

LESLIE S. THOMAHAUSER, Lieut., U. S. A.

JOHN H. WALDO, Lieut., U. S. A.

WM. H. WALTERSBRONEN, Lieut., U. S. A.

Naval Unit—

CHAUNCEY THOMAS,
Rear Admiral, U.S.N.
Commanding Officer.

ENSIGN ANDERSON

ENSIGN DENNY

ENSIGN LONGYEAR

ENSIGN FEESTER

ENSIGN STEPHENS

Marine Unit—

ERIK JOHNSTON, ... ...
1st Lieut.
Commanding Officer
BOARDS AND COMMITTEES
1919-1920

ADMINISTRATIVE BOARDS

ADVISORY TO THE PRESIDENT—The Board of Deans, Professors Meany, Padelford, Gowen, Osborn, Kincaid, Eastwood.

EXTENSION SERVICE—Director Start, Deans Thomson, Landes, Bolton, Director Miller, Professor Raitt, Comptroller Condon.

BOARD OF DEANS—Deans Condon, Thomson, Magnusson, Roberts, Johnson, Winkenwerder, Smith, Landes, Bolton, Glen; Directors Henry, Miller, Start; Deans Priest and Coldwell; Registrar Stone.

SUMMER QUARTER—Board of Deans and Comptroller Condon.

CONSULTING ENGINEERS—Professors Eastwood, Magnusson and Harris.

DEVELOPMENT OF MENTOR SYSTEM—Deans Thomson, Priest and Coldwell.

DEVELOPMENT OF URBAN CENTERS FOR EXTENSION SERVICE—Miss Shank, chairman; Regent McKee, Directors Start, Miller; Professors Raitt, Gould; Comptroller Condon, Mrs. B. C. Beck, Mr. John J. Elliott and Mr. Harlan Thomas.

COMMITTEES OF THE FACULTY

The President is ex-officio a member of each standing committee.

ADMISSIONS AND REGISTRATION—The Deans of the Colleges and Schools and the Registrar.

ASSEMBLY—Professors Denmore, Glen and Benson.

ATHLETICS—Deans Priest and Thomson; Professors Hall, Moritz, Denmore, Dehn and Hunt.

CURRICULUM—Professors Savery, Bolton, Johnson, Magnusson, Winkenwerder, Glen, Henry, Osborn, Ayer, Daniels and Mr. Stone.

GRADUATION—Deans Thomson, Landes, Magnusson; Professors Lantz, Kirkland, Curtis and Mr. Stone.

HONORS—Professors Padelford, Byers, Savery, Carpenter, Curtis and Mrs. McMahon.

HYGIENE AND SANITATION—Professors Hall, Weinziir, Allison, Stevenson Smith and Raitt.

JUNIOR COLLEGES—Professors Padelford, Thomson, Frye, Bolton, McMahon and Mr. Stone.

LIBRARY—Professors Henry, Thomson, Frye, Padelford, Richardson, Patzer and Loew.

MEDICAL COURSE—Professors Worcester, Weinziir, Kincaid, Hall and Dean Johnson.

PUBLICATIONS—Professors Henry, Start, Landes, Umphrey, Padelford, J. A. Smith, Denmore, Kennedy and Bell. (Catalogue, Directory, the Registrar.)

RELATIONS WITH SECONDARY SCHOOLS—Deans Bolton and Thomson; Professors Padelford, Frye, Frein and Mr. Stone.

RULES—Professors Benham, Goodner, Strong, Bell and Mr. Stone.

SCHEDULE—Mr. Stevens; Professors Wilson, Bigg, Johnson, Woody and Mr. Langdon.

SPECIAL STUDENTS—The Deans and the Registrar.

STUDENT AFFAIRS—Dean Thomson; Professors McMahon, Scholz, Padelford and Curtis; Dean Winkenwerder, Mrs. Haggart, and seven representatives of student organizations.

STUDENT HEALTH AND WELFARE—Professor Bartlett; Deans Coldwell and Priest; Professors Hall, Stevenson Smith, Weinziir, E. V. Smith.

ROSES SCHOLARSHIP—Professors Johnson, Leslie Ayer, Scholz, Denmore, Harrison.

WASHINGTON UNION—Professor Meany, Deans Condon, Landes, Thomson, Director Miller and Comptroller Condon.

MILITARY AND NAVAL AFFAIRS—Professors Osborn, Eastwood, More, Start, Boothroyd; J. W. Miller, and Mr. Harrison.
DEGREES

DEGREES CONFERRED JUNE 15, 1918
(For degrees conferred at the end of the Summer Session, see pages 23-25)

BACHELOR DEGREES

COLLEGE OF LIBERAL ARTS

Bachelor of Arts

Adams, Frances True
Adams, Lucile Elizabeth
Adams, Violette Beatrice
Agassiz, Florence Mary
Aitchison, Irene
Anasawa, Sellchl
Andersen, Gudrun Cecelia
Angle, Joseph Eber
Asho, Oyukie
Arthur, Agnes
Baker, Alice Harriet
Baker, Ella Graham
Bartley, Georgia Lulu
Bennett, Helen Marda (Magna Cum Laude)
Bjorkman, Frank Walfred (Cum Laude)
Boening, Rose Marie
Brawley, Edith May
Bruengerhoff, Anna Marie (Cum Laude)
Bushnell, Helen
Carrigan, John Beardslee
Chandler, Elsie Rose
Combs, Ulalla Buth
Constantine, Dorothy Edna
Daulton, Elizabet Katherine
Davis, May Eleanor
Dean, Mildred
DeBruyn, Paul Marcellus
Delaney, Kathleen Nann
Dickinson, Lois Atherton
Draper, Elizabeth
Esterbrook, Gladys Fannie (Cum Laude)
Ellis, John Boyd
Elmore, Roma Marie Sartoris (Mrs.)
Falkoff, Anna Lea (Mrs.)
Fleming, Elsie
Fleming, Eloise
Francis, Violet Eloise
French, Irna
Freyd, Florence Sarah
Gates, Louise Margaret (Cum Laude)
Gerischer, Lillian Wilhelmine
Gerriets, Anna
Graves, Orville Raymond
Gresham, Marie Cole
Grout, Genevieve Ament
Hamel, Floyd Raymond
Hartmann, Elise Anna (Cum Laude)
Hill, Helen Elizabeth
Holmes, Anna Matilda (Cum Laude)
Hopkock, Adele Louise (Cum Laude)
Hud, Virginia (Cum Laude)
Hutchisson, Fenzy Ethlyn
Jacobsen, Pauline
James, Jeanette
Johnston, Violet Kathleen
Joiner, Anna Eulina
Keenan, Mary Antoinette
Kelsey, Louise
Kelton, Viola
Kronenbarger, Mercedes Ethel (Cum Laude)
Larson, Esther Mildred
Lesch, Vivian Helen
Loftheld, Gabriela
McCol, Nellie Natalie
McCorkle, Mae Diana (Cum Laude)
MacPherson, Lexie
Mann, Margarette
Mattson, Norma Claire
Meade, Emily Hulse
Melnik, Mildred Eunice
Meyer, George Frederick (Cum Laude)
Middleton, Ada Belle (Cum Laude)
Miller, Margary Morla
Miyasaki, Tsurhio
Moe, Nettie Amelia
Moffet, Edith Pauline
Moyer, Edna Margaret
 Nelson, Adalene Roberta
 Nelson, Helen
 Olsen, Paul Crandall
 Osawa, Yukl Geda
 Otaki, George Jogi
 Parsons, Rosamund
 Perry, Frances Wayland (Cum Laude)
 Porter, Frances Rice (Mrs) (Cum Laude)
 Proctor, Muriel Esther
 Quast, Ruth Iola
 Riddle, Helen Jane
 Rohr, Gertrude Emill Bertha
 Ruppenthal, Anna Barbara
 Russell, Beulah Henrietta
 Sanders, Alvin Edward
 Sater, Gertrude Pauline
 Schreiner, Gertrude Mary
 Severns, Edward Ellsworth
 Sharpe, Ruth Cole
 Simonds, Esther
 Smallwood, Gladys Neida
 Starr, Beatrice Evangeline
 Stein, Walzema Lingeman
 Stoner, Lillian Una
 Sundquist, Leonia Maria
 Swanson, Edward Benjamin
 Taylor, Dorotha
 Thompson, Christine
 Tromp, Theresa
 Tucker, Ruth Elisabeth
 Turner, Ellen Mildare (Cum Laude)
 Uchikata, Henson
 Van Engelen, Jennie
 Vining, Marie Thelma
 Weixel, Beza
 Weilns, Florence Aurelia
 White, Marjorie Whitworth
 Williams, Roger Mills
 Wilson, Evelyn
 Wright, Charlotte Helen

18
# DEGREES

## COLLEGE OF SCIENCE

### Bachelor of Science

- Carlson, Agnes Naomi
- Cooper, Evelyn Frances
- Desmond, Margaret Rose (*Cum Laude*)
- Griffiths, Marion Alice
- Haugum, Cyrus James
- Johnson, Martha Ragna
- Kahler, Herbert
- LeViolette, Melvin Francis
- McIntyre, Doris Helen
- McKinney, Eva
- Meek, Georgia Ella
- Phillips, Gertrude Anne
- Raynor, George Emil (*Magna Cum Laude*)
- Reekie, Jean
- Russell, Flora Wilhelmina Emma
- Sargent, Winford Graydon
- Simpson, Helen Margaret
- Swegle, Adile Mae
- Taylor, Margie Williston Winifred
- Van Winkle, Katherine Evangeline
- Wood, Arthur Rollie

### Bachelor of Science in Home Economics

- Armstrong, Grace
- Cameron, Marion Brownlee
- Church, Mabel Minerva
- Fay, Helen Frances
- Fraser, Aliza Rosena
- Gearhart, Esther
- Gilbert, Lois Marion
- Good, Jane
- Hamilton, Aileen Ames
- Jeane, Mildred
- Kennedy, Mabel Josephine
- Keppel, Susan (Mrs.) (*Cum Laude*)
- Knudson, Esther
- Langdon, Frances Elaine Flak (Mrs.)
- Lasby, Ruth Margaret (*Cum Laude*)
- McCormick, Irma Alita
- McLaren, Gay Elizabeth
- Moore, Alice Irene
- Myers, Dorothy (*Cum Laude*)
- Pollard, Bertha Christine (*Cum Laude*)
- Price, Frances Mary
- Roberts, Margaret
- Robinson, Bessie Veryl
- Shumway, Antoinette Elizabeth
- Slack, Jean Gertrude
- Smith, Virginia Florence
- Stilson, Lenore Alice
- Ware, Sarah Amelia
- Wilson, Alva

## COLLEGE OF EDUCATION

### Bachelor of Education

- Barrows, Jeanette Virginia
- Burmido, Catharine (*Cum Laude*)
- Calloway, Gertrude
- Connors, Edna Eliza
- Culliton, Elaine Cazier
- Ederer, Pauline
- Goodman, Leo (*Cum Laude*)
- Holman, Zelma Leona
- Homer, Ruth Rachel
- Lawson, Peninnah Belle
- McFee, Jean
- Mackey, Corn Lois
- Michael, Sadie
- *Parker, Frances Estella*

* Died June 5, 1918

## COLLEGE OF FINE ARTS

### Bachelor of Arts in Music

- Bonell, Aura Minerva
- Ferryman, Helen Louise
- Koren, Helen Marie
- Holman, Zelma Leona
- Manson, Gladys
- Marsh, Constance Ardena

### Bachelor of Fine Arts

- Winsomhalar, Sara Rea

### Bachelor of Architecture

- Anderson, Arthur William

## COLLEGE OF ENGINEERING

### Bachelor of Science in Chemical Engineering

- Canfield, Ralph Edward
- Handforth, Stanley Longheed
- Hopkins, Hubert Vincent
- Martin, Leonard Alexander

### Bachelor of Science in Civil Engineering

- Adams, John Middleton
- Meliliah, John Frederick
- Nelson, Wesley Roy
- Pfeil, Fernando Charles Reno
- Sellieck, Jesse Henry Rowe
- Tipton, Richard Randolph
- Turnbull, Benjamin Frank
- Walker, Harold Henkle
- Woolfolk, Paul Albert
BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING
Kongsted, Ludvig Petersen
Lubecke, Charles Max
Peterson, Charles Wallace
Zaugg, Felix Rudolph

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING
Hoffman, Valentine

BACHELOR OF SCIENCE
Hedrick, Langdon Bruce
Wassberg, Clarence Edward

COLLEGE OF MINES
BACHELOR OF SCIENCE IN MINING ENGINEERING
Bollard, Lloyd Francis
Clulow, William Montgomery
Opperman, Conrad John
Slack, Albert Elvira
Williams, Joseph Augustin

BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING
Bird, Byron Matthew
Slack, Albert Elvira

BACHELOR OF SCIENCE IN COAL MINING ENGINEERING
McMillian, Earl Beauregard

COLLEGE OF FORESTRY
BACHELOR OF SCIENCE
Gillespie, James Thomas
O'Brien, George William
Zeller, Earl Henry

COLLEGE OF PHARMACY
PHARMACEUTICAL CHEMIST
Curry, Mark Elmore
Grosa, Maria Ylivan
Swart, Dennis Siegel

GRADUATE IN PHARMACY
Kracower, Bella
Madden, Kathryn Olive
Smith, Gertrude Eleanor
Wilkes, Jean Robin
Zanier, Theodore William

SCHOOL OF LAW
BACHELOR OF LAWS
Backus, Le Roy Manson
Beardale, Arthur Sydney
Kolmitz, Charlotte
Watanabe, Harley Shulchi

LIBRARY SCHOOL
BACHELOR OF LIBRARY ECONOMY
Hitchcock, Jeanette McCrory

BACHELOR OF ARTS
Arney, Mary
Bateman, Stella
Cleaves, Edith Lorena
Clement, Vera Lyman
Coleman, Louise
Corlitt, Helen Dorothy
Donnell, Georgia Marie
Frew, Rosamond
Gladic, Pauline Amanda
Hayes, Dorothy
Henry, Elizabeth Gillette
Holt, Doris Leonora
Monk, Edith Mary
Owen, Eleanor Murray
Pimm, Hilda More
Seeley, Harriet Butler
Stanton, Kathryn Bryce
Stone, Helen Morrill
Unger, Nell Avery (Cum Laude)
Wallace, Edith Edna
Walsworth, Esther

CERTIFICATE IN LIBRARY ECONOMY
Martin, Margaret Belle
DEGREES

COLLEGE OF BUSINESS ADMINISTRATION
Bachelor of Business Administration
Coleman, Donald John McGovern, Foster Lincoln

COLLEGE OF NAVAL, MILITARY AND AERONAUTICAL SCIENCE
Bachelor of Science in Military Science
Dewhurst, James Frederick

GRADUATE DEGREES

GRADUATE SCHOOL

Master of Arts
Florence Ball (Education)
A. B., University of Washington, 1915
Thesis: Recreational Activities of Seattle School Children

Ethel Summer Hatch (English)
A. B., University of Wisconsin, 1917
Thesis: Tom Paine's Contribution to Democracy

Louise Julia Ingersoll (History)
A. B., University of Washington, 1914
Thesis: Reconstruction and the Courts

Aletha Sophia McPhee (English)
A. B., University of Washington, 1916
Thesis: Phases of Realism in American Literature of the Nineties

Frank Seely Salisbury (Education)
A. B., University of Washington, 1916
Thesis: A Method of Comparing Spellers with Respect to the Usefulness of Their Subject Matter in the Writing Vocabulary of Adults

Robert James White (Education)
A. B. in Ed., University of Minnesota, 1911
Thesis: Cost of High School Instruction in Washington

Master of Science
Walter Ethan Bagley (Mathematics)
B. S., University of Washington, 1916
Thesis: A Few Methods of Developing the Sine and Cosine Series

Jacob Roy Bender (Mathematics)
A. B., Ohio University, 1916
Thesis: Some General Formulas for the Summation of Certain Special Types of Series

George Walter Pucher (Chemistry)
B. S., University of Washington, 1917
Thesis: Solubilities in Mixtures of Two Solvents

Lester Lewis Spessard (Zoology)
A. B., Lebanon Valley College, 1911
Thesis: Insect Pests of the Madrona

Elizabeth Vinsonhaler (Chemistry)
B. S., University of Washington, 1917
Thesis: Chemistry of Carbon Monoxide

Master of Science in Mining Engineering

Arthur Homer Fischer
B. S. in Mining Engineering, University of Washington, 1906
Thesis: A Summary of Mining and Metalliferous Mineral Resources in the State of Washington
UNIVERSITY OF WASHINGTON

Master of Science in Metallurgy

Carl Otto Anderson
B. S. in Mining Engineering, University of Kansas, 1916
Thesis: On the Physics of Ore Flotation

Charles Denham Grier
B. S., Colorado School of Mines, 1912

Doctor of Philosophy

Thomas Gordon Thompson
A. B., Clark College, 1914
M. S., University of Washington, 1915
Thesis: Preservation of Iron and Steel by Means of Passifying Factors

NORMAL DIPLOMAS

University Life Diploma

Backowkse, Mary
Balkeina, Richard Roy
Barber, David
Barrows, Jeanette Virginia
Batcheller, Elva Leonore
Bessesen, Grace Saydell (Mrs.)
Bickford, Ethel Mary
Bonning, Rose Marie
Bonny, Catherine Aletta
Boucher, Jesse Louis
Brenneshefs, Catherine Willson
Burckeliner, Florence
Crosier, John Louis
de Tourville, Andray
Dougherty, Dola May
Drotsing, Theodore Melvin
Ekins, Bess Dacotah
Finery, Ethel Anna
Firth, Mildred
Fowler, Louise Hobson
Gabbert, Gertrude Marguerite
Griffin, Hazel Belle
Hall, Eva Rachel
Hamilton, Juanita
Helmiller, Winifred Johnson (Mrs.)
Hunt, Marguerite Jean

Hunter, Gordon Chester
Irvine, Marguerite Isabel
Jacobson, Ross Ethel
Knapp, Doris Ethel
Lotfield, Gabriel
Mearns, Edith Helena
Morrison, Beulah Mae
Myers, Margaret
Neighbors, Nancy Colla
Olson, Jennie Alma
Paige, Susie Boone
Petithone, Louise Anita
Reavis, Nan Preston
Riddle, Helen Jane
Rochester, Lettie Lee
Roe, Nellie Virginia
Slemens, Margaret
Silton, Edith
Stahl, Eleanor Elizabeth
Stevenson, Janet Elizabeth
Stuart, Zora Althea
Sweet, Elsie Sears
Waite, Nettie Marguerite
Waldrip, Sarah Pauline
Wharton, Verna Marie
Woods, Arra Jane

University Normal Diploma

Adams Frances True
Adams, Violet Beatrice
Agassiz, Mary Florence
Aitchison, Irene
Arthur, Agnes
Baker, Alice Harriet
Baker, Ella Graham
Bartley, Georgia Lulu
Bennett, Helen Merta
Bruggerhoff, Anna Marie
Buhrnade, Catherine
Bushnell, Helen
Calloway, Gertrude
Cameron, Marion Brownlee
Carlson, Agnes Naomi
Chandler, Elsie Rose
Church, Maria Madera
Combs, Ualila Ruth
Cooper, Evelyn Frances
Culliton, Elaine Clasier
Cox, Mida
Desmond, Margaret Rose
Dickinson, Lois Atherton
Draper, Elizabeth
Eber, Pauline
Eppomar, Frank
Fay, Helen Frances
Fleming, Eline
Fleming, Eloise
Foreman, Leotta Marie
Francis, Violet Eloise
Fraser, Alice Rosen
French, Irma
Freyd, Florence Sarah
Gates, Louise Margaret
Gearhart, Esther
Gerriets, Anna
Gilbert, Lois Marion
Good, June
Goodman, Leo
Gresham, Marie Cole
Hamilton, Alene Ames
Hartmann, Edna Anna
Haugun, Cora James
Hernan, Helen
Holman, Zelma Leone
Holmes, Anne Matilda
Hosmer, Ruth Rachel
Hutchinson, Fanry Ethlyn
James, Jeannette
Jeans, Mildred
Johnson, Martha Regina
Johnston, Violet Kathleen
Kelsey, Louise
DEGREES

Kelton, Viola
Kudron, Esther
Koren, Helen Marie
Krauschnable, Mercedes Ethel
Larson, Esther Mildred
Lawson, Peninnah Belle
Lasby, Ruth Margaret
McCull, Nellie Natalie
McFee, Jean
McLaren, Gay Elizabeth
Mackey, Cora Lois
Manson, Gladys
Marah, Constance Ardena
Maston, Norma Claire
Malkid, Mildred Eunice
Meyer, George Frederick
Michael, Sadie
Middleton, Una Belle
Miller, Margery Marie
Moe, Nettie Amelia
Moffet, Edith Pauline
Moore, Alice Irene
Myer, Edna Marguerite
Nelson, Adeline Roberts

*Parker, Frances Estella
Pollard, Bertha hrastine
Price, Frances Mary
Proctor, Mabel Esther
Quast, Ruth Iola
Robinson, Basalo Veryl
Rohl, Gertrude Emilie Bertha
Russell, Beulah Henrietta
Russell, Flora Wilhelmina Emma
Sater, Gertrude Pauline
Sharpe, Ruth Cole
Shumway, Antoinette Elizabeth
Simonds, Esther
Simpson, Helen Margaret
Slack, Jean Gertrude
Smallwood, Gladys Nelsine
Smith, Virginia Florence
Stilson, Lenore Alice
Sundquist, Leonia Marie
Swegle, Adele Mae
Taylor, Dorothea
Tucker, Ruth Elisabeth
Van Engelen, Jannie
Weitzel, Besse
Wells, Florence Aurelia

DEGREES CONFERRED JULY 27, 1918

BACHELOR DEGREES

COLLEGE OF LIBERAL ARTS

Bachelor of Arts

Allison, Weaver Judson
Bemis, Catherine M.
Brewster, Helen Gertrude
Brooks, LeRoy Wagar
Campbell, Ernest William
Cranham, Margaret
Freyd, Max
Haecker, Mary M.
Harris, Olive Mildred
Jacobs, Isabel
Laney, Francis Willard
Leighton, Ada Beach

Linder, Muriel
Lund, Katharine Louise
McKee, George Max
McKinney, Grace Matthews
McKnight, John Emmett
Marot, Ada Beach
Matheson, Katherine
Mitchell, Neva Isabel
Parker, Catharine Anna
Shepherd, Paul Clark
Tower, Pearl Adelia

COLLEGE OF SCIENCE

Bachelor of Science

Brown, Hari Theodore
Butcher, Bessie R
Hughes, Anne

Little, Edward Milton
McDonald, Maryma
Sanden, Arthur Gustav Andrew

Bachelor of Science in Home Economics

Bell, Doris Lillian
Brooks, Mildred

Dodge, Alice
Hills, Arnetta

COLLEGE OF EDUCATION

Bachelor of Education

Bowden, Henrietta Lois

Kohlmz, Marjorie Xavier

LIBRARY SCHOOL

Bachelor of Arts

Holman, Norma Burnett

COLLEGE OF ENGINEERING

Bachelor of Science in Chemical Engineering

Charles, Perry Lloyd

Fukumra, Taziko
Bachelor of Science in Civil Engineering
Driscoll, Thomas, Jr. Moone, Talcott

Bachelor of Science in Electrical Engineering
Chin, June Koo Larson, Axel Martin

Bachelor of Science
Ayres, Harry Warner

Pharmaceutical Chemist
Ayres, Harry Warner

Bachelor of Laws
Bosarth, Claudia A. Peterson, Julius E. Van Slatte, Eloise Ward, Frank Donlan

GRADUATE DEGREES
Master of Arts
Rose Marie Boening (History)
A. B., University of Washington, 1918
Thesis: The History of Irrigation in the State of Washington

Anna Elinora Brakel (Philosophy)
A. B., University of Washington, 1917
Thesis: The Common Ground of Mechanism and Vitalism

Genevieve Elizabeth Caffrey (Education)
B. S., University of Washington, 1916
Thesis: English in the High School from the View Point of the College Student

David Wellington Freeman (Education)
A. B., Drake University, 1903
A. M., Drake University, 1904

Bernard Freyd (Philosophy)
A. B., University of Washington, 1916
Thesis: Problem of Truth in the Light of Modern Logic

Arthur Stanley Gist (Education)
B. Ed., University of Washington, 1916
Thesis: A Concrete Study in Vocational Guidance of Pupils in the Grammar Grades

Robertson Riley Hollingsworth (Education)
A. B., University of Washington, 1915

David Hurwich (Economics)
B. S., University of Washington, 1917
Thesis: A consideration of War Finance with Analysis of the American Financial Measures of the First Year of the Great War

Walter Edmund Squire (Psychology)
A. B., University of Washington, 1918
Thesis: A Study of Motor Controls

William Neill Whitelaw (Political Science)
A. B., Yale University, 1896
LL. B., Kansas City School of Law, 1905
Thesis: Political Reform and Constitutional Amendment in Washington

Ella Wintler (German)
A. B., University of Washington, 1910
Thesis: Goethe's Interest in English Literature as Reflected in His Letters
DEGREES

Master of Science
Gordon Luther Cave (Chemistry)
A. B., Bates College, 1918
Thesis: Arc Processes for Nitric Acid; a Fragment of the History of Chemistry

Katherine Euan Ludgate (Psychology)
A. B., University of Washington, 1917
Thesis: Standardization of Some Performance Tests Among School Children

Clinton Louis Utterback (Physics)
B. S. in E. E., Purdue University, 1909
Thesis: Transmission of Colored Light Through Fog

NORMAL DIPLOMAS

University Life Diploma

Balsden, Leo Bernard
Beckham, Leone Mary
Bowden, Henrietta Lois
Bunch, Agnes
Carroll, Joseph Douglas
Coates, Frank Carl
Cox, Lolo L.
Drake, Ethel
Evans, Florence Bapte
Fisher, Charlotte Lucile
Garland, Martha
Harris, Laura Loretta
Hong, Nils Joseph
Hood, Mary Elizabeth McClure
Hughes, Anna
Hutchinson, Pearl Irene
Imes, Henry T.
Johnston, John Earl
Johnson, Ralph C.

Johnson, Ruth Frances
Jones, Lula Ione Mower
McCookie, Mae Diana
McLean, Dolly
Marston, C. May
Moore, Helen Southard
Peterson, Frank William
Platner, Evelyn Idessa
Pressley, Margaret Thanum
Bambo, Florence Maude
Shawler, Florence
Smith, Linna Pauley
Smith, Marie Caroline
Stoner, Lillian Vans
Swope, Helen Eugenia
Tomlinson, Margaret
Trenholme, Lottie
Wilbur, Alvira

University Normal Diplomas

Adams, Lucile Elizabeth
Allison, Weaver Judson
Beaven, Grace May
Bell, Doris Lillian
Belcher, Helen
Brown, Earl Theodore
Butcher, Bessie Elizabeth
Carney, William Harvey
Connors, Edna Eliza
Eills, John Boyd
Elmore, Roma Marie Sartoris (Mrs.)
Fulkoff, Anna Lena (Mrs.)
Flint, Lola E. A.

Jacoba, Isabel
Little, Edward Milton
Lund, Katharine Louise
McDonald, Claire
MacPherson, Lexie
Nelson, Helen
Parker, Catherine Anna
Starr, Beatrice Evangeline
Steendahl, Anna Serine
Tift, Lillian Bryce
Vining, Marie
Vinsonhaler, Sara Rea
Wilson, Evelyn
SCHOLARSHIPS AND PRIZES AWARDED

June 15, 1918

The Judge Alfred Battle Debating Prize of $75.00
John Main Coffee and Donald John Coleman

The Philo Sherman Bennett Essay Prize of $25.00
Not awarded 1918

The E. F. Blaine Oratorical Prize of $100.00
Awarded to the University of Oregon

The Columbia University Fellowship of $250.00 in
Mining, Engineering and Chemistry
Stanley Lougheed Handforth

The Judge Kenneth Machintosh Debating Prize of $75.00
Not awarded 1918

The N. Paolella Gold Medal for Excellence in Italian
Emily Hall

The Allen Dale Debating Club
Not awarded 1918

The Isabella Austin Memorial Scholarship for a Freshman Woman
Kathryn Barnhisel

The Edwin A. Jaggard Law Essay Prize of $50.00
Not awarded 1918

Men's Freshman Latin Prize of $50.00
Not awarded 1918

Sophomore Latin Prize of $25.00
Ruth Mayes and Gladys Lucile Smith

The University State Bank Prize of $25.00
William Emanuel Johnson

The Judge Thomas Burke Prize of $35.00 for Excellence in French
Sarah Patience Sutton

The Judge Thomas Burke Prize of $15.00 for Excellence in French
Dorothy Helen Chesley

The Loretta Donny Fellowships
Minnie Lorna Johnson (History)
George Frederick Meyer (Education)

Fellowship in the College of Mines and
the Seattle Station United States Bureau of Mines for 1918-19
Earl Roscoe Wilcox

The Mars Fellowship
Not awarded 1918
<table>
<thead>
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<th>Name</th>
<th>Address</th>
<th>City</th>
<th>State</th>
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<td>WA</td>
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<td>Montesano</td>
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Andrews, LaMar Bert .................. Spokane
LD, Bus .......... 5043 16th Av NE—Ken 1879
Andrews, Spencer Selden ... Walsenburg, Colo
LD, For ...... 5048 18th Av NE—Ken 1879
Andrews, Jacob ...................... Seattle
LD, Bus .......... 4728 15th Av N—Cap 2249
Ange, Herbert Grant ............ Shelton
LD, Bus .......... 4533 18th Av NE
Angove, Clarence Y .............. Seattle
LD, Bus .......... 4725 15th Av N—Cap 2249
Angst, Ernest Clement ... Chehalis, RFD 3
LD, Sc'l .......... 4702 10th Av NE
Annett, Winnifred .............. Hoquiam
LD, Bus .......... 4561 Univ Blvd—Ken 501
Anthes, Cora L .................... Everett
UD, FA .......... 4704 18th Av NE—Ken 119
Apill, Harold Cooper ............ Bellingham
Usc, LA .......... 5325 Univ Blvd—Ken 618
Applegate, Lindsay Moritz ... Harrington
LD, Sc'l .......... 4740 18th Av NE
Aral, Clarence Takeya .............. Seattle
LD, CE .......... 126 Prefontaine—W 649
Archer, August Charles ........ Seattle
LD, ME .......... 2511 9th Av W
Archer, Helen ...................... Seattle
LD, Av .......... 4740 11th Av—Cap 2278
Arcehy, Dean ...................... Seattle
LD, Bus .......... 2120 E 47th—Ken 1176
Arckley, Helen Loisina .......... Tacoma
LD, Sc'l .......... 4647 Univ Blvd—Ken 1004
Arland, Sylvia Josephine ...... Montesano
LD, LA .......... Lewis Hall—N 132
Armant, Leroy Frederick .......... Seattle
LD, Sc'l .......... 1416 11th St
Armstrong, Ruth A .............. Seattle
LD, LA .......... 4930 11th Av NE
Arnold, Esther ................. Seattle
UD, Ed .......... 5010 9th Av NE—Yakima 4413
Arnstein, Elisa ................. Seattle
LD, LA .......... Arnold, Eugene Kirkman ........ Seattle
LD, Min .......... 9038 Arrowworth Av
Arnold, Marjorie .......... Portland, Or
LD, LA .......... 5004 Univ Blvd—Ken 298
Arnold, George Philbrook .... Seattle
LD, Ce .......... 126 Prefontaine—W 649
Arnold, Ruth Louise ............ Seattle
LD, FA .......... 5014 15th Av NE—Ken 1714
Arthan, Betty .......... Seattle
LD, FA .......... 5004 15th Av NE—Ken 298
Armussen, August Julius .......... Seattle
LD, LA .......... 6211 16th Av NE
A. S. U. W .......... Commerce Hall—Lee 49
Auld, Willis R ................. Seattle
Usc, LA .......... 5101 9th Av NE—Yakima 3413
Arnold, Elizabeth .......... Seattle
LD, FA .......... 1508 Hope Bldg
Blad, Ardla L ................. Olympia
UD, FA .......... 1421 E Valley—E 3963
Balmer, Albert .......... Interlaken, Switzerland
Sp, LA .......... Seattle YMCA
Balmer, Mary Betty ............ Seattle
LD, FA .......... 782 Belmont Pl
Balluff, Lewis Blakburn .... Seattle
LD, Min .......... 5249 19th Av NE
Balzer, Eugene Christian .... Seattle
Grad .......... 2280 W 65th St
Banes, Grace Marie .......... Seattle
LD, FA .......... 4750 21st Av NE—Ken 1409
Banister, Helen Dorn ............ Winthrop
LD, LA .......... 510 E Mercer—Cap 303
Banks, Hilda Thomas .......... Seattle
LD, LA .......... 5907 15th Av NE—Ken 2065
Bannwarth, Charles Gustave ....... Seattle
LD, Bus .......... 6218 Univ Blvd—Ken 8169
Bar, William Lawrence ........ Seattle
1st Law .......... 1515 E Madison St—E 5901
Barbee, Harry James ............. Seattle
Usc, EE .......... Stonybrooke Club, Campus—N 55
Barbee, Pericot E .............. Belltown
LD, LA .......... 2408 N 45th St
Barbee, William Lee .......... Seattle
UD, EE .......... 1111 40th Av NE—E 3270
Barker, Frank Clayton .......... Seattle
LD, Min .......... 4719 16th Av NE—Ken 927
Barclay, Charles Paul .......... Seattle
LD, LA .......... 4504 16th Av NE—Ken 647
Barclay, Elizabeth .......... Tacoma
LD, LA .......... 4508 10th Av NE—Ken 2768
Bardos, Otto Wathne .......... Blaine
UD, LA .......... 4605 16th Av NE—Ken 308
Barker, Stella ................. Seattle
LD, LA .......... 4520 21st Av NE—Ken 2600
Barton, Herbert ............. Tacoma
Ld, Sc'l .......... 4714 Univ Blvd—Ken 2335
Barnes, Gladys A ............ South Prairie
Usc, FA .......... 4425 4th Av NE—N 8743
Baxner, John Claus .......... Seattle
LD, EE .......... 1500 Nob Hill Av—QA 1351
Bass, Florence ................. Seattle
LD, LA .......... 4703 31st Av S
Bailey, Harriette Ruth ...... Seattle
LD, Bus .......... 610 58th Av—E 8277
Bailey, James Marion .......... Seattle
LD, LA .......... 1922 Queen Anne Av
Bailey, Nora Elizabeth ........... Elma
Rd, FA .......... 4514 10th Av NE
Bailey, William Locke .......... Seattle
LD, LA .......... 4541 14th Av NE—Ken 1058
Baird, Elizabeth .......... Seattle
LD, LA .......... 5020 10th Av NE—Ken 2124
Baird, Lloyd Tallmadge .......... Seattle
LD, Bus .......... 2711 32d S
Bakeman, Frances Louise ...... Snohomish
UD, Ed .......... 6516 12th Av NE—Ken 2741
Baker, Charity Forwell .......... Seattle
LD, LA .......... 4822 Graham St—Rain 104M
Baker, Dorothy Ada ............. Seattle
LD, Sc'l .......... 5209 Brooklyn Av
Baker, Florence A................. Seattle
LD, Sc'l .......... 1105 Summit Av N
Baker, Morton Charles ........ Seattle
LD, Bus .......... 4520 21st Av NE—Ken 2000
Baker, Ruth Evangeline .......... Tacoma
LD, Sc'l .......... 4752 21st Av NE—Ken 25
Baker, Samuel Garland .......... Tacoma
LD, Ch E .......... 4760 21st Av NE
Baldus, Daniel L .............. Seattle
Sp, Sc'l .......... Seattle YMCA
Baldwin, David E ........ Cedarhurst
UD, Bus .......... 5048 18th Av NE—Ken 1879
Ballinger, Douglas Trumbull ...... Seattle
LD, Bus .......... 5218 Univ Blvd—Ken 8169
Ball, Ida L .......... University—E 3963
Barber, Robert Willard ...... Yakima
Usc, WA .......... 67th and Palantine Av
Barlow, Pearl ................... Seattle
Ld, FA .......... 4742 18th Av NE—Ken 306
Barnes, Eliza Theresa .......... Seattle
LD, FA .......... 1010 E Republican St—Cap 1232
Barnes, John Marjorie ........... Seattle
LD, FA .......... 4742 18th Av NE—Ken 306
Barnes, Robert .................... Seattle
LD, FA .......... 1010 E Republican St—Cap 1232
Barnes, William Frank .......... Seattle
LD, FA .......... 4710 10th Av NE—Ken 1085
Ayres, Katherine Mary .......... Seattle
LD, Sc'l .......... 1460 28th Av—E 5624
Ayres, William B .............. Seattle
LD, Sc'l .......... Lewis Hall—N 162
Bach, Roy Odell .......... Seattle
UD, EE .......... 4113 7th Av S
Bachelor, Richard Willard ....... Oakville
LD, Bus .......... 4724 9th Av NE—Ken 2919
Bachus, William Frank .......... Seattle
LD, Or .......... 4505 Univ Blvd
Bacher, Gladys A .......... South Prairie
Usc, FA .......... 4425 4th Av NE—N 8743
Bachr, Jno. Claus .......... Seattle
LD, EE .......... 1500 Nob Hill Av—QA 1351
Bass, Florence ................. Seattle
LD, LA .......... 4703 31st Av S
Bailey, Harriette Ruth ...... Seattle
LD, Bus .......... 610 58th Av—E 8277
Bailey, James Marion .......... Seattle
LD, LA .......... 1922 Queen Anne Av
Bailey, Nora Elizabeth ........... Elma
Rd, FA .......... 4514 10th Av NE
Bailey, William Locke .......... Seattle
LD, LA .......... 4541 14th Av NE—Ken 1058
Baird, Elizabeth .......... Seattle
LD, LA .......... 5020 10th Av NE—Ken 2124
Baird, Lloyd Tallmadge .......... Seattle
LD, Bus .......... 2711 32d S
REGISTER OF STUDENTS

Brown, Dorothy .......................... Mount Vernon
LD, Sci. .................. 2150 E 47th St—Ken 1176
Brandenthal, Anthony Arthur ............. Seattle
UD, Bus .................. 47th St—22514
Bramhall, Eugene hubert .................. Wallace, Ida
LD, Ch E .................. 5218 Univ Blvd
Brandstrom, Axel, John Felix .......... Mount Vernon
UD, Sci. .......................... 1218 N 4th St
Brundvik, John .................. Seattle
LD, ME .................. 1201 James St—Ell 483R
Bratcher, Estey .......................... Pomeroy
Unc, Ed .................. 5203 18th Av NE—Ken 1253
Bruce, Ida Gladys .................. Fayette, Ida
Unc, Ed .................. 5203 18th Av NE—Ken 1253
Brittain, James Theo .................. Seattle
Unc, Bus .................. 4631 Brooklyn Av
Brown, Paul L .................. Edwall
LD, EE .......................... 1107 E 47th St
Brawman, Minnie .................. Spokane
LD, Ed .................. 1815 E Alder—E 2232
Brauer, Nancy Everett ........ Livingston, Mont
LD, Sci. .......................... 4704 18th Av NE—Ken 110
 Brazier, John M .................. Seattle
LD, Bus .................. 4503 Univ Blvd—Ken 230
Buh, Helen Louise .................. Seattle
LD, LA .................. 4530 Univ Blvd—Ken 2496
Bregan, Samuel McClure ........ Seattle
LD, Sci ................. 4305 16th Av NE
Burns, Harold Frank ........ Olympia
Sp, Sci. .......................... 4507 24th
Brickell, Charles Bruce ........ Seattle
LD, LA .................. 1523 E 63d St—Ken 2622
Briel, Alfred J ......... Olympiad, Mont
LD, Bus .................. 4973 Olympic Pk—Q 1895
Bringhurst, Alice Constance ........ Seattle
LD, LA .................. 532 18th Av—E 2014
Britton, Hazel .................. Seattle
LD, Bus .................. 70th St—Rain 4153
Britton, Merrill Wilma .................. Seattle
LD, FA .................. 321 17th Av—E 8086
Brockman, Fred Williams ........ Seattle
Unc, Sci. .......................... 1650 65th St—Rain 4153
Brockman, Mathes .................. Seattle
LD, LA .................. 4207 4th Av NE—N 1977
Brockman, Raymond ........ Seattle
LD, Sci. .......................... 4207 4th Av NE—Q 1977
Brockman, Thelma Frances ........ Seattle
LD, LA .................. 6200 Olympic Pk—Q 1895
Brockow, Bernice .................. Stanwood
LD, LA .................. 2233
Brokaw, Charles Alfred ........ Townsend, Mont
LD, EE .................. YMCA
Brokaw, Marlen .................. Tacoma
LD, LA .................. 4742 18th Av NE—Ken 2253
Brokaw, Verena .................. Stanwood
LD, LA .................. 4714 Univ Blvd—Ken 2253
Brouette, Belle Marie ........ Seattle
Sp, FA .................. 1721 35th Av—E 2616
Brown, Beatrices .................. Seattle
LD, ED .................. 5035 11th Av NE—Ken 2103
Brown, Bedford Jr .................. Spokane
LD, LA .................. 4532 18th Av NE—Ken 2257
Brown, Clarice Evangelene .......... Seattle
Unc, LA .................. 1601 Palm Av—W 144R
Brown, Dorothy G .................. Seattle
LD, LA .................. 934 22d Av N—E 2308
Brown, John .................. Seattle
UD, Sci. .......................... 3609 45th St—Rain 4153
Brown, Thelma .................. Seattle
LD, Ch E .................. 4504 16th Av NE—Ken 467
Brown, Edith Olivia ........ Friday Harbor
LD, Sci. .......................... 4706 18th Av NE—Ken 2226
Brown, Hildreth waco .................. Seattle
LD, Bus .................. RFD 7
Brown, Ford Keeler .................. Seattle
UD, LA .................. 8609 Weedon Pl
Brown, Joseph .................. Seattle
LD, Sci. .......................... College Hotel—N 9
Brown, James Leonard .......... Saskatchewan, Can
SC, For ..................
Brown, Lurlina .................. Seattle
LD, LA .................. St Paul Apts—E 2598
Brown, Marguerite .................. Seattle
Sp, Fa .................. 2126 Laurelshade Av—E 4975
Brown, Samuel ............... Seattle
Unc, Bus .................. Clark Hall—N 162
Brown, Stewart Hazelton .......... Port Angeles
Unc, LA .................. 4504 16th Av NE—Ken 467
Brown, William Joseph .......... Seattle
LD, Bus .................. 5235 Univ Blvd—Ken 2496
Bruce, Helen R .................. Seattle
LD, LA .................. 1814 E Republican—E 9212
Bruce, Jane Marie ........ Seattle
Grad .................. 5225 19th Av NE—Ken 40
Broegehoff, Marguerite ........ Seattle
LD, Bus .................. 5225 19th Av NE—Ken 408
Broeggen, Kathryn ........ Seattle
LD, Bus .................. 915 W Garfield—Q 1937
Brugger, Andrew Julius .......... Gresham, Or
LD, CE. .......................... 4203 11th Av NE
Bruin, Dorothy Anita .......... Butte, Mont
LD, Bus .................. 5032 21st Av NE
Bryant, Lucile Swigart .......... Kennewick
LD, LA .................. 4704 18th Av NE—Ken 2119
Buckler, Frank Dodge ........ Seattle
Sp, Min. .......................... Seattle YMCA
Budd, Irene Adair .................. Helena, Mont
LD, Sci. .......................... 4353 18th Av NE—Ken 1429
Buddle, Charles Arthur .......... Blaine
Unc, LA .................. 4518 10th Av NE—N 3467
Budden, Mrs Dorothy Perry .... Seattle
LD, Bus .................. 4518 Univ Blvd—Ken 46
Budden, Frank Wilfried .......... Seattle
LD, Ed, Dorothy Anita ........ Butte, Mont
BR, LA .................. 1601 12th Av—M 1372
Bullard, Russell J ........ Vancouver, B C
UD, Min. .......................... 5235 Univ Blvd—Ken 2118
Burdick, Mildred ........ Seattle
LD, Bus .................. 4730 18th Av NE—S 338
Burgess, Henrietta ........ Seattle
UD, Sci. .......................... 8205 California Av
Burgess, Madeleine .......... Pendleton, Or
Unc, Sci. .......................... 1650 65th St—Rain 4153
Burke, Florence Julia .......... Anaconda, Mont
UD, Sci. .......................... 1208 E 43d St—Ken 2873
Burke, Frederick T ......... Portland, Or
LD, Sci. .......................... 5494 19th Av N—Q 1372
Burke, Howard Mason .......... Walla Walla
LD, Bus .................. 4522 18th Av NE—Ken 227
Burke, James Louis ........ Stockton, Cal
Unc, Ed .................. 5235 Univ Blvd—Ken 2253
Burks, Charles B ........ Waterville
LD, ME. .......................... 2722 10th Av—N—Cap 345
Burlingham, Frank Wilfred .......... Forest Grove, Or
LD, Bus. .......................... 4730 18th Av NE—S 338
Burnham, Esther Elizabeth .......... Bellingham
Sp, Law .................. 8111 Greenwood Av—Bol 1871
Burnett, John Andrew .......... Seattle
LD, CE. .......................... 1811 39th St
Burns, Evelyn Marie ........ Wenatchee
LD, Bus .................. 70th St—Rain 4153
Burns, Frank B .................. Oakland, Cal
Sp, CE. .......................... 4502 12th Av NE—Ken 336
Burnside, Frances .......... Seattle
UD, Sci. .......................... 4732 21st Av NE—Ken 20
Burpee, Margaret Mary .......... Bellingham
Unc, LD. .......................... 1601 E 47th St—Ken 149
Burque, E ................................ Seattle
Sp, ME .................. 8111 Greenwood Av—Bol 1871
Burr, Margaret .......... Seattle
LD, Ed. .......................... Capisco Pts
Burroughs, Jessie Waco .......... Seattle
LD, EE. .......................... 4503 Thackeray Pk—N 549
Burrows, Eleanor Warren .......... Seattle
Unc, Ed. .......................... 4326 15th Av
Burrow, Mildred ........ Seattle
Tacona
Unc, CE. .......................... 5012 10th Av NE—Ken 3227
Burson, Paul .................. Seattle
LD, Bus .................. 1918 6th Av—Q 2249
Burton, Jennie L. ................................... Seattle
UD, Ed. ................................................. 4713 14th Av N—Ken 2198
Burton, Ruth ....................................... Long Beach, Cal
LD, LA ................................................. 4551 Univ Blvd
Bush, Florence ...................................... Burlington, Vt
UD, Ed. ................................................. 4714 Univ Blvd—Ken 2253
Bush, Lyle Kenneth .................................. Bay Center
LD, LA ................................................ 4108 Sunnyside Av—N 1414
Busse, Arthur Emil .................................. Seattle
LD, Ch. E .............................................. Warren Av
Busselle, Burdette Brooklyn ...................... Tacoma
LD, Bus ................................................. 4714 Brooklyn Av—Ken 1170
Butt, Ferdinand Hincley ........................... Tacoma
UC, CE ................................................... 5009 N 44th St
Butler, Judson Rea .................................. Burton
LD, Bus ................................................. 4503 Univ Blvd—Ken 230
Byars, Alfred T. .................................... Goldendale
Byerly, Oliver Finley ................................ Fortland, Or
LD, For ............................................... 5225 Univ Blvd
Byles, Helen ......................................... Bellingham
LD, LA .................................................. 4714 Center Blvd—Ken 4965
Byrne, L Thaddeus ................................... Seattle
LD, LA .................................................. 1917 Boren Av—Ell 2741J
Byrd, Evelyn Lenore ................................... Burns, Or
LD, Bus .................................................. 1919 14th Av—Ken 119
Byrne, Mary Virginia .............................. Seattle
LD, LA .................................................. 905 Boylston Av—E 1503

Cade, Ralph Arthur .................................. Kirkland
LD, MS .................................................. Black 451
Cage, Mary .......................................... Seattle
LD, LA .................................................. 312 5th Av—E 7034
Cal, Ray Carlyle ....................................... Wenatchee
LD, Bus ................................................. 4305 15th Av NE—Ken 720
Calhoun, Douglas Millers .......................... Seattle
LD, Bus .................................................. 3825 Albin Pl
Calma, William Josephine ......................... Walla Walla
LD, LA .................................................. Clark Hall—N 262
Caldwell, Elsie Georgiana ........................ Seattle
LD, LA .................................................. 1108 76th St
Caldwell, Gladys Lillian ........................... Seattle
LD, LA .................................................. 1104 41st Av N
Cameron, Howard ..................................... Seattle
LD, LA .................................................. 4102 50th Av NE—Ken 3022
Cameron, James A. ................................... Dayton
LD, Ch. E ............................................... 2120 B 47th St—Ken 1170
Callow, Doris ......................................... Elma
LD, Sc. .................................................. 4125 Brooklyn Av—N 39
Callen, Helen Ruth ................................... Seattle
LD, Ed. .................................................. 6530 19th Av NE
Calvert, Lawrence C. ............................... Kirkland
LD, Bus .................................................. 2120 B 47th St—Ken 1170
Calwell, Emmett ..................................... Seattle
LD, Ch. E ............................................... 5243 19th Av NE—Ken 8460
Cameron, Donald William ......................... Seattle
LD, LA .................................................. Alice Arm, B O
Cameron, Marion Phyllis ......................... Yakima
LD, Sc. .................................................. 4764 16th Av NE—Ken 341
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LD, Sc. .................................................. 515 Bell St—Ell 4607J
Carroll, Mrs Luetta Dorothy ...................... Seattle
LD, Sc. .................................................. 5007 10th Av NE—Ken 2875
Casady, Dorothy Catherine ...................... Seattle
LD, Ed. .................................................. 508 N 62d St—Sail 3075
Cato, George ........................................ Tucumcari
Uc, LA .................................................. 1718 Minor Av
Cathcart, Civilian .................................. Spokane
LD, LA .................................................. 500 N 62d St—Sail 3075
Cattlin, Byrdean Yena ............................. Seattle
LD, Sc. .................................................. 4738 16th Av NE—Ken 3282
Cattley, Eunice Marie .............................. Bend, Or
LD, LA .................................................. 4824 Univ Blvd—Ken 721
Cattlin, Mildred ..................................... Seattle
LD, Ed. .................................................. 4015 Meridian Av
Cayley, Margaret ................................... Seattle
LD, LA .................................................. 1451 13th Av—B 5641
Chamberlain, Jack S. ............................... Kirkland
Unc, Ed. ............................................... Kirkland—Black 441
Campbell, Florence Elizabeth .................... Chelan
UD, LA .................................................. Clark Hall—N 232
Campbell, Jean Allison ......................... Bremerton
LD, LA .................................................. 5075 Rainier Av—Rain 123M
Campbell, Lauralee Alvin ......................... Knoxville, Ia
UD, Sc. ............................................... Barracks Square, Campus
Campbell, Mary Helen ............................. Seattle
UD, LA .................................................. 5557 Campbell Pl
Campbell, Mary Helen ............................. Seattle
LD, LA .................................................. 1403 17th Av—E 4518
Campbell, Arthur T. ............................... Seattle
LD, LD .................................................. 1129 21st Av N
Campbell, Virginia ................................ Seattle
LD, Ed. .................................................. 1522 Taylor St
Campion, Cyrus Ranks ................................ Seattle
LD, LA .................................................. 4850 21st Av NE—N 1300
Capes, Douglas Elwood ............................ Vancouver
LD, LA .................................................. Multi Club, Campus
Carey, Henry Ames ................................ Seattle
Sp, For .................................................. 1015 Ravenna Blvd
Carl, Ethel .......................................... Seattle
LD, LA .................................................. 1105 47th Av NE—Ken 119
Carlson, Clarence Herbert ....................... Pasadena, Cal
LD, Bus ................................................. 4550 18th Av NE—Ken 3072
Carlson, Wilma Blanche ......................... Fairbanks, Alas
LD, LA .................................................. Clark Hall—N 292
Carman, Josephine Dorothy ...................... Seattle
LD, LA .................................................. 124 29th Av—Bea 783
Carmichael, Paul ..................................... Seattle
LD, LA .................................................. 2809 29th Av NE—Park 922
Carpenter, Mary Jane .............................. Seattle
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Carr, Eva Sabine ..................................... Seattle
LD, LA .................................................. 1105 47th Av NE—Ken 119
Carr, Howard Maynard ............................. Tacoma
UD, Ch. E ............................................... 4500 Univ Blvd—Ken 201
Carrigan, Marian ................................... Seattle
LD, LA .................................................. 4530 Univ Blvd—Ken 2496
Carrington, E St ..................................... Seattle
LD, LA .................................................. 4824 Univ Blvd—Ken 721
Grad .................................................. 5007 10th Av NE—Ken 2875
Carroll, Geneva North ............................. Seattle
LD, LA .................................................. 5004 11th Av NE
Carr, Dean W. ....................................... Seattle
LD, LA .................................................. 2005 47th St—Ken 185
Cassedy, Dorothy Catherine ...................... Seattle
LD, Sc. .................................................. 4850 19th Av NE—N 2658
Cassedy, Dorothy Catherine ...................... Seattle
LD, LA .................................................. Cor Charles and Yakima Sta
Carter, Louis Edward .............................. Seattle
Grad .................................................. 6309 5th Av NE
Carter, Robert Shaylor ............................ Spokane
LD, Sc. .................................................. 5007 10th Av NE—Ken 2875
Carver, Mrs Luetta Dorothy ...................... Seattle
Sp, FA .................................................. 2103 E 54th St—Ken 3065
Casady, Dorothy Catherine ...................... Seattle
LD, Ed. .................................................. 2d Law—6504 19th Av NE—Ken 820
Cate, Phyllis ....................................... Seattle
LD, LA .................................................. 1718 Minor Av
Cathcart, Edith Eleanor ......................... Seattle
LD, LA .................................................. 550 19th Av—B 5712
Cattlin, Byrdean Yena ............................. Seattle
LD, Sc. .................................................. 4738 16th Av NE—Ken 3282
Cathley, Eunice Marie ............................. Bend, Or
LD, LA .................................................. 4824 Univ Blvd—Ken 721
Cattlin, Mildred ..................................... Seattle
LD, Ed. .................................................. 4015 Meridian Av
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LD, LA .................................................. 1451 13th Av—B 5641
Chamberlain, Percy Ira ........................... Seattle
UD, Sc. .................................................. 1427 28th Av
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LD, Sc. ...... 4540 Univ Blvd—Ken 3216
Fey, Anos Charles ........................ Seattle
LD, Sc. ...... 950 20th Av
Fiedler, Reginald Holson ................ Seattle
LD, Bus ...... 1545 16th Av N
Filion, Fred ................................ Port Angeles
LD, LA ...... 6224 19th Av NE—Ken 450
Fitz, Franklin John ......................... Seattle
LD, Pha ...... 2919 W Washington St—Ben 579
Fitz, Mildred Edna ....................... Seattle
LD, Ed ...... 2913 Washington St—Ben 579
Finlay, Dreda ................................ Butte, Mont
LD, Sc. ...... 4298 18th Av NE—Ben 269
Finlay, Sylvia Elfreda ..................... Butte, Mont
UD, LA ...... 1208 43d St
Finnicicm, Ruth .............................. Spokane
Foley, John J. Gertrude ...................... Everett
Fischer, Alden Jackson ................... Seattle
LD, Bus ...... .940 Harvard Av N
Fischer, Grace ................................ Seattle
UD, LA ...... 940 Parkland N
Fish, Walter Harold ........................ Seattle
UD, For ...... 500 E Harrison St—Cap 3426
Fisher, Ernestine Virginia ............. Tacoma
LD, LA ...... 515 11th Av NE—Ken 146
Fisher, Raymond Chandler ................. Tacoma
LD, EE ...... 4520 21st Av NE
Fisher, Roberta Claire .................... Seattle
UD, LA ...... 1023 11th Av NE—Ken 309
Fisher, Walter Clifford .......................... Spokane
Unc, Bus ...... 4503 Univ Blvd—Ken 236
Fiskcn, Marjorie ............................... Seattle
LD, LA ...... 4536 18th Av NE—Ken 1420
Fletcher, Ronald Raymond ................... Spokane
LD, Bus ...... .5035 19th Av NE
Floyd, Lynwood Watson .................... Lewiston, Idal.
LD, LA ...... 2129 E 47th St—Ken 1170
Flandy, Jewel Gertrude .................... Seattle
LD, Sc. ...... 3023 Federal Av—Cap 1205
 Fleming, Bessie Jean ....................... Seattle
Sp, LA ...... 32 17th Av N—B 1297
Flood, Mildred _________________________ Spokane
Sp, LA ...... 4332 Burke Av
Florence, Ruby Jane .......................... Chehalis
UD, LA ...... 500 Main
Floyd, Lillian E. B. Gertrude Walls .......... Seattle
Unc, Sc. ...... 4530 Univ Blvd—Ken 2496
Flumerfelt, Lillian G. .......................... Seattle
Unc, Ed ...... 4000 11th Av NE—N 1183
Foster, Charles Fridolph ................... Seattle
LD, For ...... 5218 Univ Blvd—Ken 3169
Foley, Kathryne ................................ Victor, Mont
UD, Jour ...... Lewis Hall—N 102
Folken, Anna McKInley ...................... Seattle
LD, LA ...... 4508 16th Av NE—Ken 2768
Folk, Mrs Katherine Bartlett .............. Seattle
Sp, LA ...... 3808 11th Av NE—N 3771
Folks, Norma Alice .......................... Parkland
LD, LA ...... 5210 12th Av NE—Ken 1709
Follo, Lila R. ................................. Parkland
LD, LA ...... 5210 12th Av NE—N 1709
Foot, Leone Lavera .............................. Seattle
LD, Bus ...... 4748 19th Av NE—Ken 661
Fouts, Luanda ................................... Portland, Or
LD, Ed ...... 4588 16th Av NE
Foyon, William Thomas ........................ Seattle
LD, Sc. ...... 4750 Brooklyn Av
Ford, Teresa Elizabeth ..................... Seattle
LD, Ed ...... 228 10th Av N—Cap 2692
Foster, George .................................. Seattle
LD, Bus ...... 715 N 40th—N 174
Forrester, Louise D. .......................... Redmond
UD, Ed ...... 4751 19th Av NE—Ken 655
Forster, Carl Emil ............................. Seattle
SC, Min ...... 1717 Boylston Av—E 1907
Forstieck, Helen Whitman .................. Goldendale
LD, LA ...... 4732 21st Av NE—Ken 26
Foster, Russell J. .............................. Seattle
LD, EIE ...... 6108 Goddaw Av—N 2561
Foster, Gilbert Branscombe .................. Spokane
LD, LA ...... 4550 18th Av NE—Ken 3072
Foster, Harry Ellsworth ........................ Seattle
LD, LA ...... 4521 W Washington St—Ken 3169
Fotheringham, Patricia ...................... Seattle
LD, LA ...... .1111 1st Av W—QA 373
Fouts, Marie ................................... Seattle
LD, LA ...... 1910 45th Av SW
Fox, Edna M. ................................ Seattle
LD, LA ...... 1362 32d Av S—B 2405
Fox, Mr. Laura C. ............................. Seattle
Sp, LA ...... 1362 32d Av S—B 2405
Fran, Howard A. ................................ Talent, Or
LD, Bus ...... 824 14th Av NE—Ben 238
Fran, Lawrence William .................... Seattle
LD, LA ...... 6518 Jones Av—N 3726
Francis, Glenn Samuel ........................ Portland, Or
LD, LA ...... 4530 14th Av NE—Ken 555
Francovich, Frank M. ....................... Astoria, Or
Un, Law ..................................
LD, Ed, Mrs. George ............................ Seattle
LD, Bus ...... 4503 Univ Blvd—Ken 236
Frankland, Lilian .............................. Seattle
LD, Ed ...... 4714 Univ Blvd—Ken 2503
Franklin, Alice Virginia ..................... Seattle
LD, LA ...... 133 10th Av N—E 4027
Franklin, Charles Herbert .................. Seattle
LD, Bus ...... 4520 8th Av NE
Frankland, Grace Madgill .................. Montesano
LD, LA ...... 4755 28th Av NE—N 3765
Franks, Howard ......................... Everett
LD, Bus ...... 1363 16th Av NE—E 4027
Fransen, Walter C. ......................... Seattle
UD, CB ...... 1737 Boylston Av
Frazier, Errol H. .............................. Seattle
LD, LA ...... 4904 16th Av NE—Ken 947
Frazier, Lillian W. ............................. Nanaimo, B C
Unc, LA ...... 4123 12th Av NE—N 5379
Fratt, Nicholas D. .............................. Everett
LD, Bus ...... 1363 16th Av NE—E 4027
Frazier, Emil Adelaide ...................... Seattle
LD, LA ...... 4708 10th Av NE—Ken 1292
Frederick, Albert Philip ...................... Seattle
UD, LA ...... 623 Queen Anne Av—QA 3502
Fredericksen, Matthew ..................... Poulsbo
LD, CB ...... 4505 15th Av NE—Ken 720
Fredericksen, Charles .......................... Seattle
LD, Bus ...... 1753 Saunders Pl
Free, Alonzo ................................ Seattle
Unc, NE ...... 5642 42d St SW—W 1219W
Freedlund, Harry A. .......................... Tacoma
LD, Bus ...... 4550 18th Av NE—Ken 3072
Frankman, Vivian Claire ................... Seattle
LD, LA ...... 6116 Delmar Apts—QA 3987
Fred, Alice Virginia Crawford .............. Seattle
LD, LA ...... 4817 15th Av NE—Ken 2088
Frem, Agnes ................................... Seattle
LD, LA ...... 5517 Univ Blvd—Ken 2496
Frem, Mary Elizabeth ....................... Seattle
UD, LA ...... 5517 Univ Blvd
French, Beryl .................................. Prosser
LD, LA ...... 1520 Jackson St—Ben 2188, B
Hoch, Grace ..................................... Portland, Or
LD, LA ........................................... 2012 E 45th St—Ken 2945
Hodge, Homer Hartman ........................ Portland, Or
LD, Sc ............................................. 4542 18th Av NE—Ken 509
Hogan, William F ................................... Portland, Or
LD, LA ............................................. 4542 19th Av NE—Ken 539
Hodge, Walter Hartman .............................. Portland, Or
Ed Law .............................................. 4542 18th Av NE—Ken 559
Hoglund, Louise ................................ Mont
LD, Bus ............................................. 5038 Univ Blvd—Ken 406
Hodges, James Frederick ............................ Portland,
LD, ChE ............................................. 5117 Myrtle St—Rain 8535
Hoff, Herman Armin ................................. Seattle
Grad .................................................. 3293 Boylston Av N—Cap 3441
Hoffman, Bessie ........................... Portland, Or
LD, Bus ............................................. 820 16th Av
Hoffman, Jerome C ............................ Portland, Or
LD, Bus ............................................. 502 16th Av—E 7015
Hoffman, Ruth ......................................... Seattle
LD, Bus ............................................. 4039 8th Av NE
Hoffman, H Lee ...................................... Portland,
LD, ChE ............................................. 4121 14th Av NE
Hogg, Jack McHenry ............................ Seattle
LD, Bus ............................................. 2120 E 47th St—QA 501
Hogue, Helen Charlotte .............................. Seattle,
LD, F A .............................................. 4177 18th Av NE—Ken 3185
Holbrook, C Ray ................................... Vancouver
UD, BM .............................................. 4214 10th Av NE—N 3907
Holbrook, Mrs Maude Louise ...................... Seattle
LD, Bus ............................................. 4214 10th Av NE
Holbrook, William Paul .............................. Seattle,
LD, Bus ............................................. 4214 10th Av NE—Ken 3907
Hollenbeck, Dale Gilbert ........................... Seattle
Sp, LA ................................................. 4123 26th Av NE—Cap 2600
Holloway, Albert Cecil ............................. Washington, Kan
Unc, LA ............................................ Le Gite Club, Campus—N 55
Holm, Ellen Marie ................................. Campbell, B C
LD, LD .............................................. 4228 12th Av NE—N 329
Holman, Alice Naomi ............................. Oregon City, Or
LD, FA .............................................. 4504 18th Av NE—Ken 146
Holman, Norma Burnett ............................. Oregon City, Or
UD, LD .............................................. 4504 18th Av NE—Ken 146
Holmes, Frances Louise ............................... Seattle
Grad .................................................. 5020 15th Av NE—Ken 2193
Holt, Lillian Blanche ................................. Seattle,
LD, Bus ............................................. 3783 Burke Av—Ken 2430
Homan, Marion ................................. Hoquiam, Was
LD, LA .............................................. 4551 Univ Blvd—Ken 501
Honey, Frederick Drake ............................. Graham, Or
UD, Bus ............................................. 4505 Univ Blvd—Ken 256
Honeyer, Katherine Moad ............................ Graham, Or
FA .................................................. 4543 Univ Blvd—Ken 659
Howard, Helen Rowena .............................. Puyallup
FA .................................................. 4531 Univ Blvd—Ken 501
Hoover, Helen S ...................................... Everett
Sp, LA ................................................. 2817 Baker, Everett
Hopf, Henry Lloyd .................................. Portland
Sp ................................................. 1502 Westlake Av N
Hopkins, Dorsa Fernald ............................. Seattle,
UD, Lib .............................................. 1001 E Lynn St—M 3975
Hopkins, Ella R ..................................... Des Moines, I A
Grad .................................................. 610 17th Av—E 546
Hopper, George Frederick ........................... Renton
LD, EE .............................................. 4225 10th Av NE—Ken 1103
Hoppkison, Lawrence Tetley ........................ Seattle,
LD, ChS .............................................. Port Lawton
Hopper, Dorothy Wa ................................. Seattle,
LD, LA .............................................. 4523 19th Av NE—Ken 1002
Hopper, George Thomas .......................... Spokane
LD, Bus ............................................. 5235 Univ Blvd
Hopper, Gladys burned .................................. Tacoma
LD, Bus ............................................. 4505 18th Av NE—Ken 333
Horn, Eva Elizabeth ................................. Kelso
LD, LA .............................................. 4738 16th Av NE—Ken 3238
Horsch, George S ..................................... Seattle
Sp, LA ............................................. 211 6th Av E—Main 3750
Horn, Bertram Storey ........................ Tacom
Unc, Bus ........................................... Kivaco Club, Campus—N 55
Horsfall, Powerhouse Bridge, Or
LD, Ed .............................................. 4508 16th Av NE—Ken 2486
Hosmer, Mrs Page Robertson ...................... Seattle
Sp, LA .............................................. 4714 10th Av NE—Ken 2761
Housakos, Lorraine Mont
UD, LA .............................................. 4704 18th Av NE—Ken 1990
Hotelling, Addison Harold .......................... Puyallup
UD, Jour ............................................. 5017 Latona Av
Houghton, John ...................................... Medima
LD, Sci .............................................. 3242 Li ..................................
Portland, Or
Houde, Louise Osscola .............................. Port Townsend
UD, LA .............................................. 4710 Univ Blvd—Ken 1837
Hovey, Ernest John ................................. Tacoma
LD, Sci .............................................. 6044 16th Av NE—Ken 1480
Hovig, Mary C ........................................ Seattle
LD, Bus ............................................. 5042 16th Av NE
Howard, Grace Elizabeth ............................ Seattle
Grad .................................................. N—Cap—Trussler—1960
Howard, Hilda Kellogg ............................. Oakland, Cal
Grad .................................................. 4705 16th Av NE
Howard, Blmer Bernard .............................. Missouri, Mont
UD, LA .............................................. 6218 Univ Blvd
Howe, Harold Maxwell ............................... Seattle,
LD, Bus ............................................. 4414 Meridian
Howe, Kendall Lee ................................. Seattle
LD, ED ................................................ 834 Ewing St
Howell, Emma Louise ................................. Renton
LD, LA .............................................. 4835 18th Av NE—Ken 1429
Howell, Marjorie Merle .............................. Seattle
FA .................................................. 3817 35th Av W—QA 2661
Hugh, Virginia ........................................ Renton
Grad .................................................. 624 Malden Av—Cap 869
Hufnagel, Luzerne ................................. Seattle,
LD, Sci .............................................. 5548 Woodlawn Av—N 3664
Hughett, Dexter Earl .............................. Seattle,
LD, LA .............................................. 4552 12th Av NE—Ken 1913
Hughes, Anne Burke ................................. Seattle
UD, Jour ............................................. 723 19th Av—E 6229
Hughes, Mary Monica ............................... Seattle
LD, LA .............................................. 4304 18th Av NE—Ken 146
Hughes, Nancy E .................................... Lind
U D, Sci ........................................... 4547 Univ Blvd—Ken 1004
Hull, Edith Pearl ................................. Aspca, Or
LD, LA .............................................. 5214 Univ Blvd
Hammer, Helen Belle ................................. Seattle
Unc, LA .............................................. 4534 19th Av NE—Ken 199
Hunsaker, James ................................. Seattle,
Grad .................................................. 4727 Brooklyn Av—Ken 152
Hunsaker, James Wiley ............................. Seattle,
LD, ChS ............................................. 509 ½ Malden Av—Cap 3409
Hunt, Colfax ........................................ Renton
LD, LA .............................................. 4547 16th Av NE—Ken 23
Hunt, Hector McNeill .............................. Seattle
LD, Bus ............................................. 1206 Summit
Hunt, Dorothy Wa ...................................... Seattle
LD, LA .............................................. 3800 9th Av NE
Hunt, Orso Harold .................................... Kennydale
LD, BE ................................................. 4672
Hunt, Pauline Hart .................................... Tacoma
Unc, LA .............................................. 2647 Walnut Av—W 228R
Hunter, Ruth Catherine ............................ McMinville, Or
Grad ................................................. 4704 18th Av NE—Ken 119
Johnson, Elmer William ............... Everett
Johnson, Esther Victoria .......... St Paul, Minn
2d Law ..... 4714 Univ Bld—Ken 2253
Johnson, Evelyn Alice ............. Seattle
LD, LA ..... 4530 Univ Bld—Ken 1040
Johnson, Florence A ............... Seattle
Unc, ScI ..... 904 E Highland Dr—Cap 2548
Johnson, Frank O. ................. Fort Lawton
Johnson, Halton Julius ............ Mount Vernon
LD, ME ..... 4504 16th Av NE—Ken 647
Johnson, Jane Gregg ............... Seattle
LD, LA ..... 4504 18th Av NE—Ken 148
Johnson, Jess ................. Everett
LD, Min. ..... 4718 14th Av NE—Ken 2168
Johnson, John Earl .......... Kalama
Grad ..... 4513 14th Av NE—Ken 512
Johnson, Kenneth Alexander .......... Portland, Or
LD, ScI.Barracks Square, Campus
Johnson, Manly M. ................. Naches
LD, LA ..... 4355 16th Av NE—Ken 720
Johnson, Martha Eleanor .......... Naches
LD, LA ..... 4554 16th Av NE—Ken 3212
Johnson, Minnep Lorna ............. Seattle
LD, ScI.Univ PO Box 746 3784
Johnson, Olaf Hjalmer .......... Seattle
2d Law ..... 904 N 48th St
Johnson, Olive M. .......... Seattle
LD, ScI.Univ PO Box 746 3784
Johnson, Rolf Morris ............ White Salmon
Unc, EB ..... 3807 11th Av NE
Johnson, Rose ................. Buhl, Ida
LD, LA ..... 4098 E 8th St—Ken 088
Johnson, Victor Martin .......... Spokane
LD, LA ..... 4550 18th Av NE—Ken 5072
Johnston, Hazel Blanche ......... Seattle
LD, Bus ..... 3050 6th Av NE—Ken 3501
Johnston, James Franklin .......... Seattle
LD, Ed. ..... 4714 Brooklyn Av—Ken 1170
Johnston, Therese Marguerite .... Seattle
Grad ..... 4538 16th Av NE—N 3122
Joiner, Anna Elmina .......... Anacortes
Grad ..... 4524 19th Av NE—Ken 199
Jones, Adeline P Groves .......... Seattle
LD, LA ..... 2618 22nd Rd N—Cap 2840
Jones, Mrs Alice Dowell .......... Seattle
LD, LA ..... 4354 Univ Bld—Ken 20
Jones, Miss Carroll D ............. Spokane
LD, LA ..... 4531 16th Av NE
Jones, S Dorothy ................. Menlo Park, Cal
LD, LA ..... 4710 Univ Bld—Ken 1857
Jones, Dorothy Marion .......... Carbonado
LA ..... 4350 16th Av NE—N 3162
Jones, Ella ................. Seattle
LA ..... 2115 E 55th
Jones, Floyd Scymour .......... Seattle
Sp, Bus ..... 170 11th Av
Jones, Hazel E. .................. Seattle
LD, LA ..... 4535 18th Av NE—Ken 1429
Jones, Marjorie ................. Seattle
Grad ..... 4718 11th Av
Jones, William James .......... Seattle
Sp, Bus ..... 6751 22d Av NW
Jones, William John .......... Seattle
LD, Bus ..... 4828 22nd Ave
Jones, Zenith Walkins .......... Seattle
LD, LA ..... 4703 18th Av NE—Ken 2826
Jordan, Frances Mayes .......... Maryhill
Unc, LA ..... 6224 Univ Bld
Jorgensen, Marguerita .......... Seattle
LD, Ed. ..... 327 Belmont N—Cap 2231
Joy, Anderson Stickney .......... Seattle
Grad ..... 4587 1st Ave NE
Joy, Arness Tone ................. Seattle
LD, LA ..... 4504 18th Av NE—Ken 146
Juan, Teofil0. .......... Polo Bulacan, Ph I
LD, LA ..... 1521 12th Av S—Ben 1767
Judges, Frederick Byrd .......... Spokan
LD, LA ..... 4700 E 4th St—Ken 3076
Kudwin, Ruth S. ................................. Seattle
Sp, ScI ...... 107 Dorfel Dr—E 8139
Julierat, Leo August .......... Seattle
LD, Ed. ..... 147 N 820
Jurgensohn, Eva ................. Seattle
LD, ScI. ..... 4524 19th Av NE—Ken 199
Juve, Henrik Dahl .......... Enterprises, Or
LD, LA. ..... 4509 Univ Bld—Ken 2002
Juvet, Odel Mark .......... Ferndale
LD, ScI. ..... 4048 12th Av NE
Kager, Garrett .......... Seattle
LD, LA ..... 3620 34th Av W
Kahl, Charles John .......... Spokan
LD, Bus ..... 4506 Univ Bld—Ken 201
Kalin, Albert ......................... Seattle
Sp, EE. ..... 1146 Franklin Av—Cap 1322
Kane, Arthur T. ...................... Edison
LD, LA. ..... 4154 Brookard
Kane, Sadie Frances .......... Seattle
LD, LA ..... 348 16th Av—E 4940
Kane, Mrs Susan M. .............. Seattle
LD, ScI.Univ Campus N 3292
Kaseberg, Mary Elizabeth .......... Walla Walla
LD, ScI. ..... 4524 Univ Bld—Ken 721
Kawazoe, Mina .......... Tacoma
LD, RE. ..... 4039 22nd Av NE—Ken 206
Keator, Frederic William Jr ....................... Tacoma
LD, ME. ..... 4520 21st Av NE—Ken 2000
Keeton, Brilliant ...................... Edmonds
LD, ScI.Univ Campus N 2002
Kelfer, Lyman Beecher .......... Winsap
LD, Ch8. ..... 4305 15th Av NE—Ken 720
Keith, Emily Hazelwood .......... Seattle
LD, LA. ..... 1420 15th Av NE
Kellam, Kathleen Vivian .......... Seattle
Unc, Ed. ..... 4311 Brooklyn Av—Ken 948
Kelch, John Emmett .......... Seattle
LD, LA. ..... 627 11th Av N
Kelley, Cecil Starr .......... Seattle
LD, Ch8. ..... 6806 16th Av NE
Kelley, Martha Eugenie .......... Seattle
LD, ScI.Univ Campus N 2222
Kelling, Vesta Marie. .......... Seattle
LD, LA. ..... 338 E 51st St—Ken 2088
Kellogg, Avis ................. Seattle
LD, D. ..... 6549 19th Av NE
Kellogg, Howard Butler .......... Seattle
LD, ScI.Univ Campus N 1748
Kellogg, Orson Chester .......... Hoquiam
LD, LA. ..... 4521 21st Av NE—Ken 2578
Kelly, Mrs Ruth Haslett .......... Tacoma
LD, LA. ..... 4722 21st Av NE—Ken 2586
Kelly, Samuel P. ................................. Bellingham
Grad ..... 4520 21st Av NE—Ken 2600
Kempter, Belle ......................... Seattle
LD, LA. ..... 1906 E 45th St—Ken 883
Kendall, William Henry .......... Portland, Or
LD, ME. ..... 4506 21st Av NE—E 3210
Kennman, Charles .......... Seattle
LD, LA. ..... 7720 Univ Bld
Kenn, Joel M. ............................... Portland, Or
Unc, LA. ..... 4703 Univ Bld
Kent, Mrs Susan L. .......... Broadway and James Ss
KEppel, Mrs ............................... Seattle
Grad ..... 4069 1st Ave NE
Keranen, George Matthew .......... Brush Prairie
LD, ScI. ..... 4045 12th Av NE
Kerr, Grace Chamberlain .......... Seattle
LD, LA. ..... 2580 18th Av NE—Ken 2002
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REGISTER OF STUDENTS

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McGrew, Edna Lucile ............... Seattle

LD, LA ............. 1317 E 69th St

McGrew, Robert ............. Colfax

LD, FA .................... 2120 E 47th St—Ken 1176

McCullough, John Joseph Jr. Seattle

1st Law .................. 1012 Ravenna Blvd

McCutcheon, Claud Harvey ..... Brinnon

SC, For .....................

McDonald, Alice Gertrude .. Seattle

LD, LA ............. 1847 Ravenna Blvd—Ken 2505

McDonald, Alice Louise ... Seattle

LD, Sci .................. 2200 12th Av N

MacDonald, Ezra ................ Seattle

LD, LA ............. 5206B 14th Av NE

McDonald, James Michael ..... Seattle

Grad .................. 416 Taylor Av

McDonald, Mary Kathryn ... Focatello, Ida

LD, Bus .................. .5534 8d Av W—QA 2589

McDonald, Mayme ............. Seattle

LD, Sci .................. 103 8d Av W—QA 2589

McDonald, Mildred ............. Seattle

LD, Bus .................. 1006 E 45th St—Ken 983

McDonald, Olive ............. Seattle

Unc, Sci .................. 2818 N 41st St—N 702

McDonald, William Lewis ... Seattle

LD, SB .................. 1847 Ravenna Blvd

McDougall, John Brock, Jr. Seattle

LD, Sci .................. 1100 Terry Av

McDowell, John Watson ... Seattle

LD, Sci .................. Bellevue

McDowell, Lola ............. Port Angeles

Unc, LA .................. 4306 Nestilet Av

McFarland, Estie Curtis .... Kelsy

LD, Phr .................. 5212 13th Av NE—Ken 887

McGaffey, Wesley Frederick ... Everett

LD, Grad .................. 2012 E 45th St—Ken 924

McGahn, Ellen Dolores ... Seattle

LD, Phr .................. 5236 Univ Blvd—Ken 658

McGill, Jerauld ............ Seattle

LD, LA .................. 5007 16th Av NE—Ken 647

McGill, Wayne Egbert ...... Portland, Ore

LD, Sci .................. 5213 Univ Blvd

McGirr, Wilma ............. Boise, Idaho

Unc, LA .................. 2849 2nd Av

McGoran, Irene Marlon ... Merritt, B C

FD, LA .................. 1421 13th Av

McGrath, Anna Mae .......... Pomeroy

LD, NE .................. 1516 E Prospect—E 0789

McGrew, Eleanor ............. Seattle

LD, LA .................. 4718 Univ Blvd—Ken 1882

McHugh, Edward Robert ... Seattle

LD, LA .................. 1014 Av—Ken 280

McHugh, John Joseph ... Seattle

LD, SE .................. 2349 Boylston N—Cap 3196

McInnes, John ............. Wallace, Ida

LD, LA .................. 4504 16th Av NE—Ken 860

McInnes, Merrville Wayne ... Spokane

LD, Bus .................. 4533 18th Av NE

McIntosh, Elizabeth ... Seattle

Sp, Ed .................. 306 Nestilet Av

McIntyre, Norman ............ Skykomish

Sp, Law .................. Grand Central Hotel

McKee, Baysie Clay ...... Seattle

LD, NE .................. 1516 E Prospect—E 0789

McKee, George M ............. Seattle

LD, LA .................. 4233 Bagley Av

McKee, Mary E ............. Everett

LD, SD .................. 3660 2nd Av

McKibben, Wilbur Blaine ... Colville

LD, Bus .................. 2120 E 47th—Ken 1176

McKim, James ............ Everett

LD, For .................. Paywall Av—E 0339

McKinley, Edward Vivian ... Wallace, Ida

LD, CH .................. 4746 16th Av NE

McKinney, Grace Keene ... Seattle

LD, LA .................. 2884 16th Av NE

McKinnon, Carl A ........... Enumclaw

LD, CH .................. Castle Club, Campus—N 55

McKinsiry, Hardy Cecil ...... Seattle

Unc, Bus .................. 318 18th Av

McKnight, John E ............. Seattle

Grad .................. 4550 14th Av NE—Ken 555

McLaren, Harold E .......... Seattle

LD, Bus .................. 1300 E Union

McLaughlin, Gay Elizabeth ... Cosmopolis

LD, LA .................. 5013 18th Av NE—Ken 205

McLaughlin, Goldie ........ Seattle

LD, LA .................. 1531 16th Av—E 520

McLean, Elizabeth .......... Tacoma

LD, Bus .................. 4710 Univ Blvd—Ken 1877

McLean, Katherine Kenyon ... Seattle

Unc, Bus .................. 2311 Federal Av—O 2520

McLean, Winifeld Angus ... Seattle

LD, Bus .................. 2216 E Aloha St—E 9224

McLenan, Margaret Isabel ... Seattle

LD, LA .................. 2012 E 45th St—Ken 2645

McLeod, Annabel Jean .... Athens, Or

LD, LA .................. 4614 18th Av—Ken 188

McLeod, Gladys Irene .. Athens, Or

LD, Bus .................. 4514 18th Av—Ken 188

McLeod, Lester Rounds ... Tacoma

LD, ME .................. 4116 10th Av NE—N 3681

McManus, Sarah Catharine ... Fort Worden

Unc, LA .................. 4530 18th Av—Ken 2516

McManus, Hugh Henry .... Seattle

Unc, LA .................. 5811 Terry Av

McMorran, Jean Pauline ... Seattle

LD, LA .................. 5683 28th St NE—Ken 2238

McMorris, Harold Edington ... Seattle

LD, QA .................. 1521 15th Av NE

McMurtry, Nellie Byrd ... Seattle

LD, Ed .................. 4101 11th Av NE

McPhee, Aletha Sophia ... Seattle

Grad, Univ, LA: 4045 21st Av

McPherson, Allain Robin ... Tacoma

Sp, Bus .................. 4616 21st Av—Ken 490

McPherson, Virgil F ......... Whites

LD, Sel .................. 4587 11th Av NE—Ken 3000

McQuon, Nell Lorena ... Twin Falls, Ida

LD, Bus .................. 4735 21st Av NE—Ken 946

McVay, Vilo ............ Seattle

LD, LA .................. 2712 E 47th St—Ken 650

McWatters, Dorothy .... Vancouver, B C

LD, LA .................. 6308 18th Av NE—Ken 1396

McVein, Florence ............. Seattle

Unc, LA .................. 4541 16th Av NE—Ken 2505

McDonald, Anne Lynn ... Tonet, Ok

LD, CE .................. 1616 E 47th St—Ken 149

McDonald, Ernestine Charlotte ... Seattle

LD, LA .................. 6744 22nd Av—Ken 250

Maeda, Munyo ................ Seattle

LD, EE .................. 1020 Main St

Macfarlane, Alan Walter ... Seattle

LD, ME .................. 5214 Univ Blvd—Ken 844

Mackey, Cora Lois ... Everett

Grad .................. 4543 Univ Blvd—Ken 659

Macpherson, Katheryn Fraser ... Seattle

LD, LA .................. 4552 18th Av NE—Ken 1092

Madison, Viola Delphine ... Osborn, Kan

LD, LA .................. 4540 Univ Blvd—Ken 2318

Madison, Albert .......... Tacoma

LD, Phr .................. Colville

Mangunson, Jennie Marie ... Seattle

Unc, LD .................. 4621 19th Av NE—Ken 242

Mangunson, Clarence Edwin ... Tacoma

LD, LA .................. 4550 18th Av NE—Ken 2072

Mangunson, Sidney T .... Point Roberts

Unc, LA .................. Univ Y M C A

Magowan, Hazel M ............ Hot Springs, D

LD, Phr .................. 4534 16th Av NE—N 205

Magowan, Thomas Ross ... Hot Springs, S D

LD, Bus .................. 4583 7th Av NE—N 205

Mahoney, Ethel S ............. Seattle

LD, SD .................. 4728 25th Av—Ken 46

Mahoney, Mary Agnes ... Portland, Or

LD, Bus .................. 3598 Edmunds St—Rain 616J
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Messer, Elisabeth Beatrice.... Rolling Bay
LD, Sci. .... 4564 11th Av NE—Ken 2601
McCabe, Leo George .... La Grande, Or
LD, Sci. .... 4562 8th Av NE—N 1855
Metz, William William .... Hatton
Unc, Bus. .... General Delivery
Meyer, Gladys Emily ....... Yakima
Unc, Sci. .... 4751 Univ Blvd—Ken 3718
Meyer, May E .... Weiser, Idn
UD, LA .... 4564 Univ Blvd
UD, LA .... 3217 23d Av—E 7310
Meyer, Walter Charles .... Ritzville
LD, Sci. .... 5218 Univ Blvd—Ken 5109
Micha, Marie Antoinette .... Seattle
LD, Ed. .... 5247 1/2 14th Av NE
Middletown, Keith Cowper .... Seattle
LD, Bus. .... 1563 17th Av
MilleHam, Beene Liper .... Seattle
UD, LA .... 4230 14th Av NE—N 1774
Miles, Alice .... Seattle
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Miller, Bertha G .... Seattle
LD, Ph. Can. .... 4551 8th Av NE—N 57
Miller, Charles John .... Seattle
Unc, Sci. .... 4112 Eastern Av
Miller, Elroy George .... Seattle
LD, Bus. .... 4104 8th Av NE—N 126
Miller, Esther Jean .... Seattle
LD. ...... 315 35th Av—E 3217
Miller, Fernand Walton .... Battle Creek, Mich
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Miller, Gilbert Alfred .... Kalispell, Mont
LD, ME .... 4503 Univ Blvd—Ken 286
Miller, Gladys Emily .... Yakima
Unc, Sci. .... 4290 5th Av NE—N 262
Miller, Glen William .... Tacoma
UD, LA .... 5043 18th Av NE—Ken 1879
Miller, Helen Marie .... Seattle
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Miller, Herman .... Spokane
LD, Bus. .... 4550 18th Av NE—Ken 2072
Miller, John K Jr .... Seattle
UD, Bus. .... 4719 18th Av NE—N 297
Miller, Katherine Frances .... Seattle
Unc, LA .... 2103 E 45th St—Ken 2945
Miller, Raymond S .... Tacoma
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Miller, Williametta Elizabeth .... Ellensburg
UD, Sci. .... 4045 14th Av NE—N 1804
Millard, Dorothy .... Colfax
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Millen, Lテービル Cookies .... Seattle
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Mills, James Russell .... Monroe
LD, CS. .... 113 E 52d St
Mills, Leslie Donald .... VanRon
LD, EE. ....
Mills, James Donald .... Seattle
Unc, ES. .... 1416 E 41st St
Mills, John William .... Seattle
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Milton, Donald K .... Seattle
LD, ME .... 5285 Univ Blvd—Ken 618
Minor, Mildred Mabel .... Seattle
LD, Sci. .... 783 17th Av NE—E 4061
Minkler, Robert Lee .... Whitefish, Mont
LD, Bus. .... Kachik Club, Campus—N 55
Minkler, WL Dan .... Seattle
LD, LA .... 1720 38th Av
Mitchell, Hiram Sherman .... Astoria, Or
UD, Jour. .... 5043 18th Av NE—Ken 1879
Mitchell, Melba E .... Seattle
LD, LA .... 5237 9th Av NE—N 201
Mitchell, Maize B .... Seattle
UD, Jour. .... 4508 Univ Blvd—Ken 201
Mitchell, Ruby Lee .... Seattle
LD, LA .... 4817 Eastern Av—N 4099
Mitchell, William McGavock .... Spokane
LD, Sci. .... 4506 Univ Blvd—Ken 201
Mitsumura, Isao .... Seattle
Grad. .... 1020 Main St—M 2484
Moberg, Alice Janet .... Mount Vernon
Unc, FA. .... 4714 19th Av NE—Ken 2761
Moe, Douglas Clyde .... Dead
UD, LA .... 4742 18th Av NE
Moeser, Charles Phillip .... Newport
Unc, Bus. .... 1800 E Union St
Mosk, Janet Amanda .... Seattle
LD, EE. .... 809 18th Av
Mohan, Camilla J .... Seattle
LD, LA. .... 304 Lyon Blvd
Mohan, Esther ... 4505 18th Av—S—Ken 368
Mullin, Morris James .... Seattle
LD, FA. .... 2202 25th Av N
Moll, Cyril Arthur .... South Bend
LD, For. .... Castle Club, Campus—N 55
Mollie, Ernestine Elizabeth .... Tacoma
LD, LA .... 4719 Univ Blvd—Cap 3025
Monteagle, Gwendolyn Anne .... Seattle
UD, LA .... 143 39th St N—E 1500
Monteagle, Vera M .... Seattle
LD, LA. .... 5004 18th Av NE—N 226
Montgomery, Florence Edna .... Puyallup
Unc, FA. .... 4501 Univ Blvd—Ken 601
Moore, Byron Carr .... Seattle
LD, Sc. .... 5043 18th Av NE—N 297
Moore, Doris .... Seattle
LD, FA. .... 4502 20th Av NE—Ken 685
Moore, Gerald Edward .... Portland, Or
LD, ME. .... 4505 Univ Blvd—S—Seattle
Moore, Gerald Edwin .... Seattle
UD, LA .... 5043 20th Av—E 7038
Moore, Glenn Allen .... Seattle
Sp, Bus. .... 5044 15th Av NE—N 588
Moore, Lynn Clarence .... Wenatchee
LD, ME. .... 5212 15th Av NE
Moore, Margaret .... Oakland, Or
LD, Sc. .... 5516 15th Av NE—N 297
Moore, Nelle I .... Anacortes
Unc, LA. .... 4710 17th Av NE—Ken 188
Moran, Charles Gilbert .... Seattle
LD, LA .... 4710 17th Av NE—Ken 188
Moran, Mary Anna .... Seattle
LD, LA. .... 4710 17th Av NE—Ken 188
Moran, Jessie .... Seattle
UD, LA. .... 1311 17th Av NE—Ken 188
Morehead, Bruce Walter .... Baker, Or
SC, For. ....
Morehouse, Dorothy .... Seattle
UD, LA. .... 1822 E 55th St—Ken 2332
Morford, Helen Irene .... Seattle
LD, Ed. .... 528 84th Av
Morford, Kenneth James .... Seattle
UD, Bus. .... 528 84th Av
Morgan, William E .... Marysville
UD, For. .... 6083 Univ Blvd—Ken 496
Moritz, Harold Kennedy .... Seattle
LD, ME. .... 4710 Univ Blvd—Ken 201
Morris, Anna .... Seattle
LD, Sci. .... 4042 Latona Av—N 1619
Morris, Lecota Genevieve .... Seattle
UD, Sci. .... 4710 Univ Blvd—Ken 201
Morse, John V .... Seattle
UD, LA. .... 1022 85th St—Bal 4848
Morse, Edmund Cooper .... Seattle
SC, For. ....
Morson, Caroline Jill .... Seattle
LD, LA. .... 5042 18th Av NE—Ken 1740
Sakamoto, Mine .................. Seattle
Ryerson, Hilda .................. Dayton, LA .................. 4524 19th Av NE—Ken 199

Sawanura, Shohei ................ Seattle
LD, Sci .................. 4110 12th Av NE—N 4797

Sawyer, Linda .................. Redmond
LD, LA, LD .................. 5233 18th Av NE—Ken 1787

Schofield, Margaret Catherine .............................. Seattle
Sauers, Arthur .................. Enumclaw

Scotter, Arthur .................. Seattle
LD, Bus .................. 5037 22d Av NE—Ken 1076

Searle, Peter .................. Seattle

Searles, Hubert Bland ................. Tumwater
LD, ME .................. 4783 19th Av NE—Ken 1840

Schuett, Marjorie .................. Seattle

Schroeder, Louie F .................. Bellevue
ULD, MS .................. General Delivery

Schumacher, Edna C .................. Bellingham
Unc, FA .................. 4542 14th Av NE—Ken 1062

Schulz, Daniel .................. Enumclaw

Schumacher, Arthur .................. Seattle
LD, Bus .................. 4532 18th Av NE—Ken 1092

Schuster, William Edward .......... Seattle
LD, BUS .................. 4520 21st Av NE—Ken 2600

Scott, Burton Foote .................. Culver, Kans
LD, LA .................. 4504 18th Av NE

Scott, Byron R .................. TacomA
LD, BUS .................. 4520 21st Av NE—Ken 2600

Scott, Lydia Louise .................. Seattle
LD, Sci .................. 38321 Denamore Av—N 2797

Scott, Margaret .................. TacomA
LD, Bus .................. 4532 18th Av NE—Ken 1092

Scott, Merritt Eugene ................. Bellingham
LD, Ch E .................. 5243 19th Av NE

Schock, Ethel Grace ................. Okanogan
LD, FA .................. 4554 18th Av NE—Ken 3212

Schofield, Margaret Catherine ................. Redmond
LD, LA .................. 5233 18th Av NE—Ken 1787

Schofield, Margaret Catherine ................. Seattle

Schrock, Ethel Grace ................. Okanogan
LD, FA .................. 4554 18th Av NE—Ken 3212

Schroeder, Louise Margaret ................. Seattle
LD, Sci .................. 3610 E Aloha St—Ell 1268

Schoff, Alfred Guy ................. Seattle
Unc, Min .................. 1106 7th Av N—Q 578

Scholfield, Margaret Catherine ................. Redmond
LD, LA .................. 5233 18th Av NE—Ken 1787

Schroedel, Mary Louise ................. Pendleton, Or
LD, LIP, R .................. 1500 E 4th St—Ken 988

Schmack, Katherine Anna ................. Seattle
Unc, Min .................. 1106 7th Av N—Q 578

Schultz, Marjorie Claire ................. Seattle
LD, LA .................. 1233 E Aloha St—Cap 3022

Schultz, William Edward ................. Seattle
LD, BUS .................. 4520 21st Av NE—Ken 2600

Schumacher, Edna C ................. Bellingham
Unc, FA .................. 4542 14th Av NE—Ken 1062

Schussler, Margaret ................. Grandview
LD, BUS .................. 104 E 55th St—Ken 3079

Schuett, Edna ................. Edna

Schofield,一般 ........................... Seattle

Schofield, Margaret Catherine ................. Redmond
LD, LA .................. 5233 18th Av NE—Ken 1787

Schrock, Ethel Grace ................. Okanogan
LD, FA .................. 4554 18th Av NE—Ken 3212

Schofield, Margaret Katherine ................. Seattle

Schroeder, Louis F ................. Edna

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LD, LA .................. 5233 18th Av NE—Ken 1787

Schrock, Ethel Grace ................. Okanogan
LD, FA .................. 4554 18th Av NE—Ken 3212
Sohns, Catherine Wright ... Puyallup
UD, Sc. ... Bx 116 Rf 1, Puyallup
Smith, Somoby ... Exa Litt, Or
LD, FA. ... 4547 19th Av NE—Ken 28
Smith, Edward Mack ... Yakima
LD, MS. ... Stonybrooke Club, Campus—N 85
Smith, Elfreda Barr ... Vancouver
LD, LA. ... 4546 19th Av NE—Ken 589
Smith, Eldred Allen ... Seattle
UD, LA. ... 4510 32d Av NE—Ken 1037
Smith, George Minns Jr. ... Geo ... Seattle
LD, LA. ... 8815 41st Av SW
Smith, Gladys Lucile ...Seattle
UD, LA. ... 1136 33d Av—B 2285
Smith, Graywood Miles ... Seattle
Unc, LA. ... YMCA—N 5308
Smith, Gordon Kroll ... Spokane
LD, Sc. ... 4312 Latane Av
Smith, Grace Horsen ... Seattle
LD, LA. ... Clark Hall—N 385
Smith, John Alland ... Seattle
LD, LA. ... 4505 18th Av NE—Ken 383
Smith, John Henry Bronson ... Seattle
LD, Fr. ... 8098 Symcosore Av—Bel 1449
Smith, Madeline Ellen ... Aberdeen
LD, Sc. ... 420 N 49th St—N 1112
Smith, Margaret Mary ... Fort Dodge, la
LD, Bus ... 6205 39th Av
Smith, Mitchell G ... Seattle
Sp, LA ... 952 E 42nd Av S
Smith, Priscilla Margaret ... Spokane
LD, LA. ... Clark Hall—N 263
Smith, Ralph Ryan ... Seattle
LD, Bus ... 1412 Lincoln Av S
Smith, Sherwood H. ... Seattle
LD, CB. ... 2217 E Newton St—B 4867
Smith, Stanley Laurence ... Seattle
LD, Fr. ... 1112 Woodtawn Circle
Smith, Theodore Castle ... Seattle
UD, BS. ... 7414 Woodlawn Av—Ken 3209
Smith, Truman T ... Seattle
Unc, EEs ... 1305 E 75th St—Ken 608
Smith, Truman W. ... Seattle
LD, Phar ... 4208 11th Av NE—N 2904
Smith, Vernaetta Terryl ... Hoquiam
LD, LA. ... 4505 16th Av NE—Ken 2768
Smyth, Ralph S. ... Seattle
LD, EEs ... 8246 Ashworth Av—Ken 1441
Snapp, John Farrington ... Seattle
LD, LA. ... 1014 18th Av Ken 2627
Snoddy, Esther ... Seattle
LD, LA. ... 4504 18th Av NE—Ken 148
Snoek, Dorothy E. ... Seattle
LD, FA ... 1507 9th Av W—QA 2997
Snow, Iola ... Seattle
LD, Sc. ... 3039 12th Av W—QA 1720
Sprad, M. Dee Deno ... Caldwell, Ida
Unc, Bsc. ... 5226 19th Av NE—Ken 2429
Soellberg, Adene Harriet ... Seattle
LD, LA. ... 4532 19th Av NE—Ken 1082
Soehn, Clifton ... Spokans
Unc, Bus. ... 4505 Univ Blvd
Solberg, Peter Bernard ... Tacoma
LD, BE. ... Kachik Club, Campus—N 65
Solomon, Hyman ... Seattle
LD, LA. ... 1553 8d Av W
Solorio, Benito ... Seattle
Sp, Sc. ... 1404 E 41st St
Solomon, Bona ... Seattle
LD, LA. ... 4504 16th Av NE—Ken 647
Sorenson, Otto Nardahl ... Edmonds
LD, ME. ... 1921
Sorenson, Alexander ... Seattle
LD, LA. ... Clark Hall—N 263
Sossa, Israel ... Spokans
Unc, ME. ... 4614 11th Av NE
Southwick, Glen Harold ... Chelan
LD, Bus ... 4550 18th Av NE—Ken 3072
Spencer, Florence Louise ... Monroe
UD, Sc. ... 9200 Queen Anne Av
Speer, Ernest DeWitt ... Seattle
UD, Ed ... Anchorite Club, Campus, N 55
Spence, Eames Hollister ... Seattle
LD, LA. ... 577
Spencer, Frank Curtis ... Elgin, Or
LD, FA ... 4505 18th Av NE—Ken 338
Spencer, Ruth W. ... Cie Rien
LD, CB. ... 4600
Spencer, Rhodes Vaughn ... Seattle
LD, BE. ... 4289 11th Av NE
Spencer, Robinsons ... Seattle
Grad ... 5604 Brooklyn Av—Ken 1477
Sperry, Emery Franklin ... Yakima
LD, LA. ... 5042 18th Av NE—Ken 1740
Spleth, Daley Marietta ... Seattle
LD, Ed. ... 3216 Bigelow Av
Spongle, Emma A. ... Port Orchard
Sp, Phar. ... College Hotel—N 9
Spring, Delbert Willis ... Seattle
LD, Fr. ... 3268 21st Av NE—Ken 1109
Spring, William ... Seattle
LD, Chs. ... 104 E 45th St
Spring, Irene ... Olympia
LD, LA. ... 4502 20th Av NE
Stalberg, Doris Ethel ... Everett
LD, Phar. ... 4704 18th Av NE—Ken 119
Stapelma, Emma ... Seattle
Unc, Fa. ... 2222 Harvard Av NE—Ken 922
Stangland, Bessie Frances ... Madras, Or
LD, LA. ... Clark Hall—N 282
Stanley, Maxine ... Tacoma
LD, LA. ... 2146 17th Av
Stanton, Edgar Adolphus ... Seattle
Grad ... 4814 48th Av S—Rain 9172
Stara, Joseph ... Seattle
LD, Bus ... 6019 20th Av N
Starker, Caroline Margaret ... Portland, Or
LD, Bus ... 4547 Unly Blvd
Starratt, Ethel Morris ... Fort Townsend
Unc, LA. ... 4518 20th Av NE—Ken 3108
St Clair, Esther Anna ... Silverdale
UD, Ed. ... 4101 11th Av NE
Steinman, Josephine ... Ellensburg
UD, Sc. ... 1615 16th Av—E 1937
Steel, Bonalle Mae ... Fomeroy
LD, LA. ... 4714 16th Av NE
Stevens, Robert ... Seattle
UD, Ed. ... 4832 Vose Av NE
Stellecke, Pearl Acena ... Glasgown, Mont
LD, Ed. ... 4035 16th Av NE—N 1725
Stilnevetz, Harry ... Seattle
Unc, Bus. ... 4030 E Thomas St
Stelling, Anita Marie ... Everett
LD, LA. ... 4119 15th Av NE
Stendal, William Henry ... Eau Claire, Wis
LD, Bus ... 427 Belleveau Av
Stephens, Ruth Elizabeth ... Riverside, Cal
LD, Sc. ... 2012 E 45th St—Ken 2645
Stephenson, Marlan Lucile ... Portland, Or
UD, Sc. ... 4834 17th Av NE—Ken 20
Sterling, Laura ... Nanaimo, B C
LD, LA. ... 1938 Harvard Av N—Cap 8576
Stewart, Robert ... Seattle
UD, EEs ... 1116 Fairview Av
Stevens, Anna Leach ... Seattle
UD, LA. ... 320 10th Av—M 0139
Stevens, Delbert ... Seattle
UD, Sc. ... Lewis Hall—N 162
Stevens, Edith F. ... Seattle
LD, LA. ... 4133 15th Av NE—N 2211
Stevens, Galen Arthur ... Seattle
LD, Bus. ... 806 28th Av
Stevens, Manuel Edward ... Seattle
Unc, ChE ... 2903 Barton St
Virtue, Eloise ................................. Seattle
UD, LA ...................................... 4502 19th Av NE—Ken 1082
Von Kettler, Wanda Fredericks .......... Seattle
LD, LA .................................. 4325 15th Av NE—Ken 3453
Van Norman, Alfred George ............. Seattle
UD, ED ..................................... 4580 15th Av NE—Ken 3453
Van Pressman, Agnes Dorothea ... Marblemount
LD, Em .................................... Clark Hall—N 262
Voorhees, Sol Watson ...................... Yakima
LD, UB ...................................... 4501 20th Av NE

Vuchmos, Kiwa ................................. Seattle
Vandercook, Jeanette C ....................... Seattle
Vandercook, Mordecai William ......... Seattle
UD, LA ..................................... 4524 6th Av NE—Ken 1361
Unc, Law ................................... 4524 10th Av NE—Ken 3561
Vander La, Richard ....................... Seattle
LD, ED ..................................... 4531 Univ Blvd—Ken 501
Van Fleet, Cecil Spencer ................... Seattle
Grad ......................................... Box 267, RRF 1, Seattle
Van Winter, Rex ............................. Seattle
Gard ......................................... 4722 14th Av NE—Ken 3461
Vogt, Lillian Mabel ......................... Seattle
LD, LA ..................................... 1508 Franklin Av—Cap 2969
Verd, Erma ................................. Seattle
LD, LA ..................................... 1508 Franklin Av—Cap 2969
Virtue, Eloise B .............................. Seattle
UD, SC ..................................... 4532 19th Av NE—Ken 1082
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Chalmers, Isabel
Churches, Ada
Chang, ................. Seattle
Campbell, .............. Seattle
Chappelle, .............. Seattle
Byham, Gladys Marian
UD, LA ................ R D No 2 3894

Cade, Vera Josephine .......... Seattle
LD, LA .............. 1933 Queen Anne Av—QA 2211
Cady, Osman H. .............. Seattle
Grad. ................ 238 W 22nd St
Caffrey, Genevieve .............. Seattle
Grad. ................ R D No 5—Sidney 1333
Calvill, Mona ................ Seattle
LD, LA .............. 1174 E Newton St—Cap 728
Caldwell, Elsie G. .......... Beaverton, OR
UD, LA .............. Clark Hall—N 262
Callaghan, Castle .......... Butte, Mont
Sp, RN Nursing .............. Prince St
Calt, Helen Ruth .............. Seattle
LD, Ed ................ 6530 19th Av NE
Campbell, Ernest William .... Seattle
LD, LA .............. 4422 California Av—QA 73W
Carnall, Martha Clarise ...... Seattle
UD, LA .............. Clark Hall—N 262
Campbell, M Veronice .......... Seattle
LD, Ed .............. 1822 Taylor Av—QA 77B
Carr, June .............. Seattle
Grad. ................ 1804 B 50th St—Ken 802
Carl, Emil ................ Seattle
LD, ChS ................ 1509 Aik Av
Carleen, Hulda Margaret ......... Gig Harbor
UD, LA .............. 4238 13th Av NE
Carlson, Minnie .......... Grantsburg, W1s.
Unc, LA .............. 4742 15th Av NE—Ken 2611
Carroll, William H. .......... Port Gamble
LD, LA .............. 8145 Meridian Av

Carr Eva Sabine .............. Seattle
LD, PhDr ......... 4608 16th Av NE—Ken 2708
Carroll, Geneva .......... Seattle
LD, Ed ................ 5614 11th Av NE
Carroll, Joseph D. ......... Seattle
LD, LA .............. 4217 10th Av NE
Case, arriet Lulu .......... Juneau, Alaska
UD, LA ................ 1857
Castator, Marie .............. Willock
Unc, Ed .............. 4624 19th Av NE—Ken 199
Catlett, James T. .............. Seattle
UD, BE ................ 4615 Meridian Av
Cave, Gordon Luther .......... Seattle
Grad. ................ 4706 14th Av NE—Ken 1677
Chalmers, Isabel .......... Forest Grove, Or
LD, Sc. ............. 4706 University Blvd—Ken 702
Chandler Gladys E. .......... Sheridan, Or
LD, Ed ................ 4805 15th Av NE
Chang, Clifton T. .......... China
Grad. ................
Chapman, Florence ............. Seattle
Plummer, Ida
LD, LA .............. 4732 21st Av NE—Ken 26
Chapman, Grace .............. Spokane
Sp, ScI ............................. Chelmsford
Chappelle, Gladys Juanna ....... Seattle
Grad. ................ 1711 Bellevue Av—E 1316
Charlton, Harriet Jane .......... Seattle
LD, LA .............. 1416 E 41st St—N 5
Chin, June Kee ................ Seattle
P, E, F, ................ 608 7th Av S
Churches, Ada Evelyn .......... Seattle
Everett
Sp, ScI ................ 4412 12th Av NE

Churchill, Galle .............. Alberton, Mont
Grad. ................ 4530 University Blvd—Ken 2498
Clark, Blanche Cecilia .......... Portland, Or
LD, Ed. ..............
Clark, Gerladina D. .............. Bremerton
LD, LA .............. 62 Veneta St, Bremerton
Clark Lois ................ Minneapolis, Minn
Grad. ................ Friday Harbor
Clark, Lotta Elizabeth .......... Bellingham
Clint, Av N NE—Ken 26
Clark, Gwendolen D. .......... Bremerton
LD, Phar. .............. 621 Veneta St, Bremerton
Clausen, Ada .............. Twin Falls, Ida
Clausen, Laura .............. Twin Falls, Ida
LD, Bus ................ 1416 E 45th St
Claybaugh, Esther Elizabeth ... Castle Rock
LD, Ed ................
Clendenay, Percy .............. Trout Lake
LD, LA ................ 4542 Brooklyn Av
Cline, Dorothy Dean .......... Walla Walla
Kahlotus
LD, Ed ................
Cline, Felix .............. Seattle
UD, ChE ........................ 1222 Summit—E 6533
Clippinger, Agnes B. ......... Dryden
LD, Ed ................ 5618
Cotator, J D & Mrs. Car 0 ... Couvville
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Grad. ................ 4564 14th AvNE—Ken 1953
Cochrane, Matilda Clara ...... Seattle
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Coe, Curtis Pearce .......... McMinnville, Or
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Coffman, John ........................ 1st, Law. 1396 E 45th—Ken 983
Coffinberry, Pearl Syllyl .. Iverness, Mont.
Grad. ................ 4262 7th Av NE
Cole, Alus Huddah .......... Forest Grove, Or
Grad. ................ Lewis Hall—N 162
Coffman, Mabel M. ............. Bellingham
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Cole, Gladys Genevieve ......... 4842 Brooklyn Av
LD, FA ................ 2671 30th Av SW
Cole, Nellie A. .............. Forest Grove, Or
Unc, LA ................ Lewis Hall—N 162
Colegrove, Rosannah .......... Great Bend, Eid.
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Collins, Opal H. .............. Seattle
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Combs, Catherine .............. Butte, Mont
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CONDON, Dorothy .......... Seattle
UD, Sc ................ 628 13th Av N
Conlee, Caroline Jeanette ....... Bellingham
Grad. ................ 5220 20th Av SW
Connell, Helen Loretta ......... Seattle
Grad. ................ 1010 Union St—M 2872
Conway, Rosemary .......... Redlands, Calif
Unc, FA .............. Tery and Manton St—Eid 1030
Cook, Julia Germaine .......... Seattle
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Cook, Louis ................ Seattle
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UD, LA .............. 4714 Umt Alr B
Cooper, Mrs. Elizabeth A. ...... Seattle
Sp, FA ......... 714 W Gater St—QA 3171
Cooper, Lenna .............. Seattle
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Unc, FA .............. 1408 E 42nd St—N 45
Copeland, Emma M. ......... Seattle
LD, Ed ................ 1107 E Denny Way—E 5891
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UD, Sc ................
Clark, Hilda ................ 262
Corner, Martha .......... Seattle
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Franden, Mabel Stevens ....... Seattle
Grad ... 7417 45th Av S
Frazier, Raymond ....... Seattle
Grad ... 1424 7th Av NE—Ken 2711
Frazier, Sebena S ....... Oakalona, la
Grad ... 4534 University Blvd—Ken 20
Frazier, Zoe R ....... Oakalona, la
Grad ... 4534 University Blvd—Ken 20
Freed, P J ....... Seattle
Unc, Ed ... 4708 16th Av NB
Fredlund, Reynolds ....... Seattle
Grad, Ed ... #022 Summit Av—B 6245
Freeman, A. 4503 University Blvd—Ken 501
Unc, Ed ... 4524 19th Av NR—Ken 199
Fremant, David Wellington ....... Spokane
Grad ... 4520 21st Av NR—Ken 1311
French, Marlie Carolyn ....... Vancouver
Grad, LA ... Clark Hall—N 282
French, Mildred P ....... Spokane
Unc, Sci ... 4708 16th Av NE—Ken 2228
French, P ... 3208 35th Av S
Frick, George W ....... Lynden
Unc, LA ... 5023 12th Av NE—Ken 1257
Frey, Beatrice Elizabeth ....... Seattle
Grad, LA ... 4740 16th Av NE—Ken 1882
Fukuzawa, Tanizo ....... Japan
Grad, CBE ... 4110 12th Av NE—N 3797
Fulerton, Serena Berg ....... Minneapolis, Minn.
Sp, P H Nursing ... 2504 3rd Ave—M 3817M
Fulton, Mrs A L ....... Astoria, Or
Sp, Ed ... 5023 16th Av NE—Ken 482

Fairhurst, Alfred Williams ....... Tacoma
Grad, LA ... For, 4529 University Blvd—Ken 721
Falls, Annie Louise ....... Seattle
Grad ... 5633 Brooklyn Av—Ken 1987
Farley, Guy F ....... Seattle
Educ, LA ... 4504 9th Av—Rai Wa 493
Farrell, Joanne Elizabeth ....... Seattle
Sp, LA ... 5800 15th Av NE
Farrer, Edith E ....... Seattle
Sp, LA ... Nursing—N 283
Feititz, Vernita Caroline ....... Seattle
Educ, LA ... 617 Mercer St—QA 382
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Fenton, Emil Elizabeth ....... Seattle
Grad ... Colman Bldg
Fenwick, Frances ....... Everett
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Fertig, N Ellis ....... Granger
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Fischer, Adelaide ....... Seattle
Grad ... 502 21st Av—E 7413
Fisher, Roberta Claire ....... Seattle
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Fisher, Walter Clifford ....... Spokane
Unc, LA ... 4532 18th Av NE—Ken2297
Flowers, Ruby Jane ....... Chahalis
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Floyd, Ruth Marion ....... Seattle
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Forsberg, Edith ....... Portland, Or
Unc, LA ... 4708 15th Av NE—Ken 2800
Ford, Clara Louisa ....... Brooklyn, Mich
Grad, LA ... 4548 University Blvd—Ken 2934
Ford, Pauline ....... Moscow, Idaho
Unc, LA ... 2018 3rd Av
Forrest, J. T. ....... Bellingham
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Unc, PA ... 4508 16th Av NE
Fox, Eliza ....... Seattle
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Fouck, May Elizabeth ....... Portland, Or
Grad ... Lewis Hall—N 162
Frazer, Thomas George ....... Spokane
Grad ... 7417 45th Av S
Frasier, Raymond ....... Seattle
Grad ... 1424 7th Av NE—Ken 2711
Frasier, Sebena S ....... Oakalona, la
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Freed, P J ....... Seattle
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Fredlund, Reynolds ....... Seattle
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Freeman, A. 4503 University Blvd—Ken 501
Unc, Ed ... 4524 19th Av NR—Ken 199
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French, Marlie Carolyn ....... Vancouver
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Garrett, Laura Margaret ....... Tacoma
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Gilmam, Isabel Amblor ....... J uneau, Alaska
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Grad, LA ... 1627 6th Av W—QA 277
Gleason, Ruth M ....... Seattle
Grad ... 1627 6th Av W—QA 277
Hare, Irene

Hall, Lucia

Hargreaves, Frank K.

Register of Students
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<tr>
<td>SENIORS</td>
<td>M 40</td>
<td>W 74</td>
<td>114</td>
<td>60</td>
<td>82</td>
</tr>
<tr>
<td>Juniors</td>
<td>M 38</td>
<td>W 145</td>
<td>183</td>
<td>32</td>
<td>46</td>
</tr>
<tr>
<td>Sophomores</td>
<td>M 26</td>
<td>W 117</td>
<td>143</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Freshmen</td>
<td>M 67</td>
<td>W 49</td>
<td>116</td>
<td>49</td>
<td>62</td>
</tr>
<tr>
<td>Specials</td>
<td>M 16</td>
<td>W 126</td>
<td>142</td>
<td>28</td>
<td>26</td>
</tr>
</tbody>
</table>

### TOTAL STUDENTS IN RESIDENCE

|                      | 1069 | 725 | 1291 | 3352 | 2383 | 2407 | 5030 |

### EXTENSION STUDENTS

- Correspondence: 274, 214, 216, 259, 265
- Extension classes: 330, 1180, 1051, 1783

### TOTAL EXTENSION STUDENTS: 274, 544, 1386, 1819, 2048

### NOTES:

- Columns 1, 2, 4, 5 and 6 represent census figures—i.e., the enrollment taken on a stated day within the first month of a term or quarter. Columns 3 and 7 show figures representing the number of different individuals; column 3 the number registered during the summer quarter, column 7 the number registered during the regular academic year. For comparison with other institutions the figures in columns 3 and 7 should be used, as these are the customary catalogue figures.
THE BULLETIN OF THE UNIVERSITY OF WASHINGTON INCLUDES THE FOLLOWING PUBLICATIONS

ENTRANCE INFORMATION
THE CATALOGUE
Bulletins of
COLLEGE OF LIBERAL ARTS
COLLEGE OF SCIENCE
COLLEGE OF EDUCATION
LIBRARY SCHOOL
COLLEGE OF BUSINESS ADMINISTRATION
SCHOOL OF JOURNALISM
COLLEGE OF ENGINEERING
COLLEGE OF FINE ARTS
COLLEGE OF FISHERIES
COLLEGE OF FORESTRY
SCHOOL OF LAW
COLLEGE OF MINES
SHORT MINING SESSION
COLLEGE OF PHARMACY
DEPARTMENTS OF INSTRUCTION
GRADUATE SCHOOL
EXTENSION SERVICE
SUMMER QUARTER
PUGET SOUND BIOLOGICAL STATION
UNIVERSITY DIRECTORY (price 25 cents)

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
Military Training

WITH

Announcement of New Courses

IN

Military Science
Naval Science
Aeronautical Science
MILITARY TRAINING

GENERAL STATEMENT

Military Training has been given in the University of Washington since 1875, with the exception of a brief interval early in the century. In the autumn of 1916 the University accepted the provisions of the National Defense Act of 1916, and has since maintained an infantry unit of the United States Reserve Officers' Training Corps. New four-year curricula now offer an opportunity to obtain a well-balanced college course, combined with thorough preparation for efficient service in one of the supreme duties of the citizen of a free country—the national defense.

Military Training, comprising drill and instruction in the fundamentals of military service is required, during the first two years at the University of all students who are citizens of the United States and physically qualified.

The New Courses. Students desiring a good general college education, upon which any line of professional or technical study may be based, and which will also prepare them for commissions as reserve officers in the military or naval service, may register in one of the new four-year curricula in Military, Naval, or Aeronautical Science. These courses are, for administrative purposes, attached to the College of Engineering.

They lead respectively to the degrees of Bachelor of Science in Military Science, Bachelor of Science in Naval Science, and Bachelor of Science in Aeronautical Science. In addition to the general education given, with the appropriate degrees, they offer the following opportunities:

(a) Graduates obtaining the degree of B.S. in Military Science will be commissioned as infantry officers in the Officers' Reserve Corps of the United States Army, in accordance with the provision of the National Defense Act.

(b) As soon as engineer and artillery officers shall be detailed as instructors, reserve officers' commissions will be granted in those branches of the service.

(c) Corresponding commissions in the naval and aeronautical branches of the service, for graduates of those courses, are in prospect, though not yet provided for by law.

(d) In the event of failure to secure government co-operation for the plans outlined in either (b) or (c) the University will facilitate all changes of courses necessitated thereby, without penalty to the student.

Entrance. For admission to any of these curricula a student must conform to the general entrance requirements of the University as given in the Catalogue (see Entrance Information), and should present the following credits by examination or by certificate from an accredited school from which he has graduated:

8 units of English.
1½ units of algebra.
1 unit of Plane Geometry.
½ unit of Solid Geometry.
2 units in one modern foreign language.
2 units selected from History, Civics, or Economics (at least one unit to form a year of consecutive work in history).
1 unit of Physics.
4 units selected from any subjects accepted by an approved high school for its diploma.

The third quarter of each of the first two years of the three curricula will be offered during the spring quarter of 1917-18, for such students as are qualified. Opportunities for pursuing these curricula during the summer quarter will depend upon the war emergency plans of the government. The regular program of the first quarter will begin in the autumn quarter of 1918.

Uniform and Allowances. Students taking the required military training, as well as those enrolled in the military courses, are required to wear the R. O. T. C. uniform prescribed by the War Department. At present the government makes an allowance of fourteen dollars per man for uniform. The balance, of about fourteen or fifteen dollars, is paid by the student. The exact amount is dependent upon conditions which are subject to change at the present time.

Each student enrolled as a candidate for a reserve officers' commission in the course in Military Science receives a ration allowance from the government of thirty cents per day, on the present basis, during the third and fourth years.

In all military work students are subject to the regulations of the United States service as far as they are applicable.

OUTLINE OF COURSES

The three curricula are identical for the first two years, except that the basic course for naval students will conform to the regulations of the United States Navy.

Descriptions of other subjects than those given by the military departments will be found under the corresponding numbers and departments in the catalogue descriptions of the courses in Liberal Arts, Science, or Engineering.

On account of existing war conditions no definite statement is possible in regard to the time, place or conditions of the summer camps which form a part of these courses. Due notice of them will be given.

MILITARY SCIENCE

FRESHMAN YEAR

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Second Quarter</th>
<th>Third Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra (Math. 51)</td>
<td>Trigonometry (Math. 52)</td>
<td>Analyt. Geom. (Math. 53)</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Gen. Chem. (Chem. 1 or 21)</td>
<td>Gen. Chem. (Chem. 2 or 22)</td>
<td>Gen. Chem. (Chem. 3 or 23)</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>*French (1)</td>
<td>*French (3)</td>
<td>*French (3)</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Drawing (C. E. 1)</td>
<td>Drawing (C. E. 2)</td>
<td>Surveying (C. E. 21)</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mil. Tr. (M. N. &amp; A. Sci. 1)</td>
<td>Mil. Tr. (M.N.&amp; A.Sci. 2)</td>
<td>Mil. Tr. M. N. &amp; A. Sci. 3</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
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<tr>
<td>18</td>
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</tbody>
</table>

Summer Quarter. Military Encampment (M. N. & A. Science 11)

*If French is offered for entrance another modern foreign language may be substituted. For those offering one unit of French, French 3, 4 and 5 and French 7, 8 and 9 may be taken in the Freshman year.
### MILITARY TRAINING

#### MILITARY SCIENCE—Continued

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Sophomore Year</th>
<th>Third Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calculus (Math. 7)</strong></td>
<td><strong>Calculus (Math. 8)</strong></td>
<td><strong>Calculus (Math. 9)</strong></td>
</tr>
<tr>
<td><strong>Physics (97)</strong></td>
<td><strong>Physics (98)</strong></td>
<td><strong>Physics (99)</strong></td>
</tr>
<tr>
<td><strong>French (4)</strong></td>
<td><strong>French (5)</strong></td>
<td><strong>French (6)</strong></td>
</tr>
<tr>
<td><strong>History</strong></td>
<td><strong>History</strong></td>
<td><strong>History</strong></td>
</tr>
<tr>
<td><strong>Ml. Tr. (M. N. &amp; A. Sci. 4)</strong></td>
<td><strong>Ml. Tr. (M. N. &amp; A. Sci. 6)</strong></td>
<td><strong>Ml. Tr. (M. N. &amp; A. Sci. 8)</strong></td>
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<tr>
<td>5</td>
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<tr>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

**Summer Quarter. Summer Survey Camp (C. E. 103) Military Encampment M. N. & A. Sci. 12)**

<table>
<thead>
<tr>
<th>Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mechanics</strong></td>
</tr>
<tr>
<td><strong>English (7)</strong></td>
</tr>
<tr>
<td><strong>Accounting (Bus. Adm. 81)</strong></td>
</tr>
<tr>
<td><strong>Ml. Tr. (M. N. &amp; A. Sci. 101)</strong></td>
</tr>
<tr>
<td>3</td>
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<tr>
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</tr>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

**Senior Year**

| **Ml. & Nav. Law (Law 57)** | **Ml. & Nav. Law (Const.)** |
| **Engineering** | **Engineering (Law 58)** |
| **English (180)** | **Engineering (E. 3)** |
| **Ml. & Nav. Law (Law 57)** | **Engineering (M. N. & A. Sci. 186)** |
| **Ml. Sci. (M. N. & A. Sci. 185)** | **Ml. Tr. (M. N. & A. Sci. 196)** |
| **Ml. Tr. (M. N. & A. Sci. 195)** | **Ml. Tr. (M. N. & A. Sci. 196)** |
| 3 | 3 |
| 2 | 2 |
| 18 | 18 |

**NAVAL SCIENCE**

<table>
<thead>
<tr>
<th>Freshman Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Algebra (Math. 51)</strong></td>
</tr>
<tr>
<td><strong>Gen. Chem. (Chem. 1 or 21)</strong></td>
</tr>
<tr>
<td><strong>French (1)</strong></td>
</tr>
<tr>
<td><strong>Drawing (C. E. 1)</strong></td>
</tr>
<tr>
<td><strong>Nav. Tr. (M. N. &amp; A Sc. 21)</strong></td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>5</td>
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<tr>
<td>3</td>
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<tr>
<td>18</td>
</tr>
</tbody>
</table>

**Summer Quarter. Practical Work in Seamanship and Navigation**

<table>
<thead>
<tr>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calculus (Math. 7)</strong></td>
</tr>
<tr>
<td><strong>Physics (97)</strong></td>
</tr>
<tr>
<td><strong>French (4)</strong></td>
</tr>
<tr>
<td><strong>History</strong></td>
</tr>
<tr>
<td><strong>Nav. Tr. (M. N. &amp; A. Sci. 24)</strong></td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>18</td>
</tr>
</tbody>
</table>

**Summer Quarter. Practical Work in Seamanship, Surveying and Navigation**

<table>
<thead>
<tr>
<th>Junior Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mechanics</strong></td>
</tr>
<tr>
<td><strong>English (7)</strong></td>
</tr>
<tr>
<td><strong>Phys. &amp; Hyg. (Zool. 8)</strong></td>
</tr>
<tr>
<td><strong>Mechanism (M. E. 81)</strong></td>
</tr>
<tr>
<td><strong>Elec. Steam Eng. (M. E. 82)</strong></td>
</tr>
<tr>
<td><strong>Nav. Tr. (M. N. &amp; A. Sci. 121)</strong></td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>17</td>
</tr>
</tbody>
</table>

**Summer Quarter. Practical Work in Seamanship, Navigation, Surveying, Ordnance and Marine Engineering**

*If French is offered for entrance another modern foreign language may be substituted. For those offering one unit of French, French 3, 4 and 5 and French 7, 8 and 9 may be taken in the Freshman year.*
### University of Washington

#### NAVAL SCIENCE—Continued

**Senior Year**

**First Quarter**
- Ballistics (Phys. 189) .................. 3
- Alternating Currents (E. E. 121) .......... 4
- A. C. Lab. (E. E. 122) .................. 2
- Theory & Practice of Nav. (M. N. & A. ScI. 171) .... 3
- Gas Engines (M. E. 198) ................. 3
- Navy. Tr. (M. N. & A. ScI. 124) .......... 2

**Second Quarter**
- Palm. & Nav. Law (Law 57) .............. 3
- Radio Engineering (E. E. 181) .......... 3
- Steam Turbines (M. E. 179) ............. 3
- English (100) ................................ 3
- Theory & Practice of Nav. (M. N. & A. ScI. 172) .... 3
- Navy. Tr. (M. N. & A. ScI. 125) .......... 2

**Third Quarter**
- Palm. & Nav. Law (Const) (Law 58) .... 3
- Explosives (Mines 161) .................. 3
- Naval Arch. (M. E. 185) ................. 3
- Marine Propulsion (M. E. 188) .......... 3
- Theory & Practice of Nav. (M. N. & A. ScI. 173) .... 3
- Navy. Tr. (M. N. & A. ScI. 126) .......... 2

**Summer Quarter**. Practical Work in Seamanship, Navigation, Ordnance, Marine Engineering and Naval Construction

### AERONAUTICAL SCIENCE

#### Freshman Year

- Algebra (Math. 51) ..................... 3
- Gen. Chem. (Chem. 1, or 21) ............ 5
- *French (1) ................................ 5
- Drawing (C. E. 1) ....................... 5
- Mil. or Nav. Training ..................... 2

**Total** ................................. 18

**Summer Quarter**. Swimming, Handling Small Craft, Shopwork (M. N. & A. Science 51, 52, 53)

#### Sophomore Year

- Calculus (Math. 7) ...................... 5
- Physics (97) ............................. 5
- *French (4) ................................ 3
- History ................................... 3
- Mil. or Nav. Training ..................... 2

**Total** ................................. 18

**Summer Quarter**. Summer Survey Camp (E. E. 103), Practical Work in Aviation

#### Junior Year

- Mechanics ................................ 3
- English (7) ................................ 3
- Physiol. & Hyg. (Zool. 8) ............... 5
- Mechanics (M. E. 81) .................... 3
- Theory of Aviation (M. E. 60) .......... 3
- Navy. Tr. (M. N. & A. ScI. 161) ........ 2
- Navy. Tr. (M. N. & A. ScI. 152) ........ 2

**Total** ................................. 17

**Summer Quarter**. Practical Aviation, Flying Reconnaissance, Rigging of Airplanes

#### Senior Year

- Alternating Currents (E. E. 181) .......... 4
- Aerodynamics (M. E. 210) .............. 3
- Location of Mil. Highways ............... 3
- Aerodynamics (M. E. 210) .............. 3
- Navy. Tr. (M. N. & A. ScI. 154) ........ 2
- Navy. Tr. (M. N. & A. ScI. 165) ........ 2

**Total** ................................. 17

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*If French is offered for entrance another modern foreign language may be substituted. For those offering one unit of French, French 3, 4 and 5, and French 7, 8 and 9 may be taken in the Freshman year.*
1–2–8. Military Training. Two credits each quarter. Required of all Freshmen. Infantry Drill Regulations through the school of the company; Small Arms Firing Manual; intrenchments; signalling; service of security and information; military organization and policy; map reading; hygiene and sanitation. Practical work in these subjects will be accompanied by lectures and text-book study, the principal text-book being the "Manual for Non-Commissioned Officers and Privates", edition of 1917 or later.

4–5–6. Military Training. Two credits each quarter. Required of all Sophomores. A continuation of the work of 1, 2, and 3, with progressive study of all topics; school of the battalion; camp sanitation and expedients; marches; military history. The same text will be used as in the preceding courses, with references to various army manuals.

21. Naval Training. This and numbers 22, 23, 24, 25 and 26 are the naval training courses, corresponding to 1, 2, 3, 4, 5, 6. The requirements are the same, the differences being in those points wherein the navy differs from the army practice.

101–102–103–104–105–106. Military Training. Two credits each quarter. For students electing the course in Military Science who have completed 1, 2, 3, 4, 5, and 6. Duties of officers and non-commissioned officers, exemplified by practical work with the student corps; military sketching. Various texts and reference books will be used.

121. Naval Training. This and numbers 122, 123, 124, 125, and 126 are the naval training courses corresponding to 101, 102, 103, 104, 105, and 106. The requirements are the same, the differences being in those points wherein the navy differs from the army.

151. Aeronautical Training. This and numbers 152, 153, 154, 155, and 156 are the aeronautical training courses corresponding to 101, 102, 103, 104, 105, and 106.


Naval Training
at the
University

How Men May Enlist in the Navy as Students
The Course of Study
Advantages

Published Quarterly by the University of Washington
Seattle

Entered as Second Class Matter at Seattle, under the Act of July 16, 1894
University Calendar
1918-1919

FIRST QUARTER
Examinations for admission and for exemption from College English, Thursday, Friday and Saturday, September 26, 27 and 28, at 9 a.m. and 2 p.m.
Registration of new first year students.................................

Registration of all other students.................................

Instruction begins.............................................
President's annual address..................................
Women's assembly...........................................
Thanksgiving Recess........................................

Quarter examinations........................................

SECOND QUARTER
Registration days.................................
Instruction begins........................................
Washington's birthday (holiday)............................
Quarter examinations........................................

THIRD QUARTER
Registration days.................................
Instruction begins........................................
Campus day............................................
Junior day............................................
Memorial day (holiday).................................
Quarter examinations........................................

FOURTH QUARTER
Registration for first term........................................
Instruction begins........................................
Term examinations........................................
Registration for second term........................................
Term examinations........................................
University of Washington

College of Naval, Military, and Aeronautical Science

NAVAL TRAINING AT THE UNIVERSITY

The University of Washington will open September 27, 1918, in the new College of Naval, Military and Aeronautical Science, a four-year course in naval science. This course is similar to that of the United States Naval Academy, and is conducted in cooperation with the Navy Department, which has assigned as professor of naval science and tactics Rear Admiral Chauncey Thomas, U. S. N., Retired, an officer of high attainments and long experience in the service. The successful completion of this course will lead to the degree of Bachelor of Science in Naval Science and, if physically qualified, to an appointment as an officer in the United States Naval Reserve Force.

DISTINCTIVE ADVANTAGES

(1) It is an excellent four-year college course in science and furnishes a good foundation for any peace time work that its graduates may undertake.

(2) It qualifies its graduates to perform their duty as citizens in the national defense by serving when needed as reserve naval officers in the United States Navy.

(3) As a preparation for a career in the navy or the merchant marine. The United States Navy has always been an attractive service, and the expansion of the merchant marine of this country will make in the coming years an opportunity for well-trained young men both on the sea and on land in the shipping business.

ADVANTAGES OF THE UNIVERSITY FOR NAVAL TRAINING

The University of Washington has unusual facilities for naval training. Its campus fronts on deep water, and vessels of considerable size can land at its docks. The Puget Sound Navy Yard, one of the largest and most important yards in the country, is located only a few miles across Puget Sound and is the headquarters of the Commandant of the Thirteenth Naval District, in whose jurisdiction the University lies.

In the summer of 1917, a Naval Training Camp was established by the United States Navy at the University, and the University has turned over to the Navy Department for its uses during the war about 228 acres of the waterfront of the campus. On this ground a Naval Training Camp to accommodate 3000 enlisted men has been established. The Naval Training Camp works in close cooperation with the University, and its men are taking many special courses in University classrooms and laboratories. A great plant is being developed, much of which will be of permanent value to the naval work of the University.

As a part of the Naval Training Camp, the Navy Department has
established two special schools for the intensive training of officers, one school for the line and engineering known as the Officers' Material School, of about 250 men, and the other a Ground School for Navy Aviators, of about 200 men.

For those who do not show the qualifications required for commissioned rank there are numerous special courses for petty officers and enlisted men by which they can fit themselves for some line of work to which they are adapted. At the Puget Sound Navy Yard there are: The listeners' school, petty officers' school, the ordnance school, trade schools, and preparatory officers' material school. At the University Naval Training Camp, in addition to the two schools for commissioned officers, there are schools for petty officers, for radio work, for cooks and bakers, electricians, oil firemen, for signaling and for marine engineering.

STATUS AND ALLOWANCES OF STUDENTS

Students entering the naval course in the University may be enlisted in the United States Naval Reserve and will be put on active service and pay for about four weeks, after which they will be placed on the inactive reserve as students in the University, and may not be called into active service until they are twenty-one, unless a great emergency arises. Should the war continue, those students who are so near the age of twenty-one that they will soon be called into service, will be given an opportunity to enter the Officers' Material School for intensive training so that they may earn ensigns' commissions. If the war is ended before this time, they will take their places in the Naval Officers' Reserve, subject to be called into service in time of war.

Each student will receive an allowance of $100 for uniforms.

Arrangements may be made for the naval students to live in camp on the University campus. In this case they will be under military discipline at all times and the expense of living at the University will be reduced to a minimum. Living in camp will not be compulsory, but men who elect to do so will receive due credit therefor.

A feature of the naval course will be the summer cruise of from one to two months, during which students will receive the pay of their rating.

Aside from these special provisions and allowances as students in the naval courses the status of these men will be the same as that of other University students, and they will be subject to the same requirements and charges.

*REQUIREMENTS FOR ADMISSION TO THE UNIVERSITY

A student must offer for admission to freshman standing in the University, fifteen units† by examination or by certificate from an accredited school from which he has graduated. The fifteen units must include the following combinations:

3 units of English.
2 units of mathematics (one unit algebra, one unit plane geometry).

* More detailed information concerning admission is furnished in a separate section of the University Bulletin, known as Entrance Information (pages 7-11).
† 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 school year of not less than thirty-six weeks.
3 units in one of the following groups (or two units, if three units of mathematics are presented):

(a) Latin and Greek (not less than two units of Latin or one of Greek counted).

(b) Modern foreign language (at least two units in one language; not less than one unit counted in any language).

(c) History, civics, economics (at least one unit to form a year of consecutive work in history).

(d) Physics, chemistry, botany, zoology, general biology, physiology, physical geography or geology. (Not less than one unit counted in physics, chemistry, or general biology. No science counted as applying on this requirement unless it includes a satisfactory amount of laboratory work.)

2 units selected from the above groups.

5 units selected from any subjects accepted by an approved high school for its diploma, not more than four, however, to be in vocational subjects.

A candidate who fulfils these requirements will be admitted to freshman standing in any college of the University. However, if he has not taken in high school certain of the subjects recommended for admission to the college that he may decide to enter, he will take them in the University. These subjects may apply toward a degree, as far as elective courses make this practicable. In certain curricula, however, these subjects must be taken in addition to the prescribed subjects.

In addition to the three units of English and the two units of mathematics required for admission to all colleges of the University, all students expecting to enter the College of Naval, Military and Aeronautical Science should elect their work from the groups (a) to (d) so that they may offer the following subjects, which will have to be taken in the University, in addition to the prescribed curriculum, if not offered for entrance:

$\frac{1}{2}$ unit advanced algebra.

$\frac{1}{2}$ unit solid geometry.

2 units of one modern foreign language.

2 units selected from history, civics, or economics (at least one unit to form a year of consecutive work in history).

1 unit of physics.

All correspondence regarding the admission of students to the residence courses of the University as well as the requirements for graduation should be addressed to the Registrar. Every applicant for admission at the beginning of the first quarter, is requested to forward his credentials as early in the summer as possible, at the same time indicating the college or school of the University that he intends to enter. By doing this, the student avoids much inconvenience and delay at the time of registration.

Entrance with condition to freshman standing is not permitted. Excess admission credit does not establish any presumptive claim for advanced standing, unless the student has taken a post-graduate course in the high school of at least one semester.
The curriculum in naval science is identical for the first two years with that in military science, except that the course in naval training will follow the needs of the naval service. It should be noted, however, that the Navy Department has brought its landing force drill and tactics into complete harmony with those of the Army, so that students who have received infantry training for the Army are equally qualified in that branch for the naval work.

Descriptions of the subjects listed in the accompanying outline may be found in the University catalogue and in the bulletin of the College of Naval, Military and Aeronautical Science to be issued later.

This is a tentative program and is subject to change.

**NAVAL SCIENCE**

**FRESHMAN YEAR**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra (Math. 51)</td>
<td>3</td>
</tr>
<tr>
<td>Gen. Chem. (Chem. 1 or 21)</td>
<td>5</td>
</tr>
<tr>
<td>*French (1)</td>
<td>5</td>
</tr>
<tr>
<td>Drawing (C. E. 1)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 1)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>18</td>
</tr>
</tbody>
</table>

**Second Quarter | Credits**

| Trigonometry (Math. 52) | 3 |
| Gen. Chem. (Chem. 2 or 22) | 5 |
| *French (2) | 5 |
| Drawing (C. E. 2) | 2 |
| Nav. Tr. (Naval Sci. 2) | 2 |
| __ | 18 |

**Third Quarter | Credits**

| Analyt. Geom. (Math. 53) | 3 |
| Gen. Chem. (Chem. 3 or 23) | 5 |
| *French (3) | 5 |
| Surveying (C. E. 21) | 3 |
| Nav. Tr. (Naval Sci. 3) | 2 |
| __ | 18 |

**Summer Quarter. Practical Work in Seamanship and Navigation.**

**SOPHOMORE YEAR**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus (Math. 7)</td>
<td>5</td>
</tr>
<tr>
<td>Physics (97)</td>
<td>5</td>
</tr>
<tr>
<td>*French (4)</td>
<td>3</td>
</tr>
<tr>
<td>History</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 4)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus (Math. 8)</td>
<td>5</td>
</tr>
<tr>
<td>Physics (98)</td>
<td>5</td>
</tr>
<tr>
<td>History</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 5)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>18</td>
</tr>
</tbody>
</table>

**Third Quarter | Credits**

| Calculus (Math. 9) | 5 |
| Physics (99) | 5 |
| History | 3 |
| Nav. Tr. (Naval Sci. 6) | 2 |
| __ | 18 |

**Summer Quarter. Practical Work in Seamanship, Surveying and Navigation.**

**JUNIOR YEAR**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Phys. &amp; Hyg. (Zool. 8)</td>
<td>3</td>
</tr>
<tr>
<td>Mechanism (M. E. 81)</td>
<td>3</td>
</tr>
<tr>
<td>Elem. Steam Eng. (M. E. 82)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 101)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Physiol. &amp; Hyg. (Zool. 10)</td>
<td>3</td>
</tr>
<tr>
<td>Nautical Astron. (Ast. 28)</td>
<td>3</td>
</tr>
<tr>
<td>Marine Eng. &amp; Bollem (M. E. 124)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 102)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>17</td>
</tr>
</tbody>
</table>

**Third Quarter | Credits**

| Ballistics (Phys. 138) | 3 |
| English | 3 |
| Descript. Geom. (C. E. 3) | 3 |
| Direct Currents (E. E. 101) | 4 |
| D. C. Lab. (F. E. 102) | 2 |
| Nav. Tr. (Naval Sci. 103) | 2 |
| __ | 17 |

**Summer Quarter. Practical Work in Seamanship, Navigation, Surveying, Ordnance and Marine Engineering.**

**SENIOR YEAR**

<table>
<thead>
<tr>
<th>First Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Ballistics (Phys. 139)</td>
<td>3</td>
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<tr>
<td>Alternating Currents (E. E. 121)</td>
<td>4</td>
</tr>
<tr>
<td>A. C. Lab. (E. E. 122)</td>
<td>2</td>
</tr>
<tr>
<td>Theory &amp; Practice of Nav. (Naval Sci. 171)</td>
<td>3</td>
</tr>
<tr>
<td>Gas Engines (M. E. 109)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 104)</td>
<td>2</td>
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<tr>
<td>__</td>
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<table>
<thead>
<tr>
<th>Second Quarter</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Mil. &amp; Nav. Law (Law 57)</td>
<td>3</td>
</tr>
<tr>
<td>Radio Engineering (E. E. 181)</td>
<td>3</td>
</tr>
<tr>
<td>Steam Turbines (M. E. 179)</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Theory &amp; Practice of Nav. (Naval Sci. 172)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 105)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Quarter</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mil. &amp; Nav. Law (Const. Law 58)</td>
<td>3</td>
</tr>
<tr>
<td>Explosives (Mines 101)</td>
<td>3</td>
</tr>
<tr>
<td>Naval Arch. (M. E. 186)</td>
<td>3</td>
</tr>
<tr>
<td>Marine Propulsion (M. E. 108)</td>
<td>3</td>
</tr>
<tr>
<td>Theory &amp; Practice of Nav. (Naval Sci. 173)</td>
<td>3</td>
</tr>
<tr>
<td>Nav. Tr. (Naval Sci. 106)</td>
<td>2</td>
</tr>
<tr>
<td>__</td>
<td>17</td>
</tr>
</tbody>
</table>

**Summer Quarter. Practical Work in Seamanship, Navigation, Ordnance, Marine Engineering and Naval Construction.**

* If French is offered for entrance another modern foreign language may be substituted. For those offering one unit of French, French 3, 4 and 5 and French 7, 8 and 9 may be taken in the Freshman year.
COLLEGE OF NAVAL, MILITARY AND AERONAUTICAL SCIENCE

NOTE.—The University also offers in cooperation with the War Department a four-year course in Military Science, the successful completion of which leads to the degree of Bachelor of Science in Military Science and a commission in the Officers' Reserve Corps of the United States Army.

A parallel course in Military and Naval Aeronautics is planned and will be put in operation as soon as practicable.

August 12, 1918.

The War and Navy Departments have ordered all enlistments suspended, pending action on the proposal to change the age limits for the draft. Until this is adjusted enlistments cannot be made for the Naval and Military courses at the University, but applications will be received and each applicant will be notified as soon as definite action can be taken.

Applications should be sent to the Secretary, College of Naval, Military, and Aeronautical Science, University of Washington, Seattle.
THE BULLETIN OF THE UNIVERSITY OF WASHINGTON
INCLUDES THE FOLLOWING PUBLICATIONS

ENTRANCE INFORMATION
THE CATALOGUE

Bulletins of
COLLEGE OF LIBERAL ARTS
COLLEGE OF SCIENCE
COLLEGE OF EDUCATION
LIBRARY SCHOOL

COLLEGE OF BUSINESS ADMINISTRATION
SCHOOL OF JOURNALISM
COLLEGE OF ENGINEERING
COLLEGE OF FINE ARTS
COLLEGE OF FORESTRY
SCHOOL OF LAW
COLLEGE OF MINES
SHORT MINING SESSION

COLLEGE OF NAVAL, MILITARY AND AERONAUTICAL SCIENCE

COLLEGE OF PHARMACY
GRADUATE SCHOOL
EXTENSION DIVISION
SUMMER SESSION

PUGET SOUND BIOLOGICAL STATION
BULLETIN OF VOCATIONAL COURSES

OFFICIAL DIRECTORY

Requests for bulletins, or for general information in regard to the University, and all credentials and correspondence relative to admission, advanced standing, or requirements for graduation should be addressed to THE REGISTRAR, University of Washington, Seattle, Washington.
Calendar

FALL QUARTER
Tuesday, October 1, to Saturday, 12 o'clock noon, December 21

WINTER QUARTER
Monday, 8 a. m., December 30, to Saturday, 12 o'clock noon, March 22

SPRING QUARTER
Monday, 8 a. m., March 31, to Saturday, 12 o'clock noon, June 21
S. A. T. C.  

Army  
Navy  
Marines  

WAR TRAINING

The University of Washington is one of the agencies of the United States Government for the training of men for war service. For the duration of the war the University will train men for the Army, the Navy and the Marine Corps, under the general provisions of the plan which has been worked out by the Committee on Education and Special Training of the War Department. The students thus organized will be known as the Students' Army Training Corps.

FOR WHOM INTENDED

For all men who are called to military service the Government has provided higher courses of special intensive training. The following are the requirements for admission: (1) United States citizenship; (2) the attainment of the age of eighteen years, or over, excluding, however, men included in the selective service registrations prior to the registration of September 12, 1918; (3) ability to pass the Army or Navy physical examination; (4) graduation, or its equivalent, from a standard high school, and in the case of high school students who have not graduated, thirteen units or twenty-six credits.

NATURE AND SCOPE OF THE COURSE OF INSTRUCTION

The courses to be given are intensive war courses designed to be of immediate assistance to all men who enter war service. Following the instructions of the Committee on Education and Special Training, the University has outlined the courses of study for the first quarter as given in the following pages. These will occupy the student's time for fifty-three hours a week; approximately eleven hours being given to active military or naval drill; thirty-two hours to a set course of war studies comprising the fundamental sciences necessary for advancing in the various fields of the military, naval and marine services; and the remaining time being devoted to an elective study selected with the advice of the officer of the appropriate service with a view to acquiring a practical use of one of the essential war sciences.

LIVING CONDITIONS

Upon being inducted into service the student will be under military discipline. He will be housed in barracks on the campus under the direct control of regularly appointed government officers. The Army mess will be provided. His status will be that of a private in the Army. He will wear the prescribed uniform of the respective service and will receive the soldier's pay of $80.00 a month. No tuition, laboratory or other fees are charged by the University.
UNIVERSITY OF WASHINGTON

STATUS OF STUDENTS WHO MAY NOT BE INDUCTED INTO SERVICE

High school graduates under eighteen years of age may be received for instruction in courses prescribed for the Students' Army Training Corps, but such students will not be inducted into service, will not receive pay, nor be permitted to live in the barracks. Such a student will be required to pay the usual University fees, and provide his own uniform at an expense of approximately $80.00.

STATUS OF STUDENTS WHO ARE INELIGIBLE FOR MILITARY SERVICE

All male students who are ineligible for military service because of age or physical defects are admitted to the regular university work as far as it may be possible to provide the same. Such students may also be admitted to courses provided for the S. A. T. C. as far as size of classes permits.

REQUIRED MILITARY DRILL

All able-bodied male students not in the S. A. T. C. are required to take five hours per week of military training.

REQUIRED COURSE FOR S. A. T. C.

ARMY, NAVY, MARINES

The following subjects are required of all entering men unless excused by the registering officer:

<table>
<thead>
<tr>
<th>Course</th>
<th>Clock Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>War Aims</td>
<td>3 6 9</td>
</tr>
<tr>
<td>War Mathematics—a</td>
<td>3 6 9</td>
</tr>
<tr>
<td>Algebra, Geometry, Trigonometry</td>
<td></td>
</tr>
<tr>
<td>War French, or</td>
<td>3 5 8</td>
</tr>
<tr>
<td>War German*</td>
<td></td>
</tr>
<tr>
<td>Military Law (Army and Marines)</td>
<td>3 1 4</td>
</tr>
<tr>
<td>Naval Law (Navy)</td>
<td></td>
</tr>
<tr>
<td>For four weeks.</td>
<td></td>
</tr>
<tr>
<td>Hygiene and Sanitation</td>
<td>3 1 4</td>
</tr>
<tr>
<td>For four weeks.</td>
<td></td>
</tr>
<tr>
<td>War Physics (Explosives and Ballistics)</td>
<td>3 1 4</td>
</tr>
<tr>
<td>Military Topography and Map-Making</td>
<td></td>
</tr>
<tr>
<td>(Army and Marines)</td>
<td>3 0 3</td>
</tr>
<tr>
<td>Elements of Navigation (Navy)</td>
<td>5a 0 5</td>
</tr>
<tr>
<td>Elective Course</td>
<td></td>
</tr>
<tr>
<td>Military, Naval or Marine Training</td>
<td></td>
</tr>
<tr>
<td>(Required of all)</td>
<td></td>
</tr>
</tbody>
</table>

* Prerequisite, 2 years of High School German or an equivalent.
† These three courses are to be taken one at a time.
‡ This elective should be the beginning of the preparation for the particular arm of the service which the student desires to enter.
ELECTIVE COURSES

An entering man will take one elective, and, if excused from some of the above fundamental courses, will take other elective courses. The elective courses in each group are arranged in the order of their importance.

1. Line Officers.
   Any of the electives.

2. Aviation.
   Physics 1S. Prerequisite, H. S. Physics.

3. Artillery, Naval Ordnance.
   Physics 97S. Prerequisite, H. S. Physics and Trigonometry.
   Mathematics 61S (Calculus). Prerequisite, 1 year College Mathematics.
   Chemistry 52S (Chemistry of Explosives). Prerequisite, 1 year College Chemistry.
   Physics 116S (Electricity). Prerequisite, Physics 98S.
   Physics 193S (Ordnance and Gunnery). Prerequisite, Mathematics 61S and Physics 116S.

4. Ordnance.
   See electives for Engineers and Chemists.

5. Chemists.
   (a) Chemical War Service.
       Chemistry 1S.
       Chemistry 8S (Qualitative). Prerequisite, Chemistry 1S.
       Chemistry 101S (Quantitative). Prerequisite, Chemistry 8S.
       Chemistry 81S (Organic). Prerequisite, Chemistry 1S.
       For special technical courses consult the head of the department.
   (b) Chemists and Chemical Engineers.
       See (a) above and consult the head of department.

6. Engineers.
   (a) Freshmen.
       C. E. 11S (Surveying, Drawing, Engineering Problems).
       E. E. 1S (Radio-Electricity).
       E. E. 81S (Telephone).
       M. E. 1S (Elements of Steam Engines).
(b) Sophomores.

**E. E. and M. E.**

Math. 61S. Prerequisite, 1 year of College Math.
Physics 97S. Prerequisite, H. S. Physics and Trig.
Physics 98 S. Prerequisite, Physics 97S.
M. E. 90S (Machine Design). Prerequisite, C. E. 11S.

**C. E.**

Math. 61S.
Physics 97S.
C. E. 22S (Railroads).

(c) Juniors.

**M. E. and E. E.**

C. E. 181S. Prerequisites, C. E. 11S and Math. 61S.
E. E. 101S (Direct Current Machinery). Prerequisites, Physics 98S and Math. 61S.
E. E. 120S (Alternating Current Machinery). Prerequisite, E. E. 101S.
M. E. 198S (Gas Engines). Prerequisites, Physics 97S, M. E. 1S.
M. E. 183S (Fuel Economy and Thermodynamics). Prerequisites, Physics 98S, M. E. 1S.

**C. E.**

Physics 98S. Prerequisite, Physics 97S.
C. E. 181S. Prerequisites, C. E. 11S and Math. 61S.
For other electives consult the head of the department.

(d) Seniors.

**E. E.**


**M. E.** Consult the head of the department.

**C. E.**

C. E. 184S (Frame Structures). Prerequisite, C. E. 131S.
For all senior electives consult the heads of the respective departments.

7. Medical, Hospital, Sanitary Corps.

Bacteriology 108. Prerequisites, 1 year each of Chemistry and Biology.
Bacteriology 110. Prerequisite, Bact. 108.
Pharmacy 1S.
Pharmacy 18S. Prerequisite, Pharm. 1S.
Pharmacy 5S. Prerequisite, 1 year of Chemistry.
8. Quartermaster, Paymaster.

   Economics 11S (Elements of Accounting).
   Economics 59S (Statistics and Transportation).
   Economics 1S (Business Correspondence).


   (a) Deck Officers.

   See electives under Artillery and Naval Ordnance.

   (b) Engineering.

   Physics 97S, 98S. Prerequisites, H. S. Physics and Trig.
   Mathematics 61S (Calculus). Prerequisite, 1 year of College Math.
   M. E. 1S (Elements of Steam Engines).
   E. E. 101S (Direct Current Machinery). Prerequisites, Physics 98S and Math. 61S.
   E. E. 120S (Alternating Current Machinery). Prerequisite, E. E. 101S.
   M. E. 199S (Gas Engines). Prerequisite, Physics 97S, M. E. 1S.
   M. E. 188S (Fuel Economy—Thermodynamics). Prerequisites, Physics 98S, M. E. 1S.
   M. E. 90S (Machine Design). Prerequisite, C. E. 11S.
### TIME SCHEDULE FOR ELECTIVES

The following are the abbreviations used for buildings: B.—Bagley Hall; B.S.—Book Store Building; C.—Commerce Hall; D.—Denny Hall; E.—Engineering; F.—Forestry; H.E.—Home Economics Hall; Li.—Library; M.H.—Meaney Hall; S.—Science.

#### ABBREVIATIONS USED

- **Course**
- **Section**
- **Time**
- **Room**

#### Astronomy —
- **Course**: Astron. 28

#### Bacteriology —
- **Course**: Gen. Bact. 103
  - **Lab.**: M., W., F., 11  
  - **Time**: S. 208
- **Course**: Bact. 110
  - **Lab.**: T., 11  
  - **Time**: S. 208

#### Chemistry —
- **Course**: Gen. Chem. 1S
  - **Lab.**: M., W., F., 11  
  - **Time**: B.L.H.
- **Course**: Qual. Chem. 3S
  - **Lab.**: T., Th., S., 11  
  - **Time**: B.L.H.
- **Course**: Quant. Chem. 101S
  - **Lab.**: M., W., F., 2-5  
  - **Time**: B. 301
- **Course**: Organic Chem. 31S
  - **Lab.**: M., W., F., 11  
  - **Time**: B. 301
- **Course**: Chem. of Explosives 52S...

#### Economics —
- **Course**: Econ. 1S
  - **Section**: T., Th., S., 11  
  - **Time**: C. 217
- **Course**: Econ. 11S
  - **Section**: M., W., F., 11  
  - **Time**: C. 217
- **Course**: Econ. 59S
  - **Section**: M., T., W., Th., F., S., 11  
  - **Time**: C. 307

#### Engineering —
- **Course**: C. E. 11S
  - **Lab. a**: M., W., F., 11  
  - **Time**: F. 103
  - **Lab. b**: T., Th., F., 11  
  - **Time**: F. 103
- **Course**: C. E. 22S
  - **Lab.**: T., Th., 8-11  
  - **Time**: E. 304
- **Course**: C. E. 181S
  - **Lab.**: T., 11  
  - **Time**: E. 303
- **Course**: C. E. 134S
  - **Lab.**: M., W., 2-5  
  - **Time**: E. 303
  - **Lab.**: W., 11  
  - **Time**: E. 307
- **Course**: E. E. 1S
  - **Lab. 1**: M., W., 11  
  - **Time**: E. 317
  - **Lab. 2**: T., Th., 11  
  - **Time**: E. 317
- **Course**: E. E. 31S
  - **Lab. 1**: T., 8-11  
  - **Time**: E. 317
  - **Lab. 2**: M., F., 11  
  - **Time**: E. 309
  - **Lab. 3**: W., S., 11  
  - **Time**: E. 309
- **Course**: E. E. 101S
  - **Lab. 1**: M., T., W., Th., F., S., 8  
  - **Time**: E. 313
- **Course**: E. E. 120S
  - **Lab.**: T., Th., 9-12  
  - **Time**: E. 201
  - **Lab.**: M., T., W., Th., F., 11  
  - **Time**: E. 313
- **Course**: E. E. 180S
  - **Lab.**: T., Th., 8-11  
  - **Time**: E. 201
  - **Lab.**: M., T., W., Th., F., 11  
  - **Time**: E. 304
- **Course**: M. E. 1S
  - **Lab. to be ar.**: M., W., F., 11  
  - **Time**: E. 310
  - **Lab. 1**: M., W., F., 11  
  - **Time**: E. 301
- **Course**: M. E. 90S
  - **Lab.**: M., W., 2-5  
  - **Time**: E. 307
- **Course**: M. E. 183S
  - **Lab.**: M., W., Th., F., 8  
  - **Time**: E. 329
- **Course**: M. E. 185S
  - **Lab.**: M., W., 2-5  
  - **Time**: E. 313

#### Mathematics —
- **Course**: Math. 61S
  - **Section**: M., T., W., Th., F., 8  
  - **Time**: S. 207
<table>
<thead>
<tr>
<th>Course</th>
<th>Section</th>
<th>Time</th>
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</tr>
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<tbody>
<tr>
<td>Pharmacy</td>
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<td></td>
<td></td>
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<tr>
<td>Pharm. 1S</td>
<td>Lab.</td>
<td>M., W., F., 11</td>
<td>B. 307</td>
</tr>
<tr>
<td>Pharm. 11S</td>
<td>Lab.</td>
<td>M., W. or F., 2-5</td>
<td>B. 303</td>
</tr>
<tr>
<td>Pharm. 13S</td>
<td>Lab.</td>
<td>T., Th., S., 11</td>
<td>B. 307</td>
</tr>
<tr>
<td>Pharm. 106S</td>
<td>Lab.</td>
<td>T., 11</td>
<td>B. 303</td>
</tr>
<tr>
<td>Physics</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Physics 1S</td>
<td>Lab.</td>
<td>M., W., F., 11</td>
<td>D. 127</td>
</tr>
<tr>
<td>Physics 97S</td>
<td>Lab.</td>
<td>M., W. or F., 2-5</td>
<td>D. 107</td>
</tr>
<tr>
<td>Physics 116S</td>
<td>Lab.</td>
<td>M., W., F., 8</td>
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##### II—Architecture

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**Note.—For major courses consult Professor Gould.**

##### III—Painting and Design

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#### FORESTRY

Note.—For advanced course consult the Dean of the College.

#### GEOLOGY

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### MILITARY SCIENCE AND TACTICS

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### MINING ENGINEERING

Note.—Consult the Dean of the College.

### ORIENTAL LANGUAGES AND LITERATURE

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Unclassified Freshman, Sophomore, Junior and Senior men not taking Military Science must arrange with the department for a recreation period between the hours of 3 and 6, on M, T, W, Th or F.
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**PHYSICS**

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EXPLANATIONS

An asterisk (*) denotes that the time, place, or instructor, as the case may be, is to be determined.

The following are the abbreviations used for buildings:

Ar.—Armory  F.—Forestry Hall
Arch.—Architecture Building  Gym.—Gymnasium
Anat.—Anatomy Building  H.E.—Home Economics Hall
As.—Astronomy Building  Li.—Library
B.—Bagley Hall.  M.H.—Meany Hall
B.S.—Book Store Building  M.—Mines Hall
C.—Commerce Hall.  S.—Science Hall
D.—Denny Hall.  Shop—Shop Building
E.—Engineering Hall
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### UNIVERSITY OF WASHINGTON

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**FINE ARTS**

**I—Music**

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#### FINE ARTS—(Continued)

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**JOURNALISM**

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**LAW**

NOTE.—Consult the Dean of the College.

**LIBRARY ECONOMY**

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**MATHEMATICS**

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#### Military Science and Tactics

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#### Mining Engineering

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<td>Lit. of Egypt and Babylon</td>
<td>M, T, W, Th, F, 10</td>
<td>D.312</td>
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Note.—For other courses consult the Dean of the College.
# University of Washington

## Pharmacy

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## Philosophy

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## Physical Education

### Men


*Unclassified, Freshman, Sophomore, Junior and Senior men not taking Military Science must arrange with the department for a recreation period between the hours of 3 and 6, on M, T, W, Th or F.*

### Women

4 A  Hygiene          Th, 10          S.208|Irwin |
| 4 B  Hygiene          Th, 11          S.208|Irwin |
| 2 A  Gym              T, 11          Gym. Merrick|
| 2 B  Gym              T, 11          Gym. Merrick|
| 2 C  Gym              M, W, 11         Gym. Merrick|
| 2 D  Gym              M, W, 3          Gym. Pray |
| 6 A  Military Drill   T, Th, 4        Gym. Kennedy|
| 6 B  Corrective Gym.  T, Th, 11       Gym. Bloom|
| 6 C  Corrective Gym.  T, Th, 11       Gym. Bloom|
| 6 D  Corrective Gym.  M, Th, 11       Gym. Bloom|
| 10 A  Athletics       T, Th, 8        Gym. Pray |
| 10 B  Athletics       M, W, 3        Gym. Pray |
| 10 C  Athletics       M, W, 8        Gym. Pray |
| 54 A  Food            T, 11          H.E.310| Fitzgerald|
| 54 B  Food            F, 1          H.E.310| Fitzgerald|
| 54 C  Gym             M, W, 9        Gym. Pray |
| 54 D  Gym             T, Th, 2        Gym. Harrington|
| 56 B  Corrective Gym. M, W, 10        Gym. Bloom|
| 56 C  Corrective Gym. T, Th, 10       Gym. Bloom|
| 56 D  Corrective Gym. M, Th, 11       Gym. Bloom|
| 56 E  Corrective Gym. T, Th, 2        Gym. Bloom|
| 60 A  Athletics       M, W, 4        Gym. Pray |
| 60 B  Athletics       T, Th, 10       Gym. Pray |
| 60 C  Athletics       M, W, 8        Gym. Harrington|
| 60 D  Athletics       T, F, 11       Gym. Harrington|
| 60 E  Athletics       M, W, 9        Gym. Harrington|
| 60 F  Athletics       T, Th, 9        Gym. Pray |
| 60 G  Athletics       T, W, 11       Gym. Harrington|
| 64 A  Dancing          M, W, 10      Gym. Pray |
| 102 B  Methods        M, W, 10      Gym. Harrington|
| 118 C  Folk Dancing   T, Th, F, 3    Gym. Harrington|
### PHYSICAL EDUCATION—(Continued)

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(S. A. T. C. engineers who have had 97s or 1s)

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#### POLITICAL SCIENCE

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#### PSYCHOLOGY

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#### ROMANIC LANGUAGES

**I—French**

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9 | Composition and Conv. | T, Th, 11 | D.306 | Heilminge  
41 | Phonetics | M, W, F, 11 | D.310 | Frein  
101 | Adv. Comp. and Conv | M, W, F, 10 | D.306 | Patzer  
102A | Adv. Comp. and Conv | M, W, F, 9 | D.309 | Heilminge  
102B | Adv. Comp. and Conv | M, W, F, 2 | D.309 | Heilminge  
104 | Adv. Reading and Conv | T, Th, 10 | D.311 | Patzer  
105A | Adv. Reading and Conv | T, Th, 9 | D.306 | Ratti  
105B | Adv. Reading and Conv | T, Th, 2 | D.309 | Heilminge  
122 | Teachers' | T, Th, 11 | D.310 | Frein  
242 | Seminar | T, Th, 4 | Li | Frein  

II—Italian

2 | Elementary | M, T, W, Th, F, 11 | D.318 | Goggio  

III—Spanish

1 | Elementary | M, T, W, Th, F, 8 | D.311 | Santander  
2A | Elementary | M, T, W, Th, F, 9 | D.309 | Santander  
2B | Elementary | M, T, W, Th, F, 10 | D.302 | Ober  
3 | Reading and Conversation | M, W, F, 1 | D.303 | Ober  
5 | Reading and Conversation | M, W, F, 11 | D.303 | Ober  
6 | Reading and Conversation | M, W, F, 9 | D.308 | Umphrey  
7 | Composition | T, Th, 10 | D.308 | Santander  
8 | Composition | T, Th, 11 | D.308 | Santander  
113 | Commercial | M, W, F, 10 | D.318 | Santander  
142 | Drama | M, W, F, 10 | D.206 | Umphrey  
155 | Spanish-American Lit | M, W, F, 9 | D.206 | Umphrey  
191 | Teachers' | T, Th, 1 | D.303 | Ober  

SCANDINAVIAN

2 | Swedish | M, T, W, Th, F, 9 | D.208 | Vickner  
4 | Norwegian-Danish | M, T, W, Th, F, 10 | D.208 | Vickner  
6 | Norwegian-Danish Lit | M, W, 1 | D.208 | Vickner  
9 | Swedish Lit. | T, Th, 3 | D.208 | Vickner  
14 | Scan. Culture and Instit | W, 4 | D.208 | Vickner  
104 | Modern Swedish Lit | M, 4-6 | D.208 | Vickner  
107 | Modern Norw.-Dan. Lit | T, Th, 2 | D.208 | Vickner  
110 | Scan. Lit. in Trans | F, 2 | D.208 | Vickner  
202 | Old Norse (Icelandic) | M, W, 3 | D.208 | Vickner  

SOCIOLOGY

52 | Social Evolution | M, W, F, 10 | H.E.304 | Waterman  
58 | Americanization | T, Th, 10 | H.E.304 | Waterman  
106 | American Social Conditions | W, 4-6 | H.E.210 | Thomas  
152 | Ethnology of the Old World | M, W, F, 9 | H.E.210 | Waterman  
156 | Family and the Community | M, W, F, 9 | H.E.304 | Thomas  

ZOOLOGY

1 | Elementary | M, W, F, 8 | S.205 | Kincaid  
1A | Laboratory | T, Th, 8-11 | S.205 | Kincaid  
1B | Laboratory | M, W, 1-4 | S.205 | Pasten  
1C | Laboratory | T, Th, 1-4 | S.205 | Pasten  
2A | Elementary | M, W, F, 10 | S.205 | Kincaid  
2A | Laboratory | T, Th, 8-11 | S.205 | Pasten  
2B | Laboratory | M, W, 1-4 | S.205 | Pasten  
2C | Laboratory | T, Th, 1-4 | S.205 | Pasten  
4 | Vertebrate Zoology | M, W, F, 9 | S.208 | Pasten  
7 | Laboratory | M, W, 1-4 | S.208 | Pasten  
104 | Advanced Entomology | M, W, F, 9 | S.203 | Kincaid  
201 | Problems | * | S.203 | Kincaid  

II—Physiology

9 | General | M, W, F, 1 | S.211 | Smith  
9A | Laboratory | M, F, 2-5 | S.211 | Smith  
12 | Physiology and Hygiene | M, W, F, 9 | S.211 | Smith  
12A | Laboratory | T, Th, 8-10 | S.211 | Smith  
12B | Laboratory | M, W, F, 8 | S.211 | Smith  
201 | Laboratory | T, Th, 1-4 | S.211 | Smith  

UNIVERSITY OF WASHINGTON
Time Schedule
Spring Quarter
1919
EXPLANATIONS

An asterisk (*) denotes that the time, place, or instructor, as the case may be, is to be determined.

The following are the abbreviations used for buildings:

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# Time Schedule

## Anatomy

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### UNIVERSITY OF WASHINGTON

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<td>B.</td>
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#### CIVIL ENGINEERING

<table>
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<tr>
<td>1</td>
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<td>F, 10</td>
<td>E.310</td>
<td>Weld</td>
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<td>2</td>
<td>Drawing</td>
<td>T, Th, 8-11</td>
<td>E.310</td>
<td>Weld</td>
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<td>12</td>
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<td>M, 10</td>
<td>E.309</td>
<td>Miller</td>
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<tr>
<td>21</td>
<td>Surveying</td>
<td>M, 2</td>
<td>E.306</td>
<td>Hamilton</td>
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<td>T, F, 8-11</td>
<td>E.308</td>
<td>Hayden</td>
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<td>56</td>
<td>Forest Surv.</td>
<td>M, W, F, 9</td>
<td>E.304</td>
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<td>122</td>
<td>Highways</td>
<td>M, W, F, 10</td>
<td>E.306</td>
<td>Allison</td>
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<tr>
<td>133</td>
<td>Rein. Concrete</td>
<td>M, W, F, 9</td>
<td>E.313</td>
<td>Weld</td>
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<tr>
<td>142</td>
<td>Frame Struct.</td>
<td>E</td>
<td>*</td>
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<td>167</td>
<td>Str. Materials</td>
<td>T, 11</td>
<td>E.304</td>
<td>Ford</td>
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### TIME SCHEDULE

#### CLASSICAL LANGUAGES

<table>
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<tr>
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<td>3</td>
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<td>M, T, W, Th, F, 8</td>
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<tr>
<td>14</td>
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<td>Gk-Rom. Lit.</td>
<td>M, T, W, Th, F, 2</td>
<td>D.311</td>
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#### II—Latin

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<tr>
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<td>Catullus</td>
<td>M, W, F, 9</td>
<td>D.305</td>
<td>Clark</td>
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<tr>
<td>9</td>
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<td>Sght Translation</td>
<td>M, T, Th, 9</td>
<td>D.317</td>
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<td>M, W, F, 1</td>
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<td>Roman Art</td>
<td>T, 11</td>
<td>D.213</td>
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#### ECONOMICS AND BUSINESS ADMINISTRATION

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<td>de Haas</td>
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<td>T, Th, 9</td>
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<tr>
<td>225</td>
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<td>Pro-Seminar</td>
<td>T, 7 p. m.</td>
<td>*</td>
<td>Miller, de Haas</td>
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<td>*</td>
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<tr>
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#### EDUCATION

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<td>Prin. of Education</td>
<td>M, T, W, Th, F, 10</td>
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<td>109 B</td>
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<td>Socio. I (Soc. Founda-</td>
<td>M, W, F, 9</td>
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<td>Ayer</td>
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<td>119</td>
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<td>High School Curriculum</td>
<td>M, W, F, 9</td>
<td>H.E.314</td>
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<td>163</td>
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<td>T, 7-9 p. m.</td>
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<td>155 A</td>
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<td>Childhood and Adolescence</td>
<td>M, W, F, 11</td>
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<td>157 A</td>
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<td>Methods of Teaching</td>
<td>M, W, F, 8</td>
<td>H.E.314</td>
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<tr>
<td>157 B</td>
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<td>Methods of Teaching</td>
<td>M, W, F, 10</td>
<td>H.E.314</td>
<td>Woody</td>
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<td>Lecture, 1</td>
<td>H.E.310</td>
<td>Freeland</td>
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<td>183</td>
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<td>Elementary Ed. Meas.</td>
<td>M, W, at 1</td>
<td>H.E.314</td>
<td>Woody</td>
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<td>183</td>
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<td>M, W, F, at 1</td>
<td>H.E.314</td>
<td>Ayer</td>
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<td>193</td>
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<td>Adolescence</td>
<td>T, Th, at 11</td>
<td>H.E.314</td>
<td>Ayer</td>
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<tr>
<td>253</td>
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<td>H.E.310</td>
<td>Koos</td>
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<td>293</td>
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<td>Th, 4-6</td>
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<td>Seminar on Play</td>
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<td>Research</td>
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<td>H.E.</td>
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6

UNIVERSITY OF WASHINGTON

ELECTRICAL ENGINEERING

No. Sec.
Subject
101
Elec. Eng.

102

Elec. Eng.

103

Elec. Eng.

104
161

Elec. Eng.
Elec. Eng.

162
163
164
151

Elec.
Elec.
Elec.
Elec.

Time
M, W, F, 10 •••.•••.•••
T, 1-4 ....•...•••••••••
T, 8-11 ...••••••••••• "
Th, 1-4 ..•.•...••...•••
M, T, W, F, 8 .•.•..•••
M, 1-4 ................ .
W, F, 1-5 ••••......•••
M,W, F.8 ••.•.•.•••••
T, Th, 8-10 •.••••••••••
W, F, 1-5 ••.••••••••••

Eng.
Eng.
Eng.
Eng.

201

Elec. Eng

211

Elec. Eng.

T, Th, 8............. .

M, 1-5 ................ .
M. W. F. 9-11 .••••••• ,
T. 1-5 ...•.•...••...•••
W.8 •••.......•••..•••
Th. 1-5 .....•.••••...• ,

· ....•.............

Room
E.319
E.319
E.201
E.201
E.322
E.317
E.201
E.319
E.319
E.201
E.317
E.201
E.S17
E.317
E.317
E.211
E.213

Instructor
Curtis
Curtis
Shuck
Shuck
Shuck
Shuck
Shuck
Curtis
Curtis
Shuck
Magnusson
Magnusson
Shuck
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Magnusson
Magnusson
Magnusson

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75
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70
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103
106
135

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167
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Fresh. Compo .•••••••.••.••
Fresh. Compo ............. .
Fresh. Compo ............. .
Fresh. Compo .••...••••••••
Fresh. Compo ............. .
Fresh. Compo ............. .
Fresh Compo ••••••••••••••
Fresh. Compo ••••••••••••••
Fresh. Compo .•••••••••..••
Fresh. Compo ........•••...•
Fresh. Compo .••...•.....••
Fresh. Compo ......•••..•••
Fresh. Compo .••..•••....••
Fresh Compo ..........•.••
Fresh. Compo (Fine Arts) ..
Fresh. Compo (Fine Arts) ••
Advanced Compo .••....•••
Contemporary Lit..•...•••
Contemporary Lit. • ...•.••
Contemporary Lit. ..••..••
Shakespeare ...••••.•...••
Introduction to Poetry .•••
See Journalism ....••...••
Contemporary Lit. (Jr. Sr.)
Main Tendencies •..••.•..•
Social Ideals' .....•••••..••
American Lit. ••.••.••..•••
American Lit. • ........... .
Great Am. Writers ••••••••
Victorian Poets ...•••••• ,.
General Literature ••.•••• ',
Teachers' Course ••••••••• ,
Senior Conference .•••.••••
Pro-Seminar. Chaucer ...••

M. T. W, Th, F, 8 ••••. D.226
M], T, W. Th. F, 8 ..••• D.213
M;, T, W, Th. F, 8 ..••• D.230

M, T. W. Th, F. 8 ..•..
M, T. W. Th. F. 8 .•...
:M. T. W, Th. F. 8 ...•.
M, T, W. Th. F. 9 ...••
M, T. W, Th, F, 9 •....
M, T, W, Th. F. 9 ..•••
M, T. W. Th, F. 9 ...•.
M, T. W. Th. F. 10 ..••
M, T. W, Th. F, 1 •••.••
M, T, W. Th. F, 1. ..•••
M, T. W. Th. F.1 ..•••.
M.W. F. 8.· ..••..•.•••
M, W. F, 1 ..•.......••
M. W. F. 11 .•.•..•••.•
M. W. F. 10 .....•..•..
M.W.F,2 .•.••••••.••
M.W, F, 1 ...........•
M, W. F, 10 ...•...••••
M.W, F. 2 .....•.•..•.

D.S17
D.226
D.3IS
D.225
D.2S0
D.226
D.318
D.230
D.226
D.230
D.226
D.221"
D.317
D.221
D.226
D.221
D.3IS
D.317
D.225

M.W,F,2 .......•••..
M, W, F. 10 ..••....•••
M.W. F, 9 ........•..•
M, W, F, 9 ...•..•..•..
M, W, F, 11 •••••.••••
M.W.F.1 ...••.••••••
M, W, F. 9 .•••..••••••

D.3IS
D.225
D.221
D.213
D.225
D.221
D.317
D.224
T. 4-6 •.••••••••••..•• D.3IS
D.224
T, 7-9 p. moo •••••••••• Library

·· .................
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Gregg
Rochester
Haggett

•

Kelsey
Harrison
ChittickKelsey
Haggett
Mllliman
Ernst
Garrett
Rochester
Eckelman
Eckelman
Harrison
Mllliman
Gregg
Ernst
Ernst
Padelford
Parrington
Harrison
Parrlngton
Gregg
Parrington
Parrlngton
Mllliman
Padelford
Johanson
Garrett
Johanson
Garrett

FINE ARTS
I-H1UIIe

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30

Fundamentals ............ .
History ••...••••• oo •• , ••••
Sight Reading •..•••••••••
Sight Reading ••...•.•••••
Choral Study ••..•••••••••
Ear Trg. and Mel. Writ..•• ,
Appl1ed Music •••.•••••• ".
University Orchestra ••••••
University Band .•••.•.• oo.
Chamber Music •••••••••• ,
Ensemble Singing., ••• ".

T, Th, 10 ••..••••••••••
M. W.10 ••...•••.•••••
M.W,9 ....•..•••••.•.
T, Th, 9 .....•.••.••••
W, 7:S0 p. m .••.•.••••
M, W, 10 .....••.....••

· ................ .

M.H.112 Van Ogle
M.H.ll2 Glen
M.H.II0 Dickey
M.H.ll0 Dickey
M.H.Aud.Glen
M.H.ll0 Dickey

•

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T, 7:30 p. m ..•....•••• M.H.Aud.Glen

•
Th.7:30"p:Ui:::::::::

-

M.H.tll Rosen
M.3 ••••.••...••........ M.H.ll0 Dickey


**Time Schedule**

**FINE ARTS—(Continued)**

<table>
<thead>
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<th>Room</th>
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<tr>
<td>33</td>
<td>Harmony</td>
<td>T, Th, 9</td>
<td>M.H.102</td>
<td>Wood</td>
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<tr>
<td>36</td>
<td>School Music</td>
<td>M, W, 11</td>
<td>M.H.110</td>
<td>Dickey</td>
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<tr>
<td>103</td>
<td>Adv. Harmony</td>
<td>M, Th, 10</td>
<td>M.H.102</td>
<td>Wood</td>
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<tr>
<td>105</td>
<td>Adv. Hist. of Music</td>
<td>T, Th, 9</td>
<td>M.H.112</td>
<td>Van Ogle</td>
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<td>Counterpoint</td>
<td>T, F, 10</td>
<td>M.H.102</td>
<td>Wood</td>
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<td>Analysis, Form</td>
<td>T, F, 8</td>
<td>M.H.102</td>
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<tr>
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<td>Music Education</td>
<td>T, Th, 10</td>
<td>M.H.110</td>
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<td>Composition</td>
<td>W, 10-12</td>
<td>M.H.102</td>
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<td>T, Th, 2</td>
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<td>M.H.110</td>
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**II—Architecture**

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**III—Painting, Sculpture and Design**

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### University of Washington

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