



CATALOGUE
For 1910-11 and
ANNOUNCEMENTS
For 1911-12
OF THE
UNIVERSITY OF WASHINGTON



SEATTLE
WASHINGTON

OLYMPIA, WASH.:
E. L. BOARDMAN, PUBLIC PRINTER
1911

CONTENTS

	<i>Page</i>
CALENDAR FOR 1909-10 AND 1910-11.....	6
BOARD OF REGENTS.....	8
EXECUTIVE OFFICERS	9
FACULTY AND OTHER OFFICERS.....	10
COMMITTEES OF THE FACULTY.....	35
GENERAL INFORMATION	37
Historical Sketch	37
Environs	39
Government	39
Endowments and Support.....	39
Bequests	40
Student Expenses	41
Board and Room.....	41
Cadet Uniform	42
Laboratory Deposits	42
Dean of Women.....	45
Scholarships	45
Prizes	46
University Lectures	57
EQUIPMENT	59
Grounds	59
Buildings	59
Library	63
Museum	65
Laboratories	70
Observatory	85
ADMISSION AND GRADUATION.....	86
Preparation for Admission.....	88
Admission from Accredited Schools.....	98
Accredited Schools	99
Admission to Advanced Undergraduate Standing.....	99
Admission to Graduate Standing.....	100
Admission as Special Students.....	101
Degrees	102
ORGANIZATION OF THE UNIVERSITY.....	105

	<i>Page</i>
COLLEGE OF ARTS AND SCIENCES.....	106
Departments of Instruction.....	106
Astronomy	115
Botany	117
Chemistry	122
Education	128
English	133
French	139
Geology	143
German	147
Greek	152
History	155
Home Economics	162
Italian	166
Journalism	166
Latin	171
Mathematics	177
Military Science and Tactics.....	183
Music	184
Oriental History and Literature.....	186
Philosophy	188
Physics	196
Physical Training	192
Political and Social Science.....	201
Public Speaking and Debate.....	207
Scandinavian Languages	210
Spanish	211
Zoology	213
COLLEGE OF ENGINEERING.....	217
Departments of Instruction.....	
Chemical Engineering	232
Civil Engineering	236
Electrical Engineering	242
Mechanical Engineering	244
COLLEGE OF FORESTRY.....	250
SCHOOL OF LAW.....	266
COLLEGE OF MINES.....	275
COLLEGE OF PHARMACY.....	293
GRADUATE SCHOOL	306
SUMMER SESSION	307
DIRECTORY OF OFFICERS.....	309
DEGREES GRANTED IN 1910.....	316
SCHOLARSHIPS AND PRIZES AWARDED FOR 1911.....	321
REGISTER OF STUDENTS.....	323

UNIVERSITY CALENDAR

1910-1911

Campus day	Apr. 28
Junior day	May 12
Decoration day, holiday.....	May 30
Semester examinations close.....	June 9
Baccalaureate Sunday	June 11
President's reception	June 12
Alumni day	June 11
Commencement	June 14

SUMMER SESSION

Registration day	June 26
Recitations begin	June 27
Session closes	Aug. 4

1911-1912

FIRST SEMESTER

Examination for admission....	Friday and Saturday, Sept. 15, 16
Registration days....	Monday, Tuesday, Wednesday, Sept. 18, 19, 20
Thanksgiving vacation.....	{ Wednesday, Nov. 29, 6 p. m., to Monday, Dec. 4, 8 a. m.
Christmas vacation.....	{ Friday, Dec. 22, 6 p. m., to Wednesday, Jan. 3, 8 a. m.
Semester examinations....	{ Wednesday, Thursday, Friday, Satur- day, Monday, Jan. 24, 25, 26, 27, 29.
First semester closes.....	Tuesday, Jan. 30

SECOND SEMESTER

Registration day, entering students.....	Wednesday, Jan. 31
Reregistration days.....	{ Thursday, Friday, Feb. 1, 2. One day for liberal arts students.
Recitations begin.....	Monday, Feb. 5
Washington's birthday, holiday.....	Thursday, Feb. 22
Spring vacation.....	{ Friday, March 29, 6 p. m., to Tuesday, April 9, 8 a. m.
Campus day and Junior day, holiday.....	Friday, May 10
Decoration day, holiday.....	Thursday, May 30
Semester examinations close.....	Friday, June 7
Baccalaureate Sunday.....	June 9
President's reception.....	Monday, June 10
Alumni day.....	Tuesday, June 11
Commencement.....	Wednesday, June 12

												SEPTEMBER. S. M. T. W. Th. F. S. <div>1 2</div> 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30																							
OCTOBER. S. M. T. W. Th. F. S. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31												NOVEMBER. S. M. T. W. Th. F. S. <div>1 2 3 4</div> 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30												DECEMBER, 1911. S. M. T. W. Th. F. S. <div>1 2</div> 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31											
JANUARY, 1912. S. M. T. W. Th. F. S. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31												FEBRUARY. S. M. T. W. Th. F. S. <div>1 2 3</div> 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29												MARCH. S. M. T. W. Th. F. S. <div>1 2</div> 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31											
APRIL. S. M. T. W. Th. F. S. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30												MAY. S. M. T. W. Th. F. S. <div>1 2 3 4</div> 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31												JUNE. S. M. T. W. Th. F. S. <div>1</div> 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30											

THE BOARD OF REGENTS

HON. F. A. HAZELTINE, President.....South Bend
Term Expires 1917.

HON. ALEX. F. McEWAN.....Seattle
Term Expires 1911.

*HON. M. F. BACKUS.....Seattle
Term Expires 1914.

HON. JOHN C. HIGGINS.....Seattle
Term Expires 1914.

HON. CHAS. P. SPOONER.....Seattle
Term Expires 1914.

HON. HOWARD G. COSGROVE.....Seattle
Term Expires 1915.

HON. JOHN A. REA.....Tacoma
Term Expires 1915.

HON. A. L. ROGERS.....Waterville
Term Expires 1916.

WILLIAM MARKHAM, Secretary of the Board.

*Resigned May, 1911.

EXECUTIVE OFFICERS

THE UNIVERSITY

THOMAS FRANKLIN KANE, PH. D., *President.*
HERBERT T. CONDON, LL. B., *Bursar and Secretary of the Faculty.*
EDWARD N. STONE, A. M., *Recorder.*
EDWIN B. STEVENS, A. M., *Secretary to the President.*
ISABELLA AUSTIN, A. B., *Dean of Women.*

THE SCHOOLS AND COLLEGES

ARTHUR SEWALL HAGGETT, PH. D., *Dean of the College of Arts and Sciences.*

Administration Building and Denny Hall.

ALMON HOMER FULLER, M. S., C. E., *Dean of College of Engineering.*

Engineering Building.

MILNOR ROBERTS, A. B., *Dean of the College of Mines.*
Mines Building.

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.*
Law Building.

FRANCIS GARNER MILLER, M. F., *Dean of the College of Forestry.*
Forestry Building.

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

THE LIBRARY

WILLIAM E. HENRY, A. M., *Librarian.*
Library Building.

FACULTY AND OTHER OFFICERS*

THOMAS FRANKLIN KANE, PH. D., *President.*

A. B., De Pauw University, 1888; A. M., 1891; Ph. D., Johns Hopkins University, 1895; Tutor in Latin, De Pauw University, 1886-88; Professor of Latin, Lewis College, 1888-91; Scholar in Latin, Johns Hopkins University, 1893-94; Fellow in Latin, 1894-95; Professor of Latin, Olivet College, 1895-1900; Professor of Latin Language and Literature, University of Washington, 1900-2; Acting President, 1902-3; President, 1903-.

ORSON BENNETT JOHNSON, LL. B., *Professor Emeritus of Zoology.*

LL. B., Union College Law School, 1869; Professor of Natural Science, University of Washington, 1882-92; Professor of Biology, *ibid.*, 1892-96; Curator of Museum, 1896; Professor Emeritus of Zoology, *ibid.*, 1910-.

HENRY LANDES, A. M., *Professor of Geology and Mineralogy.*

A. B., Indiana University, 1892; A. B., Harvard University, 1892; A. M., 1893; Assistant U. S. Geological Survey, 1891 and 1893; Assistant to State Geologist, New Jersey, 1892-94; Principal of Rockland (Me.) High School, 1894-95; Professor of Geology and Mineralogy, University of Washington, 1895-; State Geologist, 1901-.

EDMOND STEPHEN MEANY, M. L., *Professor of History.*

B. S., University of Washington, 1885; M. S., 1899; M. L., University of Wisconsin, 1901; Member of Washington Legislature, 1891 and 1893; Secretary of the Board of Regents, University of Washington, 1894-97; Registrar and Lecturer on Northwest History and Forestry, 1895-97; Professor of History, 1897-.

J. ALLEN SMITH, PH. D., *Professor of Political and Social Science, and Dean of the Graduate School.*

A. B., University of Missouri, 1886; LL. B., 1887; Ph. D., University of Michigan, 1894; Attorney-at-Law, Kansas City, 1887-92; Professor of Economics and Sociology, Marietta College, 1895-97; Professor of Political and Social Science, University of Washington, 1897-.

ALMON HOMER FULLER, M. S., C. E., *Professor of Civil Engineering and Dean of the College of Engineering.*

C. E., Lafayette College, 1897; M. C. E., Cornell University, 1898; M. S., Lafayette College, 1900; Mem. Am. Soc. C. E.; Fellow in Civil Engineering, Cornell University, 1897-98; Professor of Civil Engineering, University of Washington, since 1898; absent on leave, with American Bridge Company, Philadelphia, 1900-1901; Dean of College of Engineering, 1899-.

* The faculty list is arranged in six groups—*professors, associate professors, assistant professors, instructors, lecturers, graduate assistants.* In each group the names occur in the order of academic seniority.

~~*ARTHUR RAGAN PRIEST, A. M., Professor of Rhetoric and Oratory, and Dean of the College of Liberal Arts.~~

A. B., De Pauw University, 1891; A. M., 1894; Principal of High School, Seale, Ala., 1891-92; Associate Principal and Professor of English, McFerrin College, 1892-93; Instructor in Rhetoric and Oratory, De Pauw University, 1893-96; Professor, 1896-98; Instructor in Oratory, University of Wisconsin, 1898-99; Professor of Rhetoric and Oratory, University of Washington, 1899-.

JOHN THOMAS CONDON, LL. M., *Professor of Law, and Dean of the School of Law.*

Student, University of Washington, 1875-79; LL. B., University of Michigan, 1891; LL. M., Northwestern University, 1892; Assistant, in charge of Evidence, Northwestern University, 1891-92; Member of Seattle Bar since 1892; Professor of Law and Dean of School of Law, University of Washington, 1899-.

HORACE G. BYERS, PH. D., *Professor of Chemistry.*

A. B., and B. S., Westminster College, 1895; A. M., 1898; Ph. D., Johns Hopkins University, 1899; University of Leipzig, 1907-08; Professor of Chemistry, Tarkio College, 1895-96; Instructor in Physics, Westminster College, 1896-97; Instructor in Chemistry, Maryland University, 1898-99; Instructor in Chemistry, University of Chicago, (Summer Session) 1902-1903-1904; Professor of Chemistry, University of Washington, 1899-.

CAROLINE HAVEN OBER, *Professor of Spanish.*

Student, Wheaton Seminary, Norton, Mass., 1882-86; Massachusetts Normal School, Salem, 1888-89; Teacher, Public School, Palisade, Nevada, 1886-87; Instructor in Modern Languages, Bozeman Academy, Montana, 1887-87; Regent and Vice-Directress, Government Normal Schools, Argentine Republic, 1889-93; Instructor in Spanish, San Diego High School, California, 1896-97; Professor of Romanic Languages, University of Washington, 1897-1903; Professor of Spanish, 1908-.

TREVOR KINCAID, A. M., *Professor of Zoology.*

B. S., University of Washington, 1899; A. M., 1901; Instructor in Biology, University of Washington, 1895-99; Assistant, American Fur Seal Commission, 1897; Acting Professor of Entomology, Oregon Agricultural College, 1897-98; Entomologist, Harriman Alaska Expedition, 1899; Austin Scholar, Harvard University, 1905-6; Assistant Professor of Biology, University of Washington, 1899-1901; Professor of Zoology, 1901-.

* Resigned February 1, 1911.

FREDERICK MORGAN PADELFOED, PH. D., *Professor of English.*

A. B., Colby College, 1896; A. M., 1899; Ph. D., Yale University, 1899; Scholar in English, Yale University, 1896-98; Fellow, 1898-99; Professor of English, University of Idaho, 1899-1901; Research Work at British Museum, 1905-06; Professor of English Language and Literature, University of Washington, 1901-.

MILNOR ROBERTS, A. B., *Professor of Mining Engineering and Metallurgy, and Dean of the College of Mines.*

A. B., Stanford University, 1899; Instructor in Mineralogy, Stanford University, 1899-1900; Professor of Mining Engineering and Metallurgy, and Dean of the School of Mines, University of Washington, 1901-.

ARTHUR SEWALL HAGGETT, PH. D., *Professor of Greek and Dean of the College of Arts and Sciences.*

A. B., Bowdoin College, 1893; A. M., 1894; Ph. D., Johns Hopkins University, 1897; Student, University of Berlin and American School at Athens, 1897-98; Scholar in Greek, Johns Hopkins University, 1895-96; Fellow in Greek, 1896-97; Instructor in Greek, Bangor (Maine) High School, 1898-99; Instructor in Greek and Latin, Worcester Academy, 1899-1901; Assistant Professor of Greek and Latin, University of Washington, 1901-02; Professor of Greek Language and Literature, 1902-.

FREDERICK ARTHUR OSBORN, PH. D., *Professor of Physics, and Director of Physics Laboratories.*

Ph. B., University of Michigan, 1896; Ph. D., 1907; Graduate Student, University of Michigan, 1900-1902, and 1906-7; Assistant in Physics, Saginaw High School, 1890-91; Instructor in Physics, Ann Arbor High School, 1893-96; Professor of Physics, Olivet College, 1896-1902; Professor of Physics and Director of Physics Laboratories, University of Washington, 1902-.

WILLIAM SAVERY, PH. D., *Professor of Philosophy.*

A. B., Brown University, 1896; A. M., Harvard University, 1897; Ph. D., 1899; Assistant in Ethics, Harvard University, 1896-97; James Walker Fellow (traveling), Harvard University, 1897-98; Student in University of Berlin, 1897-98; Morgan Fellow, Harvard University, 1898-99; Assistant in History of Philosophy, Harvard University and Radcliffe College, 1899-1900; Professor of Psychology and Philosophy, Fairmount College, Kansas, 1900-1902; Professor of Philosophy, University of Washington, 1902-.

DAVID THOMSON, A. B., *Professor of Latin.*

A. B., University of Toronto, 1892; Classical Master in the High School, Orillia, Ontario, 1893-99; Fellow in Latin, University of Chicago, 1899-1901; Assistant in Latin, University of Chicago, 1901-02; Student, University of Munich, 1908-09; Professor of Latin, University of Washington, 1902-.

CHARLES WILLIS JOHNSON, PH. C., PH. D., *Professor of Pharmaceutical Chemistry, and Dean of the College of Pharmacy.*

Ph. C., University of Michigan, 1896; B. S., University of Michigan, 1900; Ph. D., University of Michigan, 1903; Practical Pharmacist, Detroit, Michigan, 1896-98; Assistant Instructor in Chemistry, University of Michigan, 1898-01; Instructor in Chemistry, University of Iowa, 1901-02; Assistant Professor in Chemistry, University of Washington, 1903-04; Professor of Pharmaceutical Chemistry, and Dean of the School of Pharmacy, University of Washington, 1904.

PIERRE JOSEPH FREIN, PH. D., *Professor of French.*

A. B., Williams College, 1892; Ph. D., Johns Hopkins University, 1899; Instructor in Modern Languages, Holbrook Military School (New York), 1892-93; Instructor in French and Greek, Oahu College (Honolulu), 1893-95; Student in Europe and Johns Hopkins University, 1895-99; Fellow in Romantic Languages, Johns Hopkins University, 1898-99; Instructor (1889-1900) and Assistant Professor (1900-03) of Romanic Languages, Leland Stanford, Jr., University; Professor of French, University of Washington, 1903-.

THEODORE CHRISTIAN FRYE, PH. D., *Professor of Botany.*

B. S., University of Illinois, 1894; Ph. D., University of Chicago, 1902; Principal of High School, Monticello, Ill., 1894-96; Superintendent of City Schools, Batavia, Ill., 1897-1900; Graduate Student, University of Chicago, 1896-97, 1900-02; Fellow in Botany, 1901-02; Professor of Biology, Morningside College, Iowa, 1902-03; Professor of Botany, University of Washington, 1903-.

ROBERT EDOUARD MORITZ, PH. D., PH. N. D., *Professor of Mathematics and Astronomy.*

B. S., Hastings College, 1892; Ph. M., University of Chicago, 1896; Ph. D., University of Nebraska, 1901; Ph. N. D., Universitaet Strassburg, 1902; Student in Goettingen and Paris, 1902; Instructor in Mathematics, Hastings College, 1893-4; Professor, 1894-8; Instructor in Mathematics, University of Nebraska, 1898-1901; Adjunct Professor, 1902-3; Assistant Professor, 1903-4; Professor of Mathematics and Astronomy, University of Washington, 1904-.

CARL EDWARD MAGNUSSON, PH. D., E. E., *Professor of Electrical Engineering.*

B. E. E., University of Minnesota, 1896; M. S., 1897; E. E., 1905; Scholar in Physics, University of Minnesota, 1895-1897; Graduate Student, University of Wisconsin, 1898-1900; Ph. D., 1900; Fellow in Physics, University of Wisconsin, 1899-1900; Professor of Physics and Mathematics, University of New Mexico, 1901-1903; Professor of Physics and Electrical Engineering, New Mexico School of Mines, 1903-04; Professor of Electrical Engineering, University of Washington, 1904-.

HARVEY LANTZ, A. M., LL. B., *Professor of Law.*

Ph. B., De Pauw University, 1888; A. M., 1891; LL. B., Kent Law School, 1893; Superintendent of Schools, Spencer, Ind., 1888-91; Law Clerk with Schuyler & Kremer, Chicago, 1892-5; Admitted to Bar Supreme Court of Illinois, 1893; Practiced law, member firms of Chase & Lantz, Chase, Proudfit & Lantz, and Proudfit & Lantz, 1896-1905; Lecturer on Medical Law, Hering Medical College, Chicago, 1898-99; Admitted to Bar, United States Supreme Court, 1905; Professor of Law, University of Washington, 1905-.

EVERETT OWEN EASTWOOD, C. E., A. M., *Professor of Mechanical Engineering.*

C. E., University of Virginia, 1896; A. B., 1897; A. M., 1899; B. S., Massachusetts Institute of Technology, 1902; Fellow, Astronomy, University of Virginia, 1897-1900; Practical work Bureau of Construction and Repair, Navy Department, Washington, D. C., 1902-03; with the Fore River Ship Building Company, Quincy, Mass., 1903-04; Instructor in Mechanical Engineering, in charge of Marine Engineering and Naval Architecture, Lehigh University, 1904-05; Professor of Mechanical Engineering, University of Washington, 1905-.

EDWARD OCTAVIUS SISSON, PH. D., *Professor of Pedagogy, and Director of the Department of Education.*

B. S., Kansas State Agricultural College, 1886; A. B., University of Chicago, 1893; Student in Berlin University, 1903-4; Ph. D., Harvard University, 1905; Teacher and Principal in Public Schools, 1886-1891; Principal, South Side Academy, Chicago, 1892-7; University Extension Reader in Psychology, University of Chicago, 1894; Director, Bradley Polytechnic Institute, Peoria, Illinois, 1897-1904; Assistant Professor of Education, University of Illinois, 1905-6; Lecturer on Education, Harvard Summer School, 1908; Professor of Pedagogy, University of Washington, 1906-.

FREDERICK WILLIAM MEISNEST, PH. D., *Professor of German.*

B. S., University of Wisconsin, 1893; Ph. D., 1904; Graduate of the State Normal School, Milwaukee, Wis., 1889; Principal of High Schools, Montello, Wis., 1889-91; Green Bay, Wis., 1893-94; Boscobel, Wis., 1894-96; Instructor in German, University of Wisconsin, 1897-1906; Student, University of Leipzig, Germany, 1901-2; Professor of German, University of Washington, 1906-.

FRANCIS GARNER MILLER, M. F., *Professor of Forestry, and Dean of the College of Forestry.*

M. D., Iowa State Normal, 1893; Ph. B., University of Iowa, 1900; B. S. A., Iowa State College, 1901; M. F., Yale University, 1903; Superintendent of City Schools, Iowa, 1893-1899; Graduate Student, Yale, 1901-1903; Professor of Forestry, University of Nebraska, 1903-1907; Professor of Forestry, University of Washington, 1907-; with U. S. Forest Service, Summers, 1901-.

DAVID CONNOLLY HALL, Sc. M., M. D., *Director of Physical Training.*

Ph. B., Brown University, 1901; Sc. M., University of Chicago, 1903; M. D., Rush Medical College, University of Chicago, 1907; Acting Physical Director and Graduate Student, Wesleyan University, Connecticut, 1901-02; Physical Director and Instructor in Physiology and Pharmacology, University of Oklahoma, 1902-08; Medical School on leave of absence, 1906-07; Director of Physical Training, University of Washington, 1908.

ELMER JAMES MCCAUSTLAND, C. E., M. C. E., *Professor of Municipal Engineering.*

C. E., Cornell College, 1895; M. C. E., Cornell University, 1897; Mem. Am. Soc. C. E.; Graduate Scholar in Civil Engineering, Cornell University, 1896-97; Instructor in Civil Engineering, 1897-1900; Assistant Professor of Civil Engineering, 1902-07; Professor of Mining Engineering, University of Alabama, 1907-08; ten years' practice, engineering work as designing, constructing and consulting engineer, two years as City Engineer of Salem, Oregon; two years as Assistant Chief Engineer of the Chicago Transfer and Clearing Co., of Chicago; Professor of Municipal Engineering, University of Washington, 1908.

REV. HERBERT H. GOWEN, F. R. G. S., M. R. S. A., *Professorial Lecturer on Oriental History, Literature and Institutions.*

Member Society of Arts, London; Oriental Scholar, S. Augustine's College, Canterbury, 1883-6; First Class Oxford and Cambridge Prelim., 1886; Rector Trinity Parish Church, Seattle, 1897-; Professorial Lecturer on Oriental Philosophy and Literature, University of Washington, 1909-.

OLIVER HUNTINGTON RICHARDSON, Ph. D., *Professor of European History.*

A. B., Yale University, 1889; A. M., Ph. D., Heidelberg (Germany), 1897; Foote Scholar, Yale University, 1889; Instructor in History and Political Economy, Colorado College, 1889-90; European Travel and Study, 1890-92; Professor of History, Drury College, 1892-97; Research Work in Germany, 1895-97; Assistant Professor of History, Yale University, 1897-1909; Professor of European History, University of Washington, 1909-.

WILLIAM T. PATTON, Captain 13th Infantry, U. S. A., *Professor of Military Science and Tactics.*

Graduate of the United States Military Academy, West Point, class of 1899; Graduate of the Infantry and Cavalry School, Fort Leavenworth, Kansas, class of 1905; Professor of Military Science and Tactics, University of Washington, 1909.

GEORGE SEAVERN COLE, LL. B., *Professor of Law.*

LL. B., Kent Law School, Chicago, 1893; LL. B., Lake Forest University, College of Law, 1896; Student, Northwestern University, College of Law, 1891-2; Graduate Student, Lake Forest University, College of Law, 1895-6; Law Clerk with William Jay Manning, Esq., Chicago, 1892-7; Practiced Law as member of the firms of Manning & Cole, and Manning, Cole & Manning, Chamber of Commerce Building, Chicago, 1897-1906; Practiced individually, Borden Block, Chicago, 1906-9; Admitted to Bars, U. S. District and Circuit Courts, Chicago; Professor of Law, University of Washington, 1909-.

DAVID NYVALL, A. B., *Professor of the Scandinavian Languages.*

Graduate, Gille College, 1882; Grade of Medico, Philosophical Candidate, Upsala, 1884; Student, Carolingian Medical Institute, Stockholm, 1885-1886; Instructor, Chicago Theological Seminary, 1888-1889; President of the Covenant School, in Minneapolis, 1891-1894; in Chicago, 1894-1905; President of Walden College, Kansas, 1905-1907; Lecturer and Editor, Walden Volunteer, Co-editor of Veckobladet, 1907-1909; Member of Swedish Historical Society.

IVAN W. GOODNER, LL. B., *Lecturer in Law.*

Admitted to Bar, Territory of Dakota, 1885; Clerk of Supreme Court of South Dakota, 1889-1896; LL. B., University of Nebraska, College of Law, 1897; City Attorney, Pierre, South Dakota, 1898-9; State's Attorney, Hughes County, S. D., 1899-1905; Admitted to Bar, United States Supreme Court, 1901; Attorney-at-Law, Seattle, Wash., 1908; Lecturer in Law, University of Washington, 1910-.

WALTER G. BEACH, A. M., *Professor of Social Science.*

A. B., Marietta College, 1888; A. B., Harvard, 1891; A. M., Harvard, 1892; Instructor, Marietta College, 1888-90; Instructor, Oberlin University, 1892-93; Professor, Marietta College, 1893-98; Graduate Student, Stanford University, 1898-99; Assistant Professor, Economics, Washington State College, 1899-1905; Professor and Head of the Department of Economic Science and History, Washington State College, 1905-10; Professor of Social Science, University of Washington, 1910-.

ASSOCIATE PROFESSORS

CHARLES CHURCH MORE, M. S., C. E., *Associate Professor of Civil Engineering.*

C. E., Lafayette College, 1898; M. C. E., Cornell University, 1899; M. S., Lafayette College, 1901; Graduate Scholar in Civil Engineering, Cornell University, 1898-99; five and one-half years' practice in bridge and construction work with the following: Pencoyd Iron Works and American Bridge Co., Pencoyd, Penn.; D. H. Burnham & Co., Archts., Chicago; T. L. Condron, C. E., Chicago; U. S. Engineer Dep't., Fort Worden, Wash.; C., M. & St. P. Ry. Co., of Washington, Seattle; Acting Professor of Civil Engineering, University of Washington, 1900-01; Assistant Professor, 1904-06; Associate Professor, 1907-.

~~HERBERT~~ GALEN LULL, A. B., *Associate Professor of Education.*

Graduate, Michigan State Normal College, 1898; A. B., University of Michigan, 1904; Principal Public School, Carson City, Michigan, 1898-1902; Superintendent City Schools, Mt. Clemens, Michigan, 1904-05; Supervisor of Training School, Washington State Normal School, Bellingham, Washington, 1905-07; Assistant Professor of Education, University of Washington, 1907-8; Associate Professor, 1908-.

HENRY KREITZER BENSON, PH. D., *Associate Professor of Chemistry.*

A. B., Franklin and Marshall College, 1899; A. M., 1902; Ph. D., Columbia University, 1907; Superintendent of Schools, Kent, Washington, 1900-03; Graduate Student, Johns Hopkins University, 1903-04; Fellow in Chemistry, Columbia University, 1906-07; Assistant Professor of Chemistry, University of Washington, 1904-9; Acting Professor of Chemistry, 1907-08; Associate Professor, 1909-.

JAMES EDWARD GOULD, A. M., *Associate Professor of Astronomy and Mathematics.*

Ph. B., University of Washington, 1896; A. M., Harvard University, 1907; Principal of High School, Port Townsend, 1897-99; Instructor in Physics and Chemistry, Seattle High School, 1899-1901; Scholar, Yerkes Observatory; Graduate Student during eight summer quarters, University of Chicago, and two summer terms in University of California and Massachusetts Institution of Technology; Austin Scholar and Assistant in Astronomy, Harvard University, 1906-07; Assistant Professor of Mathematics, and Principal of the Preparatory School, University of Washington, 1901-03; Assistant Professor of Mathematics, 1903-07; Assistant Professor of Astronomy and Mathematics, 1907-9; Associate Professor, 1909-.

MAYNARD LEE DAGGY, PH. B., *Associate Professor of Rhetoric and Oratory.*

Ph. B., De Pauw University, 1896; Indiana Law School, 1897-99; Instructor in English, State School for the Blind, Jacksonville, Illinois, 1896-97; Instructor in English, High School, Mount Vernon, Illinois, 1899-1900; Instructor in English, High School, Fond du Lac, Wisconsin, 1900-01; Instructor in Rhetoric and Oratory, University of Wisconsin, 1901-04; Assistant Professor of Rhetoric and Oratory, University of Washington, 1904-09; Associate Professor, 1909-.

JOHN WEINZIRL, PH. D., *Associate Professor of Bacteriology.*

B. S., University of Wisconsin, 1896; M. S., 1899; Ph. D., 1906; Assistant Professor of Biology, University of New Mexico, 1897-1900; Professor of Biology and Chemistry, *ibid.*, 1900-07; Fellow in Biology in University of Wisconsin, 1905-06; Assistant Professor of Bacteriology, University of Washington, 1907-9; Associate Professor, 1909-.

HUGO WINKENWERDER, M. F., *Associate Professor of Forestry.*

B. S., University of Wisconsin, 1902; M. F., Yale University, 1907; Laboratory Assistant in Botany, University of Wisconsin, 1901-2; Instructor in Botany and Physiography, High School, Sheboygan, Wisconsin, 1902-5; Graduate Student, Yale University, 1905-7; U. S. Forest Service, 1907; Assistant Professor of Forestry, Colorado College, 1908-9; with U. S. Forest Service as Collaborator, 1908-; Associate Professor of Forestry, University of Washington, 1909-.

ASSISTANT PROFESSORS

THOMAS KAY SIDEY, PH. D., *Assistant Professor of Latin.*

A. B., Pictoria University (now Toronto), 1891; Ph. D., University of Chicago, 1900; Graduate Specialist in Classics and English, Ontario College of Pedagogy, 1891; Classical Master, Iroquois High School, 1892; Teacher of English and Classics, Ottawa Collegiate Institute, 1892-94; Classical Master, Whitby Collegiate Institute, 1894-96; Graduate Student, University of Chicago, 1896; Fellow in Latin, 1897-99; Associate Professor of Latin, Cornell College, 1899-02; Professor of Latin and German, Central Normal College, Danville, Indiana, 1902-03; Assistant Professor of Latin and Greek, University of Washington, 1903-.

ALLEN ROGERS BENHAM, PH. D., *Assistant Professor of English.*

A. B., University of Minnesota, 1909; A. M., 1901; Ph. D., Yale University, 1905; Assistant in English, University of Minnesota, 1899-1901; Principal of High School, St. James, Minn., 1901-02; University Fellow, Yale University, 1902-05; Assistant Professor of English Literature, University of Washington, 1905-.

* Resigned February 1, 1911.

VANDERVEER CUSTIS, PH. D., *Assistant Professor of Economics.*

A. B., Harvard University, 1901; A. M., 1902; Ph. D., 1905; Assistant in Economics, 1902-04; holder of Austin Teaching Fellowship in Economics, 1904-05; Assistant Professor of Economics, University of Washington, 1905-.

HERMAN CAMPBELL STEVENS, PH. D., *Assistant Professor of Psychology.*

A. B., University of Michigan, 1901; Ph. D., Cornell University, 1905; Assistant Professor of Psychology, University of Washington, 1905-.

FRANK MARION MORRISON, A. B., *Assistant Professor of Mathematics.*

A. B., University of Michigan, 1892; Graduate Student, University of Chicago, 1897-99; Instructor in Mathematics in the High Schools, Elkhart, Indiana, Sioux City, Iowa, Circleville, Ohio, 1892-97; Instructor in Mathematics, Grand Prairie Seminary, Onarga, Illinois, 1899-1900; Professor of Mathematics, Illinois College, 1900-03; Professor of Mathematics, Buchtel College, Akron, Ohio, 1903-05; Assistant Professor of Mathematics, University of Washington, 1905-.

LOREN DOUGLAS MILLIMAN, A. B., *Assistant Professor of English.*

A. B., University of Michigan, 1890; Graduate Student, University of Chicago, 1892-94; Fellow in English, 1893-94; Professor of English, Searcy College, Arkansas, 1890-92; Instructor in English, Olivet College, Michigan, 1894-98; Professor of Rhetoric and English, Ohio University, Athens, Ohio, 1898-1900; Superintendent of City Schools, Cebu, P. I., 1901-03; Professor of English, Hanover College, Indiana, 1903-04; Assistant Professor of Rhetoric, University of Washington, 1905-.

WILLIAM MAURICE DEHN, PH. D., *Assistant Professor of Physiological Chemistry and Toxicology.*

A. B., Hope College, 1893; A. M., 1896; Ph. D., University of Illinois, 1903; Graduate School, University of Chicago, 1898-1900, and Summers 1895-1900; Instructor, Reed City (Mich.) High School, 1893-94; Professor of Science, Wilton College, Iowa, 1894-97; Science and Athletics, Culver Military Academy, Indiana, 1897-98; Graduate Student and Assistant in Chemistry, University of Illinois, 1900-02; Instructor in Chemistry, University of Illinois, 1902-07; Assistant Professor of Physiological Chemistry and Toxicology, University of Washington, 1907-.

OTTO PATZER, PH. D., *Assistant Professor of French.*

B. L., University of Wisconsin, 1898; M. L., 1899; Ph. D., 1907; Student, University of Paris, 1899-1900; Assistant in French, University of Wisconsin, 1900-01; Instructor, 1901-07; Assistant Professor of French, University of Washington, 1907-.

ARTHUR DAY HOWARD, Ph. D., *Assistant Professor of Zoology.*

B. S., Amherst, 1898; M. S., Northwestern University, 1901; Ph. D., Harvard University, 1906; Fellow, Northwestern University, 1902; Assistant in Zoology, Harvard University, 1902-04; Teaching Fellow, Harvard University, 1904-05; Professor of Biology, Westminster College, Pennsylvania, 1906-08; Assistant Professor of Zoology, University of Washington, 1908-.

VERNON LOUIS PARRINGTON, M. A., *Assistant Professor of English.*

A. B., Harvard University, 1893; M. A., College of Emporia, 1895; studied in the British Museum, and the Bibliotheque Nationale, on leave of absence, July, 1903, to August, 1904; Instructor in English and French, College of Emporia, 1893-97; Instructor in English and Modern Languages, State University of Oklahoma, 1897-98; Professor of English Literature, State University of Oklahoma, 1898-1908; Assistant Professor of Rhetoric, University of Washington, 1908-.

MERLE THORPE, A. B., *Assistant Professor in Charge of the Department of Journalism.*

Student, Park College, 1902; Student, Leland Stanford, Jr., University, 1902-05; City Editor, Palo Alto Times, 1904; Managing Editor, Stanford Sequoia, 1904-05; Advertising and Circulation Manager, Washington Life, 1905; White House Correspondent, Washington Post, 1905-06; Hearst Bureau, Washington, 1906; Special Correspondent Cuba and Managlig Editor Havana Post, 1906-07; London Mail Correspondent to Jamaica, 1907; Northwest Editor, Seattle Post-Intelligencer, 1907; A. B., University of Washington, 1908; Department of Journalism, University of Washington, 1907-.

GEORGE SAMUEL WILSON, B. S., *Assistant Professor of Mechanical Engineering.*

B. S., University of Nebraska, 1906; Apprentice, Union Pacific Railway Company, 1898-1902; Machinist, same company, Summers of 1903 and 1904; with Westinghouse Machine Company, Summer of 1905; with Fairbanks, Morse & Company, June to September, 1906; Instructor in Mechanical Engineering, University of Washington, 1906-1909; Assistant Professor, 1909-.

EDWARD MCMAHON, A. M., *Assistant Professor of American History.*

Ph. B., University of Washington, 1898; A. M., University of Wisconsin, 1907; Principal, Van Asselt (Wash.) Schools, 1898-1901; Graduate Student, University of California, 1901-02; Principal, Union Grammar School, Seattle, 1902-03; Head of Department of History, Seattle High School, 1903-06; Graduate Student in History, 1906-08, Fellow in History, 1907-08, University of Wisconsin; Instructor in American History, University of Washington, 1907-9; Assistant Professor, 1909-.

EDWIN JAMES SAUNDERS, A. M., *Assistant Professor of Geology.*

A. B., University of Toronto, 1896; A. M., Harvard University, 1907; Graduate, Specialist in Science, Ontario Normal College, 1897; Principal Public School, Midland, Ont., 1897-1898; Professor of Geology and Geography, Washington State Normal School, Ellensburg, Wash., 1898-1905 and 1907-1909; Assistant in Physiography and Meteorology, Harvard University and Radcliffe, 1905-1907; Assistant Professor of Geology, University of Washington, 1909-.

WILLIAM ALFRED MORRIS, PH. D., *Assistant Professor of European History.*

A. B., Leland Stanford, Jr., University, 1901; Ph. D., Harvard University, 1907; Teacher of Latin and History, Portland High School, Portland, Ore., 1901-04; Austin Scholar, Harvard University, 1904-05; Toppan Scholar, 1905-06; Assistant in History, Harvard University and Radcliffe College, 1906-07; Instructor in European History, University of Washington, 1907-10; Assistant Professor, 1910-.

JOSEPH KINMONT HART, PH. D., *Assistant Professor of Education.*

A. B., Franklin College, 1900; University of Chicago, 1900-02, Fellow, 1906-09; Ph. D., 1909; Instructor in Mathematics, Ottumwa, Iowa, High School, 1902-04; Instructor in History, Rock Island, Ill., High School, 1904-06; Professor of Philosophy, Baker University, 1909-10; Assistant Professor of Education, University of Washington, 1910-.

OTTLIE G. BOETZKES, A. M., *Assistant Professor of German.*

A. B., University of Washington, 1901; A. M., 1902; Student in Paris, Summer of 1903; Assistant in Modern Languages, University of Washington, 1900-01; Instructor, 1901-03; Assistant Professor of German, 1903-1908; Graduate Student, University of Chicago, 1908-09; Assistant Professor of German, University of Washington, 1910-.

CHARLES W. HARRIS, C. E., *Assistant Professor of Civil Engineering.*

B. S., in Civil Engineering, University of Washington, 1903; C. E., Cornell University, 1905; Draftsman and Inspector, U. S. Engineering Department, Fort Casey, Washington, 1903-04; Student Cornell University, 1904-05; Practical work in Railroad and Hydraulic Engineering, in Pennsylvania, Washington, and Alaska, 1905-06; Instructor in Civil Engineering, University of Washington, 1906-10; Assistant Professor, 1910-.

INSTRUCTORS

*IDA KATHERINE GREENLEE, A. B., *Instructor in English.*

†HENRY LOUIS BRAKEL, A. M., *Instructor in Physics.*

B. S., Olivet College, 1902; A. M., University of Washington, 1905; Instructor in Physics and Chemistry, High School, St. Johns, Michigan, 1902-03; Instructor in Physics, University of Washington, 1905-.

FRANK EDWARD JOHNSON, E. E., *Instructor in Electrical Engineering.*

E. E., University of Minnesota, 1900; Teacher in Public Schools, Minnesota, 1893-96; Practical work, Fort Wayne Electrical Works Company, Appleton, Minnesota; River Falls, Wisconsin; Caldron, Nebraska, 1900-03; Superintendent for The Douglas Electric Light Co., Douglas, Wyo., 1903-05; Instructor in Electrical Engineering, University of Washington, 1905-.

CHARLES MUNRO STRONG, A. M., *Instructor in Spanish.*

A. B., University of Missouri, 1897; A. M., 1900; Fellow in German, University of Missouri, 1899-1900; Professor of German, French and Spanish, St. John's Military Academy, Delafield, Wisconsin, 1900-01; Newspaper work, United States and Cuba, 1902-06; Instructor in Spanish, University of Washington, 1906-February, 1909; Interpreter with Curtis North American Indian History Expedition of the Southwest, February, 1909-February, 1910; Instructor in Spanish, University of Washington, 1910-.

SAMUEL THOMAS BEATTIE, *Instructor in Woodwork.*

Practical work as Pattern Maker with Warner and Swasey, Cleveland, Ohio; Chicago Ornamental Iron Works, Chicago, Ill., Card Electric Co., Mansfield, Ohio; Grant Machine Tool Works, Cleveland, Ohio; Humphrey Manufacturing Co., Mansfield, Ohio; C. H. Allmond & Co., Seattle, Washington; Instructor in Woodwork, University of Washington, 1906-.

CLARENCE RAYMOND COREY, E. M., *Instructor in Mining and Metallurgy.*

E. M., Montana State School of Mines, 1905; Instructor in Surveying, Montana State School of Mines, Summer School, 1905; Mining Engineering and Metallurgical Practice, Sumpter, Oregon, 1905-06; on Geological Survey in Montana, 1906; U. S. Deputy Mineral Surveyor for Montana; Instructor in Surveying and Metallurgy, Montana State School of Mines, 1906-07; Assayer, U. S. Assay Office, Seattle, Wash., summers of 1908 and 1909; Instructor in Mining and Metallurgy, University of Washington, 1907-.

* Resigned November 1, 1910.

† Absent on leave, 1910-11.

WILLIAM THEODORE DARBY, A. M., *Instructor in English.*

A. B., Yale University, 1905; A. M., Columbia University, 1907; Instructor in Williston Seminary, Easthampton, Mass., 1905-06; Instructor in English, University of Washington, 1907-.

HARVEY BRUCE DENSMORE, A. B., *Instructor in Greek.*

A. B., University of Oregon, 1903; Fellow in Latin, University of Oregon, 1903-04; Rhodes Scholar at Oxford University, 1904-07; A. B., Oxford University, 1907; Instructor in Greek, University of Washington, 1907-.

GEORGE IRVING GAVETT, B. S. (C. E.), *Instructor in Mathematics.*

B. S. (C. E.), University of Michigan, 1893; Graduate Student in Mathematics, Leland Stanford, Jr., University, 1904-05; Graduate Student in Mathematics and Civil Engineering, Cornell University, 1905-07; Teacher of Mathematics and Science, Spring Arbor Seminary, Spring Arbor, Michigan, 1897-99; Professor of Mathematics, Fairmount College, Wichita, Kansas, 1899-1904; Instructor in Applied Mathematics, Leland Stanford, Jr., University, 1904-05; Instructor in Civil Engineering, Cornell University, 1905-07; Instructor in Mathematics, University of Washington, 1907-.

JOEL MARCUS JOHANSON, A. B., *Instructor in English.*

A. B., University of Washington, 1904; Rhodes Scholar, Oxford, England, 1904-07; Instructor in German, University of Washington, 1907-9; Instructor in English, 1910-.

SANDY MORROW KANE, *Instructor in Metalwork.*

Seven years' apprenticeship in iron and brass molding, machine shop, and forging, Kane and Sons, Ireland; Foreman of shops four years, Kane and Sons, Ireland; Practical Machinist, Eagle Iron Works, Des Moines, Iowa, 1881-83; Foreman of machine shops, Des Moines Mfg. and Supply Co., Des Moines, Iowa, 1883-87; Master Mechanic, Golden Reward Gold Milling & Mining Co., Deadwood, S. D., 1897-1903; Moran Bros. Co., Seattle, Wash., 1903-06; Practical Machinist, U. S. Navy Yard, Bremerton, Wash., 1906-07; Instructor in Metalwork, University of Washington, 1907-.

WILLIAM VERNON LOVITT, A. B., PH. M., *Instructor in Mathematics.*

A. B., University of Nebraska, 1903; Principal of School, Arcadia, Nebraska, 1903-04; Fellow in Mathematics, University of Nebraska, 1904-06; Graduate Student, University of Chicago, 1906-07; Ph. M., University of Chicago, 1907; Instructor in Mathematics, University of Washington, 1907-.

STANLEY ASTREDO SMITH, A. M., *Instructor in French.*

A. B., Leland Stanford, Jr., University, 1903; A. M., 1905; Assistant in Romanic Languages, Leland Stanford, Jr., University, 1903-04; Instructor, 1904-06; Student in Europe, 1906-07; Instructor in French, University of Washington, 1907-.

CHARLES EDWIN WEAVER PH. D., *Instructor in Geology.*

B. S., University of California, 1904; Ph. D., *ibid.*, 1907; Assistant in Petrology, University of California, 1905-06; Assistant, U. S. Geological Survey in Alaska, 1906; Instructor in Geology, University of Washington, 1907-.

ROBERT EVSTAFIEFF ROSE, PH. D., *Instructor in Chemistry.*

Ph. D., University of Leipzig, 1903; Assistant in Chemistry, University of St. Andrews, Scotland, 1903-05; Lecturer and Demonstrator in Chemistry, University College, Nottingham, England, 1905-07; Acting Professor of Chemistry, University of Washington, 1907-08; Instructor in Chemistry, University of Washington, 1908-.

EARL G. RICE, A. B., LL. B., *Instructor in Law.*

A. B., Syracuse University, 1905; LL. B., Syracuse University, Law School, 1907; Attorney-at-Law, Syracuse, N. Y., 1907-08; Attorney-at-Law, Seattle, Washington, 1908-; Instructor in Law, University of Washington, 1908-.

HANS JACOB HOFF, PH. D., *Instructor in German.*

A. B., Bethany College, Lindeborg, Kansas, 1901; Ph. D., University of Illinois, 1908; Graduate Student, Royal University of Berlin, Germany, 1901-03; Graduate Student, University of Kansas, 1904-05; Graduate Student, University of Missouri, 1906-07; University of Illinois, 1907-08; Instructor in German and Norwegian, Y. M. C. A. Evening Schools, Berlin, Germany, 1901-02; Principal of City Schools, Herndon, Kansas, 1905-06; Instructor in German and Latin, Columbia Normal Academy, Columbia, Missouri, 1906-07; Fellow in Germanic Philology, University of Illinois, 1907-08; Instructor in German, University of Washington, 1908-.

PAUL EMIL WEITHAASE, A. M., *Instructor in German.*

A. B., Bucknell University, 1898; A. M., 1899; Graduate Scholar, University of Pennsylvania, 1899-1900; Student, University of Leipzig, 1900; Instructor in German, Syracuse University, 1900-02; Miller Fellow in Modern Languages, University of Chicago, 1902-03; Instructor in German, Bucknell University, 1903-05; Assistant Professor of German, Bucknell University, 1905-08; Acting Assistant Professor of German, University of Washington, 1908-.

ALBERT HASKIN DEWEY, PH. G., B. S., *Instructor in Pharmacy.*

Ph. G., University of Washington, 1907; Assistant in Chemistry, 1907-08; Graduate Assistant in Materia Medica and Pharmacy, 1908-09; B. S., University of Washington, 1909; Instructor in Materia Medica, University of Washington, 1909-.

JULIUS ADLER, B. S., (C. E.), *Instructor in Civil Engineering.*

B. S., (C. E.), University of Pennsylvania, 1908; Engineering work with U. S. Office of Public Roads, summer of 1908 and 1909; Instructor in Civil Engineering, University of Pennsylvania, 1908-09; Instructor in Civil Engineering, University of Washington, 1909-.

WILLIAM THOMAS ANDREWS, *Instructor in Forestry.*

Received High School and Normal School Training in Kansas; studied Law at Vancouver, Washington; engaged in Lumber Business in Oregon, 1888-1904; Lumberman, U. S. Forest Service, 1907; Instructor in Forestry, University of Washington, 1909-.

H. BURTIS BENNETT, PH. B., *Instructor in Economics.*

Ph. B., Cornell College, 1901; Graduate Student, Columbia University, School of Political Science, 1901-4; Student, University of Minnesota, Law School, 1904-5; Instructor in Economics, University of Washington, 1910-.

ALLEN FULLER CARPENTER, A. M., *Instructor in Mathematics.*

A. B., Hastings College, 1901; A. M., University of Nebraska, 1909; Instructor in Mathematics, Hastings College, 1901-4; Professor, 1904-09; Instructor in Mathematics, Intercollegiate Summer School, University of Nebraska, 1906-07; Instructor in Mathematics, University of Nebraska, 1908-09; Instructor in Mathematics, University of Washington, 1909-.

ROBERT MAX GARRETT, PH. D., *Instructor in English.*

B. M., University of Idaho, 1901; B. A., 1902; M. A., University of Washington, 1903; Ph. D., University of Munich, 1909; Student Assistant in Latin, Preparatory School, University of Idaho, 1901-02; Assistant in English, University of Washington, 1902-04; Instructor in University of Washington Summer School, 1904; Teacher of English Literature, Seattle High School, 1904-06; Student, University of Leipzig and Munich, 1906-09; Student in British Museum, Summers, 1907, 1908, 1909; Instructor in English, University of Washington, 1909-.

LARS OLAI GRONDAHL, PH. D., *Instructor in Physics.*

B. S., St. Olaf College, 1904; M. S., 1905; Ph. D., Johns Hopkins University, 1908; Student, University of Chicago, Summer Sessions, 1903 and 1909; Instructor in Physics and Chemistry, St. Olaf College, 1904-05; Lecture Assistant in Physics, Johns Hopkins University, 1906-08; Professor of Physics and Mathematics, Spokane College, 1908-09; Instructor in Physics, University of Washington, 1909-.

GEORGE WILLIAM HAUSCHILD, A. B., *Instructor in German.*

A. B., North Western College (Wis.), 1900; Graduate Student, Columbia University, 1901-02; University of Leipzig, 1902-03; Harvard University, 1905-06; Fellow in German, University of Chicago, 1908-09; Professor of Modern Languages, Newberry College, S. C., 1906-07; Instructor in German, State University of Iowa, 1907-08; Instructor in German, The School of Education, University of Chicago, 1908-09; Instructor in German, University of Washington, 1909-.

JULIUS C. HERBSMAN, A. B., LL. B., *Instructor in charge of Department, Public Speaking and Debate.*

A. B., McKendree College, 1901; LL. B., University of Illinois, 1909; Principal of Schools, Summerfield, Ill., 1902-05; Student assistant in Rhetoric, University of Illinois, 1907-09; Instructor in Rhetoric and Oratory, University of Washington, 1909-.

SARAH MATILDA HUMMEL, A. B., *Instructor in charge of the Department of Home Economics.*

Graduate, Illinois State Normal University, 1901; A. B., University of Illinois, 1907; Teacher, Public School, Downs, Illinois, 1901-1903; Normal, Illinois, 1903-1905; Student, University of Illinois, 1905-1907; Columbia University Summer 1910; Instructor in Domestic Science, and Dean of Women, Pendleton Academy, Pendleton, Oregon, 1907-1908; Instructor in Domestic Science, High School, Seattle, Wash., 1908-1909; Instructor in Home Economics, University of Washington, 1909-.

EDGAR ALLAN LOEW, B. S., E. E., *Instructor in Electrical Engineering.*

Student, State Normal School, Oshkosh, Wisconsin, 1897-1901; B. S. E. E., University of Wisconsin, 1906; Instructor in Physics, High School, Two Rivers, Wisconsin, 1901-03; Student, University of Wisconsin, 1903-06; Instructor in Electrical Engineering, University of Wisconsin, 1906-09; eighteen months of practical work during school year and summers with the following: Wisconsin Telephone Co., Chicago Telephone Co., D. C. & Wm. B. Jackson, Consulting Engineers, Boston & Chicago; Electrical Engineer, U. S. Reclamation Service, Madison, Wisconsin; Instructor, University of Washington, 1909-.

JESSIE BEE MERRICK, B. S., *Director of Physical Training for Women.*

Ph. B., University of Wisconsin, 1904; B. S., Columbia University, 1907; Graduate Student, University of Wisconsin, 1905-06; Summer Session, 1905; Scholarship, Teachers College, Columbia University, 1906-07; Student Assistant in Physical Education, Teachers College, Columbia University, 1906-07; Athletic Director, Girls' Camp, Summer, 1907; Assistant Physical Training for Women, University of Wisconsin, 1907-08; Instructor, Physical Training for Women, University of Wisconsin, 1908-09; Director, Physical Training for Women, University of Washington, 1909-.

JOHN WILLIAM MILLER, B. S. (C. E.), *Instructor in Civil Engineering.*

B. S., Civil Engineering, University of Nebraska, 1905; three years' engineering experience in Railroad Work in the Middle West with the Chicago, Burlington & Quincy Railroad, and the Chicago and Northwestern Railroad, 1903-07; Testing Engineer, Cushman Motor Co., Lincoln, Nebraska, 1908; Division Engineer, Chicago, Burlington & Quincy Railroad, Jan.-Sept., 1909; Instructor in Civil Engineering, University of Washington, 1909-.

RAYMOND BURNETTE PEASE, A. M., *Instructor in English.*

B. A., University of Wisconsin, 1900; M. A., 1904; A. M., Harvard University, 1905; Graduate Student, University of Wisconsin, 1905-06; Teacher of English and Debating, High School, Eau Claire, Wisconsin, 1900-02; Principal High School, Durand, Wisconsin, 1902-04; Professor of English, University of Puget Sound, 1906-09; Instructor in Rhetoric, University of Washington, 1909-.

GEORGE BURTON RIGG, A.M., *Instructor in Botany.*

B. S., University of Iowa, 1896; B. D., 1899; A. M., University of Washington, 1909; Graduate Student, University of Chicago, summers of 1906, 1907; Teacher in High School, Rockwell City, Iowa, 1893-1895; Associate Principal, 1896-98; Teacher of Science, Woodbine Normal School, Woodbine, Iowa, 1898-1907; Teacher in Botany and Zoology, Lincoln High School, Seattle, 1907-09; Instructor in Botany, University of Washington, 1909-.

C. W. WESTER, B.S., *Instructor in Mathematics.*

B. S., University of California, 1908; Graduate Student, University of Oregon, 1908-09; Summer of 1909; Principal Central School, Eugene, Oregon, 1908-09; Instructor in Mathematics, University of Washington, 1909-.

ORVILLE PORTER COCKERILL, A. B., LL. B., *Instructor in Law.*

A. B., Ohio State University, 1902; LL. B., *ibid.*, 1905; Student, University of Michigan, College of Law, 1903; Instructor in American History and Chemistry, High School, Washington C. H., Ohio, 1902-05; Instructor in Chemistry, East High School, Columbus, Ohio, 1905-9; Admitted to Bar, Supreme Court of Ohio, 1905; Assistant in Moot Court, Ohio State University, College of Law, 1908-09; Attorney-at-Law, Columbus, Ohio, 1906-10; member of firms Cockerill and Ingalls, and Griffith, Bennett, Westfall and Cockerill; Instructor in Law, University of Washington, 1910-.

LUCAS CARLISLE KELLS, PH. D., *Instructor in Philosophy.*

A. B., University of Minnesota, 1904; A. M., 1904; LL. B., Columbus University, 1909; Ph. D., 1910; Scholar in Philosophy, Columbia University, 1904-1905; Morgan Scholar in Law, Columbia University, 1907-8, 1908-09; Member New York State Bar, March, 1909; Instructor in Mathematics, Cooper Union Night School, New York City, 1906-1910; Instructor in Philosophy and Psychology, University of Washington, 1910-.

JAMES EDGAR BELL, B.S., *Instructor in Chemistry.*

B. S., University of Chicago, 1905; Instructor in Chemistry and Physics, Ottawa, Illinois, High School, 1905-08; Graduate Student, 1908-10 and Fellow, 1909-10, in University of Chicago; Instructor in Chemistry, University of Washington, 1910-.

HORACE H. LESTER, A. B., *Instructor in Physics.*

A. B., University of Minnesota, 1906; Science Instructor, Anacortes, Wash., 1906-08; Instructor in Science, Bellingham, Wash., 1908-09; Graduate Assistant in Physics, University of Washington, 1909-10; Instructor in Physics, 1910-.

HOWARD M. COLVIN, A. B., *Instructor in Spanish.*

Graduate, State Normal School, Alva, Oklahoma, 1903; Graduate Student, State Normal School, Alva, Oklahoma, 1904-05; Student in Spanish in the Philippines under Friar Garcia, of the University of Madrid, 1906-08; Student, summer term, University of Indiana, 1909; Student, University of Washington, 1909-10; A. B., University of Washington, 1910; Superintendent of Schools, Kaw City, Oklahoma, with private classes in Spanish, 1903-04; School Supervisor, Philippine Islands, 1906-08; Traveled in the Orient and Europe, summer and fall of 1908; Professor, State Normal School, Alva, Oklahoma, with private classes in Spanish, 1908-09; Instructor in Spanish, University of Washington, 1910-.

J. W. PIERCY, *Instructor in Journalism.*

Student, De Pauw University; Reporter, Indianapolis Sentinel, four years; Oklahoma Correspondent, Kansas City Times and Indianapolis News, one year; with Indianapolis News as follows: exchange editor and editorial paragrapher, thirteen years; copy editor, one year, also telegraph assistant; author, short stories in the Atlantic Monthly, Century, Harper's Bazaar, New England Magazine, besides political and news letters in various papers; Instructor in Journalism, University of Washington, 1910-.

WALTER AUSTIN GLEASON, B. S., *Instructor in Civil Engineering.*

B. S., Massachusetts Institute of Technology, 1897; Track Apprentice, Illinois Central Railroad, 1897; on construction of Boston Elevated Railway, 1898-99; Draftsman and Designing Engineer, Boston Bridge Works, Milliken Brothers, Contractors, and the Robins Conveying Belt Company, New York City, 1900-04; Assistant Engineer in charge of structural details of the B. T. Babbitt Plant, New York City, 1905-06; Superintendent of Construction, Somervell & Cote, Architects, Seattle, 1907-08; General Engineering Practice, Seattle, 1909-10; Instructor in Civil Engineering, University of Washington, 1910-.

WILLIAM CHARLES MUEHLSTEIN, B. S. (C. E.), *Instructor in Civil Engineering.*

B. S., in Civil Engineering, University of Wisconsin, 1909; Assistant in Civil Engineering, University of Wisconsin, 1909-10; Instructor in Civil Engineering, Pennsylvania State College, First Semester, 1910-11; Instructor in Civil Engineering, University of Washington, February, 1911-.

CHARLES EARL MALLORY, B. S., *Instructor in Electrical Engineering.*

B. S. in E. E., University of Washington, '09; Practical work with Puget Sound Electric Co., Northwestern Improvement Co., 1909-10; Installing Electrical Machinery in State Quarry, Deception Pass, 1910; Instructor in Electrical Engineering, University of Washington, 1911.

LECTURERS

JAMES DELMAGE ROSS, *Lecturer on Central Station Practice.*

Chief Electrical Engineer, Municipal Light & Power Plant, Seattle.

ELBERT GROVER ALLEN, *Lecturer on Electric Power Plants.*

Electrical Engineer, Stone and Webster Engineering Co.

CHARLES EVAN FOWLER, M. AM. SOC. C. E., *Lecturer on Engineering Contracts and Specifications.*

President and Chief Engineer, International Contract Co., President Seattle Park Commission, 1904.

HARVEY L. GLENN, B. S., *Lecturer on Bullion Assaying.*

Assayer, U. S. Assay Office, Seattle.

JOHN HARISBERGER, *Lecturer on Power Transmission.*

Chief Electrical Engineer, Seattle-Tacoma Power Co.

GEORGE JAMME, *Lecturer on Coal Mining.*

Mining Engineer, Seattle.

GEORGE NELSON SALISBURY, B. S., *Lecturer in Meteorology.*

B. S., University of Minnesota; United States Weather Bureau Official, since 1883; Director, Washington Section, United States Weather Bureau, since 1894.

ROGER TAYLOR, C. E., *Lecturer on Copper Smelting.*

Superintendent of Copper Works, Tacoma Smelting Company.

OLIVER P. M. GOSS, C. E., *Lecturer in Timber Physics.*

B. S., Purdue University, 1904; C. E., Purdue University, 1907; practical work in Railway Engineering, 1902-03; with technical branch U. S. Forest Service, 1904-; in charge of Forest Service, Timber Testing Laboratory at University of Washington, 1907-; Lecturer in Timber Physics, University of Washington, 1908-.

FRANK B. COOPER, *Lecturer on Education.*

Superintendent, City Schools, Seattle.

ISABELLA AUSTIN, A. B., *Lecturer on Education.*

Dean of Women, University of Washington.

LUCY K. COLE, *Lecturer on Public School Music.*

Supervisor of Music, City Schools, Seattle.

SHERWOOD C. LINDSAY, *Lecturer on Operating Electric Plants.*

Load Supervisor for the Seattle Electric Company.

GRADUATE ASSISTANTS

RAYMOND NIMS ASHMUN, A. B., *Graduate Assistant in Mathematics.*

A. B., University of Washington, 1909; Graduate Assistant, University of Washington, 1909-.

ALANSON ROGER MERRILL, A. B., *Graduate Assistant in History.*

A. B., Harvard University, 1906; Harvard Law School, 1906-08; Attorney-at-Law, Bangor, Maine, 1908-09; Attorney-at-Law, Seattle, Washington, 1909-; Graduate Assistant in History, University of Washington, 1909-.

*CHARLES ALEXANDRE GUERARD, A. B., O. A., O. I., *Graduate Assistant in French.*

A. B., University of Paris, 1876; Student, 1879-80; Private Classical Coach to French College and Government Schools, 1880-1893; Instructor in English, St. Croix College, Paris, 1893-1903; Professor in the Evening Schools of the Polytechnic Association of Paris, 1880-1907; Graduate Assistant in French, University of Washington, 1909-.

JOHN JACOB WINTLER, PH. C., B. S., *Graduate Assistant in State Food and Drug Analysis.*

Ph. C., University of Washington, 1908; B. S., 1909; Graduate Assistant, 1909-.

ADELBERT D. MCCLEVERTY, A. B., *Graduate Assistant in History.*

A. B., University of Kansas, 1908; student of Law University of Washington, 1909-1911; Graduate Assistant in History, University of Washington, 1910-11.

ROBERT E. NOELKER, A. B., *Graduate Assistant in German.*

A. B., German Wallace College (Berea, Ohio); Graduate Assistant in German, University of Washington, 1910-.

HANS D. GAEBLER, A. B., A. M., *Graduate Assistant in German.*

A. B., Northwestern College (Watertown, Wis.); A. B. and A. M., University of Wisconsin; Instructor in German and History, Luther College, Racine, Wisconsin, 1909-10; Graduate Assistant in German, University of Washington, 1910-.

AGNES FAY MORGAN, S. B., S. M., *Graduate Assistant in Chemistry.*

S. B., University of Chicago, 1904; S. M., University of Chicago, 1905; Graduate Student and Assistant, University of Chicago, summers 1906 and 1907; Professor of Chemistry, Hardin College, Mexico, Missouri, 1905-1907; Assistant in Chemistry, University of Montana, 1907-08; Registered Pharmacist, Seattle, 1909-1910; Graduate Assistant in Chemistry, University of Washington, 1910-.

* Resigned, December, 1910.

PAUL GOERNER, PH. D., *Graduate Assistant in Chemistry.*

Ph. D., University of Strassburg, 1908; Chief Chemist in the City Hospital, Colman, Alsace, 1909; Pohlman & Co., Port-au-Prince, Haiti, 1910; Graduate Assistant, University of Washington, February, 1911-.

LEVI ALTON LOVEGREN, C. E., *Graduate Assistant in Chemistry.*

C. E., University of Washington, 1910; Graduate Assistant in Chemistry, 1910-February, 1911.

HELEN MARIE FITCH, A. B., *Graduate Assistant in Physical Training.*

A. B., University of Wisconsin, 1910; Instructor in Physical Training, Sacred Hearts Academy, Madison, Wisconsin, 1909-10; Assistant in Physical Training, University of Washington, 1909-.

GRACE BOYD, A. B., *Graduate Assistant in Mathematics.*

A. B., Hastings College, 1902; Graduate Student, Summer Sessions, University of Nebraska, 1904; University of Washington, 1907; Instructor in Mathematics in High Schools, West Liberty, Iowa; Blue Hill, Nebraska; Kennewick, Washington, 1903-10. Graduate Assistant in Mathematics, University of Washington, 1910-.

LILLIAN MADISON, A. B., *Graduate Assistant in Mathematics.*

A. B., University of Washington, 1910; Tutor in Mathematics, University of Washington, 1909-10; Graduate Assistant in Mathematics, University of Washington, 1910-.

DAVID SOLTAU, A. B., *Graduate Assistant in Physics.*

A. B., Northwestern University, 1909; Graduate Assistant in Physics, University of Washington, 1910-.

LLOYD BLACK, A. B., *Graduate Assistant in Public Speaking and Debate.*

Graduate Assistant in Public Speaking, 1911.

THERESA S. MCMAHON, PH. D., *Graduate Assistant in Economics.*

A. B., University of Washington, 1899; A. M., 1901; Ph. D., University of Wisconsin, 1909; Teacher in Public Schools of Washington, 1899-1901; Graduate Student in University of California, 1901-1902; Fellow in Sociology, 1907-1908, University of Wisconsin; Statistician, United Charities, Chicago, 1909-1910; Resident at Hull House, Chicago, summer 1909; Graduate Assistant in Political Science, University of Washington, 1911.

MERKIN SVEINSON, A. B., *Graduate Assistant in French.*

A. B., University of Washington, 1908; Teacher in Blaine High School, 1908-10; Graduate Assistant in French, University of Washington, 1910-.

JESSE GARFIELD ARNOLD, B. A., *Graduate Assistant in English.*

B. A., Washington and Lee University, 1910; Graduate Assistant in English, University of Washington, 1911-.

ARTHUR EDWARD NAFE, A. B., *Graduate Assistant in English.*

A. B., University of Colorado, 1908; Teacher of English, Colorado Springs high school, 1909-1910; Graduate Assistant in English, University of Washington, 1910-.

ROBY COLUMBUS ROBBINS, A. B., *Graduate Assistant in English.*

A. B., Mendota College, Illinois, 1904; D. B. *ibid.*, 1906; Graduate work in the University of Chicago, summer quarters of 1905, 1906; Graduate Assistant in English, University of Washington, 1911-.

NEWELL WHEELER SAWYER, PH. B., *Graduate Assistant in English.*

Ph. B., Dickinson College, 1908; M. A., University of Pennsylvania, 1909; Graduate Assistant in English, University of Washington, 1910-.

ASSISTANTS

F. W. KENNEDY, *Laboratory Assistant in Journalism.*

ELMER SHERRILL, *Stock Room Keeper in Chemistry.*

M. S. BEECHEM, *Assistant in Shop Work.*

UNDERGRADUATE ASSISTANTS

JOHN P. MONTGOMERY, *Chemistry (first semester).*

JOSEPHINE JOHNSON, *Chemistry (second semester).*

DOROTHY DRAKE, *Chemistry.*

HELEN COLLIER, *Chemistry.*

EDWARD GOLDSMITH, *Chemistry.*

FRED STETSON, *Education.*

J. E. SIPPRELL, *Physical Training.*

LEROY SMAIL, *Mathematics.*

EDWARD H. DENNY, *Mining.*

JAS. M. McDONALD, *Mining.*

J. I. ST. JOHN, *Band Assistant.*

SEBASTIAN KARRER, *Physics.*

ENOCH KARRER, *Philosophy and Psychology.*

C. H. WHEELON, *Zoology.*

BERTHA M. CHALLIS, *Zoology.*

GROVER C. ADAIR, *Economics (first semester).*

OSCAR F. JONSON, *Economics (first semester).*

FLSIE WADDINGTON, *Botany.*

M. W. VELDEE, *Pharmacy.*

DUTTON KNAPP, *Civil Engineering (Stock Room).*

C. R. WALSH, *Short Course Surveying.*

C. R. ROBERTS, *Civil Engineering.*

MARIAN RADFORD, *Home Economics.*

FRED ANGEVINE, *Public Speaking and Debate.*

L. J. WILLIAMS, *Civil Engineering.*

MARY STATIRA WILTHEIS, *English.*

MUSIC STAFF

CHARLES OSCAR KIMBALL, *Director.*

FREDERICK FLEMING BEALE, *Assistant and Teacher of Piano and Pipe Organ.*

MORITZ ROSEN, *Teach of Violin.*

GRACE ZIMMERMAN, *Teacher of Piano.*

J. I. ST. JOHN, *Band Director.*

LIBRARY STAFF

WILLIAM E. HENRY, A. M., *Librarian.*

A. B., Indiana University, 1891; A. M., 1892; Instructor in English, Indiana University, 1891-93; Graduate Student, Chicago University, 1893-95; Fellow in English, 1894-95; Professor of English, Franklin College, 1895-97; State Librarian of Indiana, 1897-1906; Librarian, University of Washington, 1906-.

CHARLES WESLEY SMITH, A. B. B. L. S., *Assistant Librarian, in charge of Reference.*

A. B., University of Illinois, 1903; B. L. S., University of Illinois, 1905; University of Washington Library, 1905-.

EMMA PEARL McDONALD, A. B., *in charge of Periodicals and Northwest History.*

A. B., University of Washington, 1902; Wisconsin Summer School for Library Training 1901 and 1902; University of Washington Library, 1901-.

JOSEPHINE MEISSNER, B. L. S., *in charge of Circulation.*

B. L. S., University of Illinois, 1906; Librarian, Nebraska State Normal School, Peru, Nebraska, 1906-07; University of Washington Library, 1907-.

FLORENCE BAXTER CURRIE, B. L. B. L. S., *in charge of the Catalogue.*

B. L., Milwaukee-Downer College, 1904; B. L. S., University of Illinois, 1906; Assistant Cataloguer, Carnegie Library of Pittsburgh, 1906-08; University of Washington Library, 1908-.

CARRIE COWGILL, A. B., *Part Time Assistant.*

B. L. GRONDAL, *Student Assistant.*

MATILDA KARRER, *Student Assistant.*

MUSEUM STAFF

FRANK STEVENS HALL, *Assistant Curator.*

Student, University of Michigan, 1902-05; Assistant in Museum, University of Michigan, 1905-07; in charge of arrangement of Museum, University of Cincinnati, 1907; Assistant Curator, University Museum, University of Michigan, 1907-09; spring and summer of 1908 spent in special study of Museum administration at the Smithsonian Institution and National Museum at Washington, Philadelphia Academy of Natural Sciences, American Museum of Natural History at New York, and at other eastern museums; Assistant Curator, University of Washington, State Museum, 1909-.

ARTHUR P. WOLFE, *Assistant in Museum.*

Student, University of Nebraska, 1907-08.

BERTRAM R. ELLIOTT, *Student Assistant.*

DEAN OF WOMEN

ISABELLA AUSTIN, A. B., *Dean of Women.*

A. B., University of Minnesota, 1895; Graduate, State Normal School, Winona, Minnesota, 1897; Minneapolis Public Schools, 1897-99; Critic Teacher, State Normal School, Winona, Minnesota, 1899-1902, 1905-6; Graduate Scholar, Teachers College, Columbia University, 1902-03; Critic Teacher, Speyer School, Teachers College, Columbia University, 1903-05; Critic Teacher, Michigan State Normal College, 1907-08; Supervisor, Primary Grades, Tacoma Public Schools, 1908-9; Dean of Women, University of Washington, 1909-.

OFFICE ASSISTANTS

LILLIAN B. GETTY, *President's Office.***ELIZABETH C. HANNA, *Bursar's Office.*****MAX HIPKOE, *Bursar's Office.*****EMILY DODD, *Recorder's Office.***

BUILDINGS AND GROUNDS

EVERETT O. EASTWOOD, M. E., *Consulting Engineer.***SANDY M. KANE, *Engineer.*****GEORGE L. MOTTER, *Head Gardener.*****JAMES S. KRAPE, *Carpenter.*****DAVID McDANIEL, *Head Janitor.*****Officers of the University of Washington Station of the United States Forest Service.****OLIVER P. M. GOSS, C. E., *Engineer in Timber Tests, in charge.*****CONRAD W. ZIMMERMAN, *Engineer in Timber Tests.*****HALSEY P. WYCHOFF, *Assistant.***

COMMITTEES OF THE FACULTY

ACCREDITED SCHOOLS: Professors Sisson, Osborn, Lull and Gould.

APPOINTMENTS: Professors Sisson, Lull and major professors.

ASSEMBLY AND PUBLIC EXERCISES: Professors Thorpe and Richardson, and Mr. Herbsman.

ATHLETICS: Professors Roberts, Hall, Lantz, and Moritz, and Mr. Densmore.

CATALOGUE: Librarian Henry, Professors Morris and Millman, and Dr. Hoff.

GRADUATION: Professors Byers, Magnusson, and Lantz.

GRADUATE WORK: Professors Smith, Fuller, Frein, Moritz, Stevens, and Padelford.

HOLIDAYS: Professors Johnson, Sidey and Weinzirl, and Mr. Darby.

HYGIENE AND SANITATION: Professors Hall, Weinzirl, and McCaustland.

LIBRARY: Professors Padelford, Frye, and Custis.

MUSEUM: Professors Landes, Meany, Kincaid, and Frye.

PETITIONS (irregular schedule): Professors Moritz, Ober, Benham and More.

SCHEDULE: Professors Morrison, Eastwood, and Parrington.

SECTIONS: Professor McMahon, Messrs. Bennett, Carpenter, Garrett, and Johanson.

SENIOR SCHOLARS: Professors Padelford, Byers, Savery, and Meisnest.

SPECIAL ARTS COURSE (preparation for law course): Professors Savery and Beach, and Mr. Cockerill.

SPECIAL SCIENCE COURSE (preparation for medical course): Professors Byers, Hall, and Weinzirl.

STUDENT ASSISTANCE: Professors Meany, Landes, and Dehn.

STUDENT AFFAIRS (and discipline): Professors Thomson and Gould, Deans Condon, Fuller, Haggett, and Austin.

GENERAL INFORMATION

HISTORICAL SKETCH

When the first legislature of Washington territory assembled in 1854, Isaac Ingalls Stevens, the governor, spoke most forcibly in his message in favor of a public school system, and closed his remarks on this point with the following words: "I will also recommend that congress be memorialized to appropriate land for a university." Two townships were granted, the amount previously given to Oregon for a similar purpose.

On January 29, 1855, just six months from the date of the University land grant, the legislature enacted that the Territorial University of Washington should comprise two equal institutions, one at Seattle and the other on Boisfort Plains in Lewis county. The granted lands were to be divided equally between the two institutions. The county commissioners who were directed to select the granted lands failed in their duty, and in 1858 the legislature united the two universities. Cowlitz Farm Prairie, in Lewis county, was chosen as the new site, and another enactment was passed for the selection of all the granted lands.

This shifting and fruitless policy in locating the Territorial University led the pioneers of the Puget sound region to secure an enactment incorporating another institution to be called the "Puget Sound University." The possibility of thus duplicating educational institutions resulted in bringing matters to a definite conclusion, and in January, 1861, the legislature relocated the Territorial University at Seattle. A board of University commissioners, consisting of Rev. Daniel Bagley, John Webster, and Edmund Carr, all of Seattle, was immediately appointed to select the granted lands, to sell them for not less than \$1.50 an acre, and to build the University within one year. This board met on Washington's birthday, 1861, and organized for work. The land was cleared, the cornerstone of the main building was laid on May 21, 1861, and the building completed within the specified year. In the autumn of 1862 the other buildings were constructed, and during the winter the University of Washington was opened.

The legislature in relocating the University in Seattle had stipulated that a suitable site of at least ten acres be donated by the people of Seattle. The site was selected and the major portion of it donated by Hon. Arthur A. Denny from his farm. The other portion of the site was given by Charles C. Terry and Edward Lander. A few large maple trees were left on the grounds, but all of the other trees were cleared off. The ground was plowed and harrowed, and the Rev. Daniel Bagley sowed the whole tract with grass seed he had brought from Oregon the year before.

For several years the work of the University did not rank much above that of an academy. The first class to be graduated was during the second administration of Dr. George F. Whitworth in 1876. This class consisted of one young lady, Miss Clara McCarthy, now Mrs. Wilt of Tacoma, who was graduated with the degree of bachelor of science. The honor of having first organized the University on real college lines belongs to the seventh president, Dr. A. J. Anderson.

The total number of graduates up to date is fourteen hundred and eighty-four. Records of the students in earlier years were not preserved, but it is estimated that the number of those who have attended the University from its organization to the present time is over 8,000.

The building erected in 1861 was the finest educational structure at the time in the Pacific Northwest. It was the only building belonging to the institution except the president's cottage and two rather inferior dormitories. All were frame buildings. The money for the construction was obtained from the sale of the University lands. The territorial government paid out no money for the University's maintenance until 1879. Then the amount given was very small, and was to apply on tuition fees of "free" scholars to be appointed by the governor, judges, and members of the legislature. Throughout the territorial period, from 1862 to 1889, the total sum appropriated by the territory for the University was \$34,350.

During the later years of the territorial period and the first years of statehood, the old quarters of the University became very crowded. In 1893 the state legislature provided a new site and sufficient money to build structures of permanent character and adequate to the needs of a growing institution. On September 4, 1895, the institution moved into the new buildings, and

since then the progress of the University has kept pace with the rapid development of the commonwealth.

ENVIRONS

The University is surrounded by many things of great educational value to the students, which are freely drawn upon in much of the instructional work. Seattle affords to students the great advantages of a metropolis. Its excellent library may be used by every student, and its parks, public schools, and churches have a wholesome influence upon university life.

The state legislature in 1895 enacted a strict law prohibiting the sale of intoxicating liquors within a radius of two miles of the University grounds. This insures a college neighborhood entirely free from the evils of the saloon.

GOVERNMENT

Under the constitution and laws of the State of Washington, the government of the University is vested in a Board of Regents, consisting of seven members appointed by the governor of the state by and with the advice and consent of the senate. Each regent is appointed for a term of six years. The Code of Public Instruction also provides that the immediate government of the institution shall be in the hands of the faculty, consisting of the president and professors, under such rules as the Board of Regents may provide.

ENDOWMENTS AND SUPPORT

The University derives its support entirely from the state. There is no income from tuition fees, as instruction in all the departments of the University is free, and as yet the property belonging to the institution as an endowment yields little revenue. The income from this property will some day greatly help to support the University. The property of the University includes the following:

(1) The two townships of land granted by Congress in 1854, nearly all selected and sold in 1860 and 1861 to build and establish the Territorial University. There remains of this old grant some three thousand acres, part of which is not yet selected.

(2) The old University site, consisting of the tract of 8.32 acres, donated in 1861 by Arthur Denny and wife; and 1.67 acres, donated by C. C. Terry and wife and Edward Lander. This

"ten-acre tract" is situated in the very heart of Seattle, and is rapidly enhancing in value. The tract is now under a fifty-year lease to the Metropolitan Building company bearing date of 1904. The following table will show the terms of the remaining forty-two years of the lease, giving the period, the estimated valuation, the rate upon which the rental is based, and the annual rental:

TIME	Per Cent	Estimated Valuation	Annual Rent
First period, to Nov. 1, 1912.....	3	\$500,000 00	\$15,000 00
Second period, 10 years.....	4	1,000,000 00	40,000 00
Third period, 10 years.....	4	2,000,000 00	80,000 00
Fourth period, 10 years.....	4	2,500,000 00	100,000 00
Fifth period, 12 years.....	4	3,500,000 00	140,000 00

(3) In addition to the above mentioned property the University was further endowed by the state on March 14, 1893, by the segregation of certain granted lands. Section 9 of the law approved on that day provides: "That 100,000 acres of the lands granted by section 17 of the enabling act, approved February 22, 1889, for state charitable, educational, penal, and reformatory institutions are hereby assigned for the support of the University of Washington." The legislature of 1903 instructed the state land commissioner to select these lands. They have been selected, and the records have been duly filed.

BEQUESTS

Prior to the session of the state legislature in 1897 it was practically impossible to expect any gratuities or bequests, as such gifts would immediately go into the treasury of the state, and become unavailable except upon appropriation by the legislature. But in the session of 1897 the Code of Public Instruction was enacted, and section 186, chapter 1, title IV, made the following provision for University bequests:

"The Board of Regents is authorized to receive such bequests or gratuities as may be granted to said University, and to invest or expend the same according to the terms of said bequests or gratuities. The said board shall adopt proper rules to govern and protect the receipt and expenditure of the proceeds of all fees, bequests, or gratuities, and shall make full report of the same in the customary biennial report to the governor, or more frequently if required by law."

It is hoped that this provision will result before long in the erection of a number of memorial buildings, and the establishment of memorial scholarships and professorships.

STUDENT EXPENSES

TUITION

There is no regular tuition charged for admission to the University. Certain departments, however, have to charge fees to cover special expenses incident to their work. (a) A laboratory fee is charged in all laboratories, calculated in amount to cover the cost of the materials used and the expense of the work incurred by the individual students. Hence the amount of the fee varies in the different laboratories, varying from \$1.00 to \$15.00 a semester as shown in the announcement for the several departments. (b) An incidental fee of ten dollars is charged for the summer session, to provide for the expenses incidental to the conducting of the summer session and to provide for calling in outside talent. (c) There is a law school fee of twenty dollars a semester. This is to take care of certain incidental expenses, but is especially to provide the library and the library facilities needed to enable the students to do their professional work to the best advantage.

BOARD AND ROOM

In the two dormitories, one for men and one for women, board and room is furnished at cost. Beginning September, 1911, the price of board will be \$17.50. In addition to this the room rent, including heat and light, is \$12.00 a semester, payable in advance. No rooms will be reserved unless paid for.

Board bills are payable monthly as bills are rendered. Rooms are furnished with a spring bed, table, dresser, wardrobe, and chairs; but the student is expected to supply his own bed linen, bedding, mattress, towels, floor rug and any articles of luxury.

A deposit equivalent to the first month's board (\$17.50), which is returnable at the end of the year, must be made with the Bursar in advance by all students desiring to live at the dormitory.

The charge to each student is simply large enough to maintain

the dormitories in a manner that will insure comfortable rooms, wholesome food and generally healthful surroundings. The University does not desire to make any profit from the dormitories.

Since, in the judgment of the University, it is deemed advisable that men and women room in different houses and that women room only in houses which furnish a first floor reception room for the entertainment of men callers, all first-year women are required to communicate with the Dean of Women before securing rooms. In the past the expense of board and lodging with private families has ranged from eighteen dollars to thirty dollars per month.

CADET UNIFORM

The uniform with which the members of the cadet corps are required to provide themselves costs about sixteen dollars. The amount necessary to cover this cost is deposited with the Bursar of the University. The uniform is designed to be worn in place of civilian dress.

LABORATORY DEPOSITS

The University does not desire to make any profit from the deposits paid by the students for work in the laboratories. In many cases no fees are charged, except for damage to apparatus, when payment for the cost of the damage is required. The other deposits are based upon the average cost of materials used by the individual student in the laboratories. Laboratory deposits are made with the bursar in advance. These deposits in the several laboratories are as follows:

ASSAYING.—A deposit of fifteen dollars is made by all students registering for course 1. Any part of this amount that may be left to the credit of the student, after deducting the cost of materials consumed and breakage, is refunded upon order of the head of the department.

ASTRONOMY.—A deposit of fifty cents for each hour of credit is required of all students in courses 1, 2, 1a, 2a. The deposit is intended to cover the cost of materials, breakage, and laboratory guides.

BOTANY.—Materials for dissection, stains, alcohol, and other reagents, and typewritten laboratory outlines are furnished each student, which cost one dollar for each hour's credit, except in research work, where the cost is determined by the nature of

the work done and materials used; and in bacteriology, where an additional two-dollar deposit is required to cover breakage.

CHEMISTRY.—At the beginning of each semester each student in chemistry will be required to make a deposit of ten dollars before being assigned to his desk. Of this deposit there will be deducted the cost of chemicals, gas, water, etc., and the remainder, less breakage, will be returned.

ELECTRICAL ENGINEERING.—A deposit of one dollar for each hour of credit is made in all laboratory courses. The student also pays for any damage or injury that may come to any instrument or machine entrusted to him.

FORESTRY.—A deposit of one dollar is made in courses 1, 3, 5, 6, and 13, and two dollars in 7 and 19. The student is also expected to pay for damage to any instrument entrusted to him.

GEOLOGY AND MINERALOGY.—In courses 1, 1a, 1b, 2, 3 and 4 a deposit of one dollar is made; in courses 5, 6 and 9 a deposit of two dollars is made.

HOME ECONOMICS.—A deposit of four dollars each is required for courses 1 and 2; one dollar for course 3; three dollars for course 6 and three dollars for course 9.

JOURNALISM.—A deposit of five dollars a semester will be required of all students taking the laboratory course in journalism.

METALLURGY.—In course 1 the deposit is fifteen dollars; in courses 2, 3, 4, 5, 6, 7 and 8, ten dollars each; and in courses 9, 10 and 12, three dollars each.

PHARMACY.—The total deposit of first year students taking work in pharmacy, chemistry, botany and physiology is twenty-four dollars for the first semester, and thirty-two dollars for the second semester. Second year students have a deposit of twenty-five dollars for first semester and twenty dollars for second semester. The student pays only the actual cost of drugs and chemicals used; the remainder of the deposit, less breakage, is returned at the end of each semester.

PHYSICS.—Students are required to make a deposit of five dollars. From this deposit \$1.75 per hour of credit is deducted to pay for materials and repair of apparatus, and the remainder, less cost of breakage, is returned.

PSYCHOLOGY.—A deposit of two dollars is made for each of the laboratory courses offered in experimental psychology. These

courses are philosophy 1 and philosophy 16. The deposit is intended to cover the cost of materials, breakage, and laboratory directions. Any excess over this cost will be refunded at the end of the course.

SHOP WORK.—A deposit of two dollars each semester is required of students in wood work. A deposit of two dollars each semester is required of students in iron work.

STRUCTURAL MATERIALS.—A deposit of three dollars will be required for the course structural materials 10. This is to cover the cost of materials used. The unexpended balance will be returned.

ZOOLOGY.—For the courses in zoology, involving laboratory work, a deposit is required to cover the estimated cost of the laboratory outlines, materials, and reagents used by the students. For the regular courses, the amount is one dollar for each hour's credit. In research work the amount of the deposit is subject to special arrangement, according to the nature of the investigation.

DIPLOMA 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.

STUDENT HELP

Many students who have found it necessary to support themselves while at the University has been enabled to do so by securing occupation of various sorts in the city. There is a limited amount of work which the authorities are disposed to give to students. This includes assistance in the library, the laboratories, the engine rooms, and janitor work. The dining hall affords work for a number of men students throughout the college year. Students needing work to help pay their way through the University are given every possible aid by the Faculty Committee on Student Assistance. There is also an employment bureau conducted by students to secure work for students who have to make their own expenses. The official records of the recorder's office shows that twenty-three (23%) per cent. of the students enrolled in 1910-11 are entirely self-supporting, while thirty-two (32%) per cent. more are partially dependent upon their own resources. There is no reason why an ambitious and capable young man or woman desiring an education should not obtain it at the University of Washington.

DEAN OF WOMEN

The Dean of Women is always ready to help or advise any woman student who may need such assistance. She will recommend boarding and lodging places, assist young women to find employment, as far as she is able, correspond with parents or guardians who desire to make inquiry concerning their daughters or wards, and take an interest in all the women's organizations.

SCHOLARSHIPS

THE JOHN WALTER ACKERSON SCHOLARSHIP

This scholarship, of one hundred dollars, is awarded annually to a member of the junior class. The award is made by a committee of the faculty on the basis of (1) scholarship, and (2) personal influence and activity in elevating student interests. Of the young women in the junior class measuring up to the standards contemplated in this scholarship, preference will be given to the ones who are financially more or less dependent on their own resources.

The scholarship is due to the generosity of Mrs. S. Louise Ackerson. It is named in honor of her husband, the late John Walter Ackerson, a pioneer of Washington, who built the first mill in Tacoma, and was one of the founders of the great lumbering industries centering in that city.

ANONYMOUS

A friend of the University has provided a scholarship of one hundred and fifty dollars to be awarded annually to a student of the department of chemistry who is carrying regular college work. The person securing the scholarship is selected by the instructors of the department on the basis of scholarship in the courses taken in the department, of scholarship in other departments, and of personality.

THE BIG RED APPLE SCHOLARSHIP

Through the efforts of the Chelan County Club, an organization composed of students in the University from Chelan county, a scholarship of two hundred dollars has been established in the University. This scholarship is to be given to the most deserving student in the graduating class of the Wenatchee High School, based upon class standing and participation in student activities. The scholarship is to be known as the Big Red Apple Scholarship,

taking its name from the fact that the award is made by the business men of Wenatchee, the home of the Big Red Apple.

SENIOR SCHOLARS

In June preceding their senior year, juniors who have eighty-eight 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 class-room system permits. His work must be in not less than two nor more than four allied subjects; and it must be correlated so that it will bear upon some common field.

PRIZES

THE JUDGE ALFRED BATTLE PRIZE

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.

THE PHILO SHERMAN BENNETT PRIZE

The Philo Sherman Bennett prize is "for the best essay discussing the principles of free government." This prize, the annual income on four hundred dollars, is awarded at commencement time. This foundation was established by the will of the late Philo Sherman Bennett, of New Haven, Conn., through William J. Bryan, acting as trustee. The trustee was directed under the will to select twenty-five colleges in which to establish these prizes, and this institution is among those chosen.

THE E. F. BLAINE PRIZE

In 1907 Mr. E. F. Blaine, of Seattle, assumed the annual cash prize of \$100.00 formerly offered by the King County Bar Association as an incentive for oratory. This prize is competed for annually by the students of the Universities of Washington, Oregon and Montana, and is known as the E. F. Blaine prize for oratory.

THE ALDEN J. BLETHEN PRIZES

Hon. Alden J. Blethen offers annually the sum of one hundred dollars for prizes in declamation. The contests, two in number, are held at the University in May of each year. These contests

are open to pupils in attendance at any one of the accredited high schools of the state. The prizes are twenty-five dollars for first place, fifteen dollars for second place, and ten dollars for third place in each contest.

THE JUDGE THOMAS BURKE PRIZES

A scholarship of sixty dollars has been provided through the generosity of Judge Thomas Burke, of Seattle, to be awarded annually to the student in the department of Latin who does the best work in the sophomore year. Candidates must be carrying a full year of college work, and the scholarship will be awarded on the basis of both the work in Latin and that in the other subjects of their course.

Judge Burke has also provided two annual prizes of \$30.00 each, for the departments of French and German, to be awarded to the major student in French or German, who at the end of the junior year has done the most satisfactory work in the department. Candidates must, at the time of the award, be carrying a full college course and shall not have spent more than three years in college work. In the award of these prizes, account will also be taken of the character of work done in other departments.

THE VIVIAN W. CARKEEK PRIZE

Mr. Vivian W. Carkeek of the Law class of 1901 offers an annual cash prize of \$25.00 for the best thesis on Washington law.

THE L. J. CORKERY PRIZE

Mr. L. J. Corkery, of Toledo, Ohio, has supplemented the Blaine prize for oratory by offering a fifteen-dollar cash prize for second honors in the contest between the Universities of Washington, Oregon and Montana.

THE LORETTA DENNY FELLOWSHIP

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 \$1,250.00, and affords three fellowships of equal amount, which will be awarded by May 1st of each year, upon recommendation of the committee on advanced degrees, ratified by the vote of the general faculty.

THE R. C. ERSKINE PRIZE

Mr. R. C. Erskine, of Seattle, gives annually a cash prize of fifty dollars to the member of the senior class who presents the best original oration. The purpose of Mr. Erskine in offering this prize is to stimulate interest in the study of political and social problems, with special reference to the peculiar problems of the city of Seattle and the state of Washington. This contest is open only to seniors.

THE FUNK AND WAGNALLS PRIZE

The Funk & Wagnalls Company give annually a prize consisting of a copy of their Standard Dictionary for the best work in Freshman English.

THE JACOB FURTH PRIZE

Mr. Jacob Furth offers an annual scholarship of one hundred dollars, to be awarded at commencement, to the senior student in electrical engineering who shall have done the best work in physics, mathematics, and electrical engineering during his course.

SEATTLE BAR ASSOCIATION

Each alternate year, beginning with the spring of 1908, the Seattle Bar Association will give the sum of fifty dollars to defray the expenses of a debate between representatives of the Law Schools of Oregon and Washington.

KERL PRIZE

The Kerl cash prize of \$100.00, provided by Thomas T. Kerl, of Coeur d'Alene, Idaho, is awarded for the best paper on an industrial topic involving the products of the Pacific Northwest.

THE WASHINGTON BANKERS ASSOCIATION PRIZE

At the 1910 meeting of the Washington Banker's Association it was voted to award a prize of twenty-five dollars for the best essay on an economic topic to be selected by the executive committee of the association. The subject for the year 1910-1911 was "A Central Bank As a Factor in a Financial Crisis."

ENDOWMENTS

THE BAILEY AND BABETTE GATZERT FOUNDATION

The University received in January, 1911, a fund of \$30,000, the income from which is to be used in the work for defective children. This endowment is given in memory of Bailey and Babette Gatzert, who were long residents of Seattle and gave generously to many public interests. The fund is contributed equally by Mr. Sigmund Schwabacher, of San Francisco, and the late Mr. Abraham Schwabacher, brothers of the late Mrs. Gatzert.

The fund was provided some years ago and has been awaiting a suitable form of memorial. It came to be offered to the University in the following manner: In the fall of 1909 a psychological clinic for the examination of defective children was established at the University by the departments of education and psychology. The clinic soon attracted much favorable attention, and among those who became interested in it were Mr. and Mrs. Nathan Eckstein, the latter being the daughter of the late Abraham Schwabacher; after conference and negotiation the fund was offered to the regents of the University and gratefully accepted by them.

The deed of gift provides that the income of the fund "shall be used to maintain a bureau of child-welfare * * * the work of said bureau to consist in the promotion in various ways of education for the better care and treatment of children suffering from defects, either physical or mental, especially such defective children as can in spite of their defects attend school of some sort and benefit by some form of school education and training." The University authorities are earnestly studying the best methods of such work, and will put it into full operation as soon as possible.

The benefits of the foundation are to be extended as widely as possible through the state; the plan will probably be for the specialist in charge to spend a considerable part of his time visiting centers throughout the state to give aid and counsel to the local school authorities in establishing and conducting work for defective children in their schools. Such work, by the way, is already being done in several of the leading cities.

The foundation will greatly increase the opportunity for the study of psychology and education at the University, especially for those preparing for educational work; courses will be given in the psychology of the defects of children, and on the treatment

of defectives. Advanced students of education, as for example experienced teachers, principals and superintendents, will naturally be attracted by the opportunity to become intelligent and competent on this great phase of education.

THE REMSBERG GIFT

Mr. and Mrs. Charles E. Remsberg have given \$1,250.00 to the University library for the purchase of Pacific Northwest history materials; \$250 for the year 1910 and \$100 for each of ten years beginning Jan. 1, 1911.

GIFTS

A replica of Houdon's famous statue of Washington was presented to the University within the college year by Mr. Winlock Miller, of Seattle.

Gifts of books to the total number of one hundred ninety-six volumes have been made to the general library by various donors.

The Law library has received seven hundred seventy-two volumes from various donors.

Mr. P. B. Randolph recently presented to the Museum his very fine collection of marine, fresh water and land shells, consisting of over 10,000 specimens, many of them being of very rare species. He gave also, at the same time, his collection of Eskimo curios from the Yukon river, Alaska, and several hundred reports and pamphlets on ethnology, zoology and conchology.

ASSOCIATIONS AND CLUBS

ALUMNI ASSOCIATION

The officers of the Alumni Association for 1909-10 are as follows:

President.....	Donald A. McDonald, '03, '05
Vice-President.....	Miss Lydia Lovering, '96
Secretary.....	Caroline E. Horton, '99
Treasurer.....	James E. Gould, '96

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. This board decides all

questions relating to the student body as a whole, and controls all matters of general interest to the student community. 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 general manager has charge of all moneys received as association fees or admissions to games and contests, and is the custodian of all property belonging to the association. He is required to give a bond for five thousand dollars. Besides the general manager, there is appointed a separate manager for a student book store. The book store handles all the text-books, stationery, and supplies at a reduction from the usual prices. The associated student fee of \$5.00 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 and to all the voting and other privileges of the association.

CHRISTIAN ASSOCIATIONS

The Young Men's and the Young Women's Christian Associations each have a branch organization among the students. They are active in making the new students feel at home and in assisting them in many ways.

A bureau of information and an employment bureau are maintained jointly by the two associations.

CHEMICAL CLUB

The Chemical Club consists of the advanced students and instructors in the department of chemistry as organized at the beginning of each year. The line of work to be followed during the year is outlined at the opening meeting. It usually consists of papers read and discussed by the members of the club involving the recent advances in chemistry as published in the periodicals. Frequently also visiting chemists are invited to address the club.

CLASSICAL CLUB

This club is composed of students and members of the faculty who are interested in the life and literature of the Greeks and Romans. Its meetings are held once a month.

COUNTY AND STATE CLUBS

The students from the different counties of the state and the students from some of the neighboring states maintain organizations at the University. These clubs serve the purpose of extending the acquaintance of the students that come from different high schools of the same county, and enable the students of the county organization to be helpful to the new students that enter from their county by furnishing all sorts of detailed information which has to be gained by personal acquaintance with the University. These clubs have enabled their members to wield a strong influence in the University, and have served to identify prominently with the University life, the names of the towns and counties which the club represents.

DEBATING CLUBS

There are five debating clubs in the University, viz.: Stevens, Badger, Chinook, Athena, and Sacajawea. The first three are for men, the last two for women. Membership in the clubs is limited in order that frequent practice may be afforded. Meetings are held weekly, and announcements of subjects for debates and of other matters of interest are made on the bulletin boards of the clubs. One or more inter-society debates are held each year, and from the contestants are largely chosen the University representatives for the intercollegiate debates.

LINCOLN LITERARY SOCIETY

The Lincoln Literary society offers to students in all departments of the University an opportunity for developing proficiency in public speaking and a knowledge of the various forms of English composition. Active membership in the society is limited to twenty.

DEUTSCHER VEREIN

The Deutscher Verein is an organization of students and instructors interested in the study of the German language and literature, and of German life and culture. Meetings are held twice a month, on Thursday evenings. The program consists of lectures, recitations, dramatic performances, singing German songs, playing German games, and social entertainments. Each member is expected to appear on the program at least once in each semester. Besides one or two shorter plays, the Verein presents each year one large four or five act drama of literary

merit. In 1911 Lessing's "Minna von Barnhelm" was presented. All students who have studied German two years or more, especially those majoring in German, or expecting to teach German, are invited to membership.

THE FOREST CLUB

The Forest Club of the University of Washington was organized December 12, 1908. Its objects are to bring the students in the School of Forestry into closer relationship, and to render mutual assistance along professional lines. The club meets on the second and fourth Saturday nights of each month during the college year.

FRENCH CLUB

Membership in the French Club is open to both students and instructors. The students are offered in this club an excellent opportunity to practice speaking French under conditions free from all class-room restraint, and to acquire a vocabulary of useful words not usually found in text-books.

The officers of the club are elected from the student members, but the instructors attend the meetings and are always ready to offer their services in the preparation of programs. During the current year the club has staged Pailleron's masterpiece: *Le Monde ou l'on sennuie*.

Meetings are held bi-weekly. Students who have studied French at least two years are invited to attend the meetings.

STUDENTS MATHEMATICS CLUB

The Students Mathematics Club was organized in 1908. The club is conducted entirely by students. Its purpose is to bring about good fellowship and to stimulate mutual helpfulness among those students who naturally incline toward the study of mathematical questions. The club is open to every student in the University who is sufficiently interested in mathematics to contribute something toward the program at least once during the year. The club meets bi-weekly on alternate Friday afternoons.

MATHEMATICS JOURNAL AND RESEARCH CLUB

The Mathematics Journal and Research Club meets semi-monthly on the second and fourth Tuesdays of each month while the University is in session. The club consists of teachers and graduate students in mathematics and allied departments. Its

purpose it to review current literature in pure and applied mathematics, and to offer the opportunity for the discussion of original papers by the members of the club.

MINING SOCIETY

The Mining Society includes upperclassmen and graduate students in the mining engineering courses and a few underclassmen who have had considerable experience in mining. Mining men of note address the meetings, which are held monthly in the Mines building.

MUSICAL ORGANIZATIONS

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

The Choral Society includes both students of the University and outside singers. It was organized for the purpose of promoting general musical culture, and to give the students an opportunity to study and perform standard choral works. This chorus has been organized but six years, and in that time has attained a most phenomenal growth and popularity. The rehearsals are conducted by the director of music.

The orchestra was organized in 1898. It furnishes music for assemblies, dramatic and musical performances, and for many other events of the college year. It is composed of the most competent players of orchestral instruments in the University and outside players of ability, selected by examination. The study of standard overtures, grand opera selections, and other high grade numbers is systematically taken up at the rehearsals which are conducted by the director of music.

The band furnishes music for military drill, assemblies, track meets, football games, outdoor celebrations and many other occasions. It is open to students who show sufficient ability. The study of standard music of a good grade is taken up at the rehearsals, which are conducted by an instructor. The band is uniformed and well equipped. It is a military organization and is attached to the Cadet Corps. Students who are accepted as members of the band are excused from regular military drill.

The Glee Club is open to students who are successful in the tryouts.

PHILOLOGICAL ASSOCIATION

This 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. The regular time of meeting is the last Wednesday of September, November, January, March, and May.

POLITICAL SCIENCE CLUB

This club is composed of students and members of the faculty interested in political science. Meetings are held on the first and third Wednesdays of the month at 7: 30 p. m. At these meetings there are papers and addresses on political, social, and economic subjects. It is the plan of the club to have one meeting each month devoted to papers prepared by students of the University, and one evening each month given to an address by some person not connected with the University.

SCANDINAVIAN CLUB

A Scandinavian club has been formed in connection with the new department of Scandinavian languages, open to students, alumni, and instructors. Its general purpose is to bring the students of Scandinavian parentage together socially and to interest them in Scandinavian literature, history, art, and music.

SPANISH CLUB

This is an organization which has existed for several years, the members of which have either lived among Spanish speaking people or have otherwise attained fluency in speech and knowledge of the language. The membership is drawn from the faculty of the University, advanced students in Spanish, teachers in the city schools and any persons meeting the requirements who are desirous of practice and improvement. Reading of plays and the discussion of literary works of Spanish authors and reviews of general topics constitute the working program. This club is not open to students except those who have completed several years' study of the language, provision being made for those less trained in another organization more elementary in character.

ATENEO BAZANISTA

The Ateneo Bazanista is a Spanish club which has been organized for the benefit of students pursuing the study of the Spanish language in the University. It takes its name from Emilia Pardo Bazan, an authoress prominent in literary circles and the foremost character in education at the present time in Spain. This club is placed under her patronage and it is the purpose to correspond with her and to receive communications

from clubs in Spain under her auspices. The membership of the Ateneo Bazanista is composed of students attending the University and their work is seconded by the instructors in the Spanish department. The object of the club is to help the students to obtain sufficient fluency to express themselves in Spanish in an organization which belongs to them and is conducted by them. The recitation and reading of selections of prose and poetry with talks and illustrations of Spanish life and customs make up the program, while the order of procedure is that of forensic assemblies.

SIGMA XI

A chapter of the national society of Sigma Xi has been established at the University. The purpose of the society is to encourage research work along scientific lines. Its membership is composed of teachers and graduate students.

WASHINGTON UNIVERSITY STATE HISTORICAL SOCIETY

The Washington University State Historical Society was organized in 1903, and incorporated under the laws of the state. The purpose of this organization is to preserve the historical documents and records of the Northwest, and of the state of Washington; to purchase, maintain, and mark the places of historical interest; to engage in and to promote research relating to the Indians and Indian tribes; to promote by every legitimate means antiquarian, archeological, and scientific research; and to preserve or publish the results of all such investigations. This society aims to co-operate with the state University in the promotion of research work in the fields in which the Northwest is especially rich.

The officers and trustees of the society are as follows: Clarence B. Bagley, president; John P. Hoyt, vice-president; Roger S. Green, treasurer; Edmond S. Meany, secretary; Cornelius H. Hanford, Thomas Burke, and Samuel Hill, trustees.

UNIVERSITY LECTURES

ADDRESSES AT ASSEMBLY

Addresses by members of the faculty and by distinguished scholars and men of affairs are given Wednesdays before the student body in the auditorium. By this means the work of the class-room is supplemented, and the students obtain a broader outlook upon life through the light of practical experience. The following addresses were given during 1910-11:

ASSEMBLY 1910-11.

- Sept. 28. Annual Address by President Kane.
Oct. 5. Addresses by student leaders.
Oct. 11. Address by Dr. Stanton Colt, of London, England.
Oct. 21. Address by Hon. T. P. O'Connor, M. P. of Ireland.
Oct. 26. Address by Hon. Miles Poindexter.
Nov. 9. Annual Assembly of Women of the University, Miss
Isabella Austin, Dean.
Nov. 16. Address by George Parkin, of London, England.
Nov. 23. Readings from Shakespeare, by Mr. Wadsworth
Harris.
Dec. 7. Student Assembly for the awarding of athletic "W's".
Dec. 14. Tolstoy Memorial Assembly.
Address by Dr. H. H. Gowen.
Dec. 21. Tolo Club Assembly.
Address by Dr. E. O. Sisson.
Jan. 6. Legislative Assembly, Address by Members of the
Legislature.
Jan. 11. Address by President Tasuka Harada, of Doshisha
University.
Jan. 13. Addresses by Mr. E. C. Mercer and Mr. E. C. Carter, of
New York.
Jan. 18. Address by Mr. Frederick S. Hughes, of the National
Public Safety League.
Jan. 25. Student Assembly in the Interest of Track Athletics.
Feb. 15. Address by Mr. Will H. Thompson, "Abraham Lin-
coln."
Feb. 21. Address by Professor Edmond S. Meany, "Washing-
ton." The unveiling of the cast of the Houdon
Statue of Washington, the gift of Mr. Winlock
Miller.

- March 1. Address by Raymond Duncan, "The Hellenic Revival."
March 8. Special Women's Assembly, address by Mrs. Edward McMahon.
March 15. Address by Henry George, "The Single Tax."
March 22. Illustrated Lecture by W. R. Wilcox, of the Seattle Civic Plans Commission.
March 29. Address by James A. Wickersham, Territorial Delegate to Congress from Alaska.
April 6. Address by Theodore Roosevelt.
April 10. Address by Baron d'Estournelles de Constant, President of the International Conciliation Association.
April 17. Address by Charles Zueblin, "Democratic Culture."

INSTITUTES AND LECTURES.

The various members of the University faculty hold themselves ready to respond to call for lectures before institutes, university extension centers, clubs, and assemblies, whenever such service does not interfere with the regular work in the institution. Several of the instructors who have had experience in the lecture field and in institute work, are ready to give regular instruction in the institutes of the state and in educational organizations. Calls for work should be addressed to the individual professors, or to the secretary of the faculty, Mr. Herbert T. Condon.

A. S. U. W. LECTURE COURSE.

The Associated Students hold a lecture and entertainment course, which is free to all students of the University. The purpose of this course is to present the leading statesmen, lecturers and musicians of the country. The course for the season of 1911-12 is as follows:

Mme. Frieda Ladgendorf, soprano, of the Metropolitan Opera Company.

Mr. W. L. Hubbard, music critic assisted by Mr. Alfred Bergen and Mr. Gordon Campbell.

Hon. Joseph Folk, former governor of Missouri.

Hon. Champ Clark, speaker of the House of Representatives.

Judge Ben D. Lindsey, of the Juvenile Court of Denver.

EQUIPMENT

GROUNDS

The grounds are ample to meet every need of the University. There are three hundred fifty-five acres, all within the city limits of Seattle. The site lies between Lakes Union and Washington. It has a shore line of over one mile on Lake Washington and about a quarter of a mile on Lake Union. To the southern, or Lake Union, side the land slopes gently from the highest point in the northwestern corner, which is about two hundred twenty-five feet above tide level. Toward the eastern, or Lake Washington side, the land is level for more than half its width, where it breaks off in a series of benches, terraces, and ravines.

BUILDINGS

ADMINISTRATION BUILDING

The Administration building is a two-story, staff covered, wooden structure, formerly the Administration building of A.-Y.-P. Exposition; it contains the executive offices of the University.

AUDITORIUM

The Auditorium building is a classic structure of ivory-colored brick and terra cotta to match. The main facade consists of a Corinthian colonnade, 180 feet long, with seven large doorways affording ample exits and entrances. The detail of the order is modeled from the capital of the Temple of Vesta, at Tivoli, and the main cornice sustains the same classic richness of design. It is constructed of steel and wood interior, with a concrete basement.

ASTRONOMICAL OBSERVATORY

The Astronomical observatory is a small sandstone building, constructed for the use of the telescope and other astronomical appliances, contains a dome for the telescope, a library and a computing room, a transit room, a cloak room, a dark room for photography.

BAGLEY HALL.

The Chemistry building, Bagley Hall, is in the Ionic style of architecture and consists of a central motive in the form of a

portico of four large columns with decorative French Ionic capitals. Flanking the central motive on either side is a colonnade of pilasters of similar designs. The main cornice is highly ornamented with carved mouldings of rich, but classic character. The construction is of steel frame, concrete floors, and fire proof throughout; three stories high, and is fully furnished and equipped for the department of chemistry and the college of pharmacy.

DENNY HALL

The Administration building, officially named Denny Hall, is a commodious structure in the style of the French Renaissance. It is constructed of cream-colored pressed brick and sandstone with trimmings of terra cotta. It is three stories in height, with a finished basement, and contains laboratories and recitation rooms. It is the central building of the college of arts and sciences.

EDUCATION BUILDING

The Education building, a two-story, stiff covered, wooden building taken over from the A-Y-P. Exposition, is the home of the departments of education and journalism.

ENGINEERING BUILDING

The Engineering building is of design particularly adapted to its purpose and is composed along simpler lines. The facade consists of a series of large round arches, surmounted by gables of the Spanish Mission type. It is of ivory brick with terra cotta gable trimmings to match. The building carries a large bracketed cornice of heavy overhang, supported by exposed wooden rafters of a pergola type with the natural stain.

FORESTRY BUILDING

The Forestry building of the Alaska-Yukon-Pacific Exposition reverted to the University at the close of the fair. The style of the building is archaic Greek following the lines of the Grecian temples. It is three hundred sixteen feet long, one hundred forty-six feet wide, and two stories high. The frame work consists of huge columns made from native fir trees. The columns vary from five to six feet in diameter and from forty-two to fifty-four feet in height. The upper floor is suitably divided into laboratories, class-rooms, and offices for the School of Forestry. The forest museum is installed on the first floor.

FORGE AND FOUNDRY PRACTICE

The new forge and foundry is a typical building 64 feet by 144 feet floor space and 38 feet high in the middle. It has a second story at the north end, over the machinery shop, for the wood-working department, 64 feet by 50 feet floor space, and is constructed of heavy, surfaced and framed timbers with brick veneer, concrete foundations, and earthen floors for forge and foundry, and wooden floor at northern end for machine shop.

GOOD ROADS BUILDING

The Good Roads building was erected by the Washington Good Roads Association with a special view to turning it over to the University at the close of the A.-Y.-P. Exposition, for the work in highway construction. It has been shared with the school of forestry pending the fitting up of the Forestry building.

GYMNASIUM BUILDING

The gymnasium building is constructed of wood and contains two main halls, one for men and one for women. The men's hall has a floor space of one hundred and twenty feet in length and eighty feet in width; the women's hall has a floor space of eighty feet long and fifty feet wide. Each hall is bordered by offices, dressing rooms and bath rooms.

HYDRAULIC LABORATORY

The old brick power house, 42x80, on the shore of Lake Washington, has been converted into a hydraulic laboratory, and now houses the equipment incident to this work.

LAW BUILDING

The Law building is a two-story building, erected by the Oregon State Commission for exhibit purposes during the A.-Y.-P. Exposition.

LEWIS HALL AND CLARKE HALL

Lewis Hall, the dormitory for men, and Clarke Hall, the dormitory for women, are three-story brick buildings, each accommodating sixty students. The location of the buildings is such that they command a most inspiring view of the lake and mountains.

LIBRARY BUILDING

The Library building, erected by the Washington State Commission for reception purposes at the Alaska-Yukon-Pacific Ex-

position, was given to the University at the close of the exposition, and was assigned for library purposes. The building is a two-story structure of brick veneer with concrete foundation, occupying a site 158 by 105 feet, and cost originally \$75,000. The architecture is an American treatment of the modern French type, and both in general style and interior model lends itself most aptly to the purpose of the University library. The imposing reading room on the first floor affords desks for 250 readers, while the various seminars on the second floor furnish additional accommodations.

MINES BUILDING

The Mines building is a two-story pressed brick structure, formerly occupied by the University power plant and machine shops. The interior of the building has been remodeled, and now contains the machinery and apparatus, as well as the offices and lecture rooms of the School of Mines.

MUSEUM BUILDING

The Museum building was erected by the California State Fair Commission for the Alaska-Yukon-Pacific Exposition. The structure affords quarters for the constantly growing collections of the museum.

MUSIC BUILDING

The department of music of the University occupies the one story staff building erected by the Masonic Fraternity for headquarters during the A.-Y.-P. Exposition and subsequently donated to the University.

POWER PLANT

The power plant has been installed in the new brick building, which is adequately equipped to light and heat the buildings on the University campus. The equipment is as follows: Two 250-horse power boilers; one 200 K. W. direct connected alternating current generator; one 100 K. W. direct connected alternating current generator.

SCIENCE HALL

The Science hall, one of the oldest of the University buildings, is built of pressed brick with sadstone trimmings. It is three stories in height, with additional space in the basement and attic. It contains the departments of Geology, Zoology, Botany, Mathematics and the Psychological laboratory.

OTHER BUILDINGS

A number of other buildings erected for exposition purposes during the Alaska-Yukon-Pacific Exposition have been presented to the University and are now occupied as follows: The Philippine building is occupied by the Mines Rescue Training Station; the Oriental building is used as an armory for the cadet battalion; the New York State building for an executive residence; the Hoo Hoo House for a faculty club house; the Arctic Brotherhood building for the Men's Club; the Women's State building for the Women's Club; the Michigan Club building for a residence for the engineer.

LIBRARY**LOCATION**

The University library is located in the building formerly known as the Washington State building, erected by the state for the A.-Y.-P. Exposition, and, while not designed for library purposes, it lends itself to such service better than many buildings constructed with that intention, having the chief characteristics of a good library building—adequately heated, lighted, ventilated and unobstructed space.

BOOKS

There are now 43,793 bound volumes in the library and probably 10,000 pamphlets. More than two-thirds of the volumes have been purchased within the last ten years, and have been selected with the modern idea of college work in mind, thus making it especially well suited to present needs. This is a designated depository library, and is fortunate in possessing almost a complete set of United States government publications, that are always available to any one who cares to consult them.

The Frederick James Grant Memorial Library of American History supplements the general library in that department.

PERIODICALS

The library receives regularly 389 periodicals, other than newspapers, including standard magazines and leading technical journals, both American and foreign, representing all phases of scholarship pursued in the University. Besides these, it receives the leading newspapers from the Pacific Northwest.

GENERAL READING AND REFERENCE ROOM

On the main floor is the general reading and reference room, with seats for 244 readers at individual tables. Between and in the rear of the wings of this room are shelved thirty thousand volumes, including all the distinctive reference books and the more commonly used books of all classes, including practically all books used by undergraduate students. To this collection all students have unrestricted access.

PERIODICAL READING ROOM

In the corridors of the second floor are seats for sixty readers at tables upon which are more than 200 of the higher class popular and the more scholarly magazines, accessible to all who care to read.

SEMINAR ROOMS

Seminar rooms are provided for the departments of English, German, Greek, Latin, French, history, political science and philosophy, all of which are supplied with small working collections of advanced works in their respective lines.

LENDING

Excepting reference books, periodicals, special collections, United States government publications, and books reserved for required reading in the several courses, all books are loaned for home use for a period of two weeks, subject to renewal, or recall in case of special demand.

HOURS

The library is open every day in the year except Sundays and legal holidays, and such college holidays as the University authorities may request that it be closed. During the college year, it is open Mondays to Fridays from 8 a. m. to 5: 30 p. m. and from 7 p. m. to 10 p. m. On Saturdays from 8: 30 a. m. to 12 m. and from 1 p. m. to 5 p. m. During the vacation period it is open at least three hours a day.

SEATTLE PUBLIC LIBRARY

Besides the University library facilities, members of the University have the privileges of the Seattle Public library, now containing 114,836 volumes. This library is administered in most modern way and is housed in commodious quarters.

SEATTLE AS A LIBRARY CENTER

In selecting a place for educational opportunities, it must not be overlooked that students here are in the great library center of the Northwest. In this city there are the greatest book collections within eight hundred miles.

MUSEUM

The several collections composing the University museum, which is also the State museum, are housed in two buildings of the Alaska-Yukon-Pacific Exposition, viz., the California building, which is used as the main museum building and which contains the collections in anthropology, biology and geology, and the Forestry building, which is used primarily for the collections in forestry and botany.

The museum was first started in the late 70's by President A. J. Anderson, who brought together a small ethnological collection. This collection was added to from time to time by material received from Dr. David Starr Jordan, Prof. O. B. Johnson, the Young Naturalist's Society of Seattle, the Washington State Commissions of the World's Columbian Exposition, the Louisiana Purchase Exposition, the Lewis and Clarke Exposition, the Alaska-Yukon-Pacific Exposition, and from various friends of the University through gifts, loans and purchases.

ZOOLOGY COLLECTIONS

The collections in Zoology are housed in the main museum building and afford an excellent opportunity for the study of the fauna of the state.

MAMMALS. The collection of mammals is small but representative of the state, and includes many well mounted specimens which came to the museum at the close of the Alaska-Yukon-Pacific Exposition. A fine group of Nelson sheep from Lower California, the gift of Hon. Wm. E. Humphrey, was installed recently.

FISH. The Edwin C. Starks collection of over 100 mounted fishes was turned over to the museum several years ago. This was augmented at the end of the Alaska-Yukon-Pacific Exposition by the finely mounted specimens of Alaska fish, which were a part of the government exhibit. The collection also includes many specimens received at the end of the Lewis and Clarke and the Louisiana Purchase expositions.

BIRDS. The bird collection consists of about 2,100 skins and 300 mounted specimens and is a representative one of North American species. The mounted specimens as arranged at present, are grouped in different cases as follows: Land birds, song birds, water birds, and game birds. The museum collection includes the collections received from Prof. O. B. Johnson, Mr. L. M. Turner, H. H. Hindshaw, Dr. Clinton T. Cook and George G. Cantwell, either as gifts or loans. The Cantwell collection is undoubtedly the most valuable bird collection in the northwest and contains about 1500 skins of representative American birds among which are many very rare and valuable species.

MOLLUSCA. The collection of molluscs consists of several thousand species representative of the land, fresh water, and marine forms. In this is included the collection of Mr. P. B. Randolph, which consists of over 10,000 specimens from all parts of the world, with an especially fine and nearly complete series indigenous to the Puget Sound region. The collections of shells belonging to Prof. O. B. Johnson and the Young Naturalist's Society also form part of the museum's collection.

CRUSTACEA. The museum received recently from Prof. O. B. Johnson his finely mounted specimens of crustacea. The collection contains more than sixty-five species and is undoubtedly the best collection of mounted crustacea of the Puget Sound region to be found in any museum.

OTHER COLLECTIONS. The museum also possesses several fine collections of corals, starfishes, sea urchins, hydroids, and other marine invertebrates. The collection of insects is large and a representative one, and contains many rare specimens secured by Prof. Trevor Kincaid while in Japan and Russia.

GEOLOGY COLLECTIONS

The geological and mineralogical exhibits are arranged on the first floor of the museum building. The museum received from the Alaska-Yukon-Pacific Exposition the greater part of the exhibits of ores and minerals made in the Alaska and Mines buildings, making the mineral collection one of the largest in the west. The collections are as follows: (1) The large collections of Alaska ores and minerals; (2) the collection of minerals and ores from the northwest, especially from the State of Washington, is very extensive and complete; (3) one of the most valuable in-

dividual collections is the mineral collection known as the John R. Baker collection, consisting of more than a thousand specimens, mostly in crystalline form, from different parts of the world; (4) a very complete series of minerals, ores and geological specimens of Japan, which were received at the end of the Alaska-Yukon-Pacific Exposition; (5) the museum possesses a very large economic collection of clay and clay products, like brick, tile, terracotta, pottery, etc., building and ornamental stones and marbles, coal and coke, and other useful minerals and rocks with their product; (6) a general collection of palaeontological specimens from the fossiliferous formation of the state, among which are a number of newly-described type specimens; (7) a college collection of paleontology from the Ward Natural Science Establishment, representing the characteristic invertebrate forms from the Palaeozoic and Mesozoic eras; (8) an extensive collection of maps, models and mounted photographs illustrative of the mining operations in Alaska.

ETHNOLOGY COLLECTION

The entire collection of ethnological materials made by the State of Washington for the World's Columbian Exposition, 1893, was saved and placed in this museum. It consists mostly of articles used by the Salishan and Chimakuan tribes of the Puget Sound region, many of which are very rare.

The Stewart collection of more than 20,000 specimens was purchased at the end of the Lewis and Clarke Exposition in 1905 and is now installed in the museum. This collection consists of various Indian weapons, pestles, stone axes, baskets, and other implements illustrative of the life of the Indians along the lower Columbia river.

The Philippine collection was purchased at the end of the Lewis and Clarke Centennial Exposition for the University. Most of the articles in this collection were collected among the Tagals, who have been in contact with Spanish civilization for several centuries.

The Emmons collection of ethnological material, consisting of about 1,800 specimens, from southeastern Alaska, shows well the life of the Tlingit people before they had been influenced by their contact with the white man. Their skill in wood carving is shown by examples of various dishes, platters, bowls, boxes and chests, decorated with carving in round or low relief, the designs being derived from the copious mythology of their tribes. Beautifully

carved spoons from the horn of the Rocky Mountain goat, inlaid with shells, show a remarkable skill. The ceremonial costumes are varied and consist of head-dresses, masks, neck, breast and skirt ornaments, blankets, rattles and ceremonial batons. Domestic life is represented by articles of the household, men's and women's working tools, and hunting and fishing implements. Some of the finest examples of basketry in North America are found in this collection.

The Aleutian islands and Arctic Alaska is represented by a very characteristic collection. From the former is to be seen some very fine examples of basket weaving, and articles made from the intestines of the seal and walrus. From Pt. Hope and Pt. Barrow the Eskimo is represented by articles of the household, hunting and fishing, working tools, articles of dress, ornaments and toys, carvings made from walrus and mastodon ivory. Included in the latter is the collection made by Messrs. Hachman & Konig, and which was on exhibition at the late exposition.

EDUCATIONAL COLLECTIONS

Large portions of the educational exhibits on exhibition in the Educational and California buildings, and all of the Alaska and Japanese exhibits were turned over to the museum at the end of the Alaska-Yukon-Pacific Exposition. These exhibits consist of over 6,000 specimens of the work done in the kindergarten and primary grades and the grammar and high school. The museum was very fortunate in securing the industrial exhibit made by the Los Angeles Polytechnic school, which attracted so much attention in the California building during the exposition. There are also specimens of sewing and needlework done by pupils from the lower grades up through the high school.

FORESTRY COLLECTIONS

Through the kindness of the different exhibitors in forestry and lumbering at the Alaska-Yukon-Pacific Exposition, it has been possible to retain practically all of their exhibits for a forest museum. In addition to most of the material originally contained in the Forestry building, many specimens and collections were added from other fair buildings, so that the University now has one of the most complete forestry museums in the country. The museum includes a comprehensive display of

timbers of various kinds, showing the logs just as they leave the forest, besides sections and cross-sections of big timbers. Various kinds of wood in a finished condition are also displayed, and there are many samples showing flooring, paneling, ceiling work and other uses to which wood is put in decorating the interior of residences and office buildings. There is also a display of tested timbers of all sizes, such as bridge stringers and wagon axles, and compression tests, cross-breaking tests, etc., of different woods. There are other displays illustrative of the pulp industry, and wood preservation. The collections illustrating lumber grades, grains, defects, millwork and manufactured products are especially instructive. Another valuable collection consists of woods in cross-sections native to the State of Washington. There is also a complete series of Philippine woods which was purchased at the end of the Lewis and Clarke Exposition.

BOTANY COLLECTIONS

The botanical collections consist of the following: (1) A herbarium of dried flowering plants, representing over 8,000 species, properly labeled and kept in suitable cases. These include almost all of the plant species of the state and many from without the state. This herbarium is at present under the charge of the Botany department of the University and is used continually in the work of that department. Besides there is on exhibition in the museum the loan collection known as the A. S. Fisher collection, consisting of 125 types of Chehalis county flora, and which was on exhibition in the Chehalis county building during the Alaska-Yukon-Pacific Exposition; also the Caroline E. Williams collection of Alaska wild flowers, gathered 150 miles above the Arctic circle.

(2) A collection of mosses, the largest in the northwest.

(3) An exhibit of the fruits and nuts from the horticultural sections of the state, which are exhibited in large glass jars, properly labeled and arranged.

(4) An exhibit of grains and grasses in the straw from the agricultural districts of the state and of Alaska.

Besides the above collections, there are extensive commercial exhibits, which are of considerable interest to the public and are available for use in the class work of the University.

The museum will be glad to receive, either as gifts or loans, such specimens or collections as may be of historical or scientific

interest; and it will properly care for them. Communications regarding any phase of museum work should be addressed to the Curator of the Museum, University of Washington, Seattle, Wash.

LABORATORIES

Well appointed laboratories are as essential to the modern college and university as books and lectures. The University of Washington has the following laboratories equipped for work in the various departments:

BOTANY LABORATORIES

The botanical and bacteriological laboratories are on the third floor of Science Hall. They occupy about 5,000 feet of floor space divided as follows: Three offices; three large laboratories of about 1,200 square feet each, one for bacteriology, two for botany; three small laboratories of about 500 square feet each, one for small classes and advanced work, one for taxonomic and field work, one for a media-room for bacteriology; one dark room; one private laboratory; two locker rooms; one recitation room; a large lecture room on the second floor is used in common with zoology. An attic on the fourth floor is used as a store room.

The laboratories are fitted with the apparatus and conveniences usual for the work.

CHEMISTRY LABORATORIES.

The chemistry laboratory, Bagley Hall, is a three-story concrete and steel structure, fire proof, with concrete floors and exterior of pressed brick. It consists of a main building, 166x61 feet, with an annex 64x64 feet. The annex consists of two floors, one of which is occupied by a lecture room capable of seating 450 students. This room is equipped with a lecture table, hoods, exhibition cabinets and projective lantern and all the apparatus needed for a modern lecture course in experimental chemistry. The lower floor consists of an assaying and industrial laboratory, which will be equipped with hundredth-unit models of industrial plants. It will also contain a shop with work benches, wooden and steel lathes, etc. There is also a large lavatory finished in marble throughout. A large well-lighted room is devoted to the departmental library, managed as a branch of the University general library.

The main portion of the building is provided with three lecture rooms on the third floor. One of these is so equipped that it may be used for a microscopic laboratory in connection with

the lectures on materia medica and pharmacognosy. There are also several offices for members of the teaching staff and six private laboratories. A series of three stock rooms, connected by elevators and internal stairways, occupy the center of the building. These stock rooms contain a large stock of the most modern apparatus and supplies needed for the work which is carried on. One of these rooms, immediately behind the main lecture room, is subdivided and thus furnishes a preparation room for the lecturer's demonstrations.

The laboratories for the students are twelve in number and are assigned as follows:

Three laboratories are devoted to general chemistry; each is designed to accommodate 60 students working at one time and is so constructed that twice that number can be accommodated in sections. These laboratories are supplemented by two large weighing rooms, equipped with good balances. One laboratory is devoted to the purposes of the department of domestic science; one laboratory, capable of accommodating at a single time 66 students, is assigned to the work in qualitative analysis; a similar laboratory is assigned to the work in physiological chemistry; a small laboratory with convenient supplementary equipment is devoted to the work of the examination of food and drugs for the state inspector; one large laboratory with a convenient and beautifully lighted weighing room is devoted to the work of quantitative analysis; one large laboratory is also devoted to the work in industrial chemistry, and in connection with this laboratory a room for permanent apparatus is provided. The laboratory assigned to physical and electro chemistry is at present divided into two portions, one portion of which is used by the U. S. government for water analysis in connection with the state survey. The work in pharmacy is cared for by means of a large laboratory for pharmacy and a prescription room equipped with all the apparatus ordinarily to be found in the most up-to-date drug establishments. Besides these main laboratories, a large dark room is provided for the work of photo-chemistry.

All of the laboratories throughout the building are equipped with hoods, with forced drafts, water, gas, distilled water, air under pressure and where most needed with hydrogen sulphide and steam. All the hoods, floors and sinks are made of Alberene stone; all table tops and shelvings are made of fir, finished with aniline black acid proof paint. All of the plumbing in the building is exposed and is painted with acid proof paint.

ENGINEERING LABORATORIES

CIVIL ENGINEERING

HYDRAULIC. The high pressure equipment consists of one small Tutthill wheel, one Pelton wheel, and various nozzles and orifices connected to a header under a pressure of two hundred and sixty-five feet. For low head experiments and pump tests there is a set of tanks and measuring weirs. Water is furnished for illustrating the flow of water over different forms of weirs, by two centrifugal pumps with a combined capacity of six hundred gallons per minute. Larger weirs are placed in streams near the campus, making it possible for regular work to be conducted under ordinary field conditions. Steam gaugings are carried on both by weir and by current meter, a number of stations having been established where daily readings are taken. A test of an existing plant will be conducted each year, the students being called upon to take an active part both in the preparation and in the test.

The available equipment includes Price electric and acoustic current meters, difference gauges, test pressure gauges, mercury pressure gauge, hook gauge, water column, and a two-inch venturi meter.

STRUCTURAL MATERIALS. The structural materials testing laboratory contains two 30,000-pound Olsen, one 100,000-pound Riehle, and one 200,000-pound Olsen general testing machines with complete appurtenances for tension, compression and transverse tests under all ordinary conditions, including full-sized beams of timber or reinforced concrete for lengths up to sixteen feet, an impact testing machine, designed by the United States Forest Service, and constructed in the University shops. This has been designed to meet the requirements of a heavy hammer with a low drop. The base weighs seven thousand five hundred pounds; the hammer, with a maximum drop of three feet, may be varied in weight from five hundred to fifteen hundred pounds. It is automatic and autographic, not only for continued drops from the same height, but also for drops from increasing heights. It provides for transverse tests for spans up to five feet as well as for compression and shear. Power saws and a planer are available for preparing timber specimens.

CEMENT. The equipment for testing hydraulic cement is complete for all the ordinary tests as specified by the American So-

ciety of Civil Engineers. It contains a Riehle automatic shot testing machine of one thousand pounds capacity; a tempering oven; a boiler for accelerated tests; a Vicat needle apparatus and a set of Gillmore's needles for determining initial and final set; galvanized iron pans, provided with a continuous supply of fresh water for storing briquettes; sieves, moulds, mixing tables, and other necessary accessories.

ROAD. The road laboratory is equipped for testing materials used in the construction of roads. The machines for the abrasion and toughness tests are of the standard designs adopted by the American Society for Testing Materials; other machines are similar to those used by the Office of Public Roads, of the U. S. Department of Agriculture, and complete tests for determining the value of road materials are conducted as specified by that office.

SURVEYING. The equipment consists of one theodolite, with horizontal circle reading to ten seconds; thirteen engineer's transits; seven levels; and four plane tables together with the necessary compasses, sextants, pocket transits, aneroid barometers, hand levels, chains, rods, etc., for all ordinary plane and topographic surveying.

ELECTRICAL ENGINEERING

The laboratories and lecture rooms are in the south half of the Engineering building, and the equipment may be outlined as follows:

The dynamo laboratory is on the first floor and has a floor space of eighty by one hundred and ten feet. Twenty-six direct current and fourteen alternating current generators and motors are distributed over this room, and wired so as to be readily used for experimental purposes. The machines are of modern design and represent the Westinghouse, General Electric, Bullock, Fort Wayne, and Western Electric manufacture.

The direct current dynamos are wound for one hundred and ten and five hundred volts and of sizes from one to seventy-five kilowatts, with a total rated capacity of two hundred and ninety-five kilowatts. The alternating current machines are single phase, two phase, and three phase, at one hundred and ten and eleven hundred volts, from two up to sixty kilowatts, with a total rated capacity of two hundred and two kilowatts. This includes single phase, two phase, and three phase generators, induction motors with squirrel cage and wound motors, rotary converter, syn-

chronous and repulsion motors. Most of the machines are of five kilowatts capacity, as this size has been found suitable for experimental purposes.

The laboratory is wired so as to separate the dynamos into ten groups, each having a separate switchboard and shaft. These switchboards are so wired that ten pairs of students can work on separate experiments without interfering with each other. A distributing switchboard of twelve panels supplies current to the several section boards. The direct current is distributed at one hundred and ten and five hundred volts, and the alternating, three phase, at ninety, one hundred, one hundred and twenty, one hundred and fifty, two hundred and twenty, two hundred and forty volts. Single phase, from separate generator, is available at one hundred and ten and eleven hundred volts. A storage battery switchboard is also in this room, and receives current from one hundred and thirty storage cells located in the basement. The cells have a normal discharge rating of fifteen amperes for eight hours. By means of knife switches the cells can be arranged in any combination from series to parallel, and by plug connections sent to any section board in the laboratory.

On the first floor are also located five smaller rooms, each about twenty-five by thirty feet, that open directly into the dynamo laboratory. These rooms are used for: (a) instrument making and repairing, (b) grinding room and shop, (c) instrument and stock room, (d) telephone laboratory, (e) electrolysis and special thesis problems.

Besides the storage battery there is a store room and three separate dark rooms for laboratory work in photometry in the basement. A Mathew's photometer is in one of these rooms, and in the other two bench photometers will be placed for work on incandescent and arc lamps.

The laboratories are equipped for the most part with standard Weston and General Electric instruments, while American, Whitney, and Westinghouse makes are also represented. Fourteen indicating direct current portable voltmeters; nine indicating alternating current portable voltmeters; twelve indicating direct current portable ammeters; sixteen indicating alternating current portable ammeters; seven indicating portable wattmeters; nine indicating switchboard voltmeters; eight switch-board ammeters; eight integrating wattmeters; four Bristol recording volt and ammeters.

The power house is used as a commercial laboratory both for operating and testing purposes, and contains the following electrical equipment: (a) a Westinghouse, two-hundred kilowatt, twenty-three-hundred volt, sixty cycle, alternator, direct connected to a reciprocating engine; (b) a Westinghouse, one hundred-kilowatt, twenty-three-hundred volt, sixty cycle, alternator, direct connected to a reciprocating engine; (c) a marble switch-board with modern instruments and appliances.

MECHANICAL ENGINEERING

The mechanical engineering laboratory is conveniently located on the first floor of the Engineering building, adjoining the civil and electrical laboratories. There are available for indicating and testing one two-hundred-and-sixty horse-power engine, and one one-hundred-and-sixty horse-power engine. For experimental purposes there is a thirty horse-power engine, a one-hundred horse-power engine, a one-hundred-and-ten horsepower engine, of the simple type; a one-hundred horse-power cross-compound engine and a thirty-five horsepower Corliss engine, all of which can be run condensing or non-condensing, arranged to give practice in valve setting speed regulation, indicating and testing. The laboratory is further equipped with a two-stage air compressor, a three-inch centrifugal pump, a surface condenser and jet condenser with air and circulating pumps, indicators, gauges, barometers, thermometers, a pyrometer, Orsat gas apparatus, injector, steam-calorimeters, speed indicators, and brakes. Suitable devices are provided for testing and calibrating the apparatus used. Scales and tanks are arranged for the weighing and measuring of water used. A seven horse-power engine, to burn gas or gasoline, is fitted especially for experiment. In connection with the above are used the two tubulous boilers of the power house. A seven horse-power steam turbine has been installed in such manner that it may be run either with steam under full pressure direct from the boiler or with exhaust from the laboratory engine. In either case the turbine itself may exhaust into the atmosphere or vacuum, several sets of nozzles being available for the various conditions.

The laboratory is also equipped with a locomotive and train air brake outfit, belt testing and oil testing machines, dynamometers, and fuel calorimeters for solid, liquid, and gaseous fuels.

A suction gas producer plant affords opportunity for testing gas producing fuels.

The basement below the first floor provides the best location for condensers, tanks, etc.

The wood-working shop is equipped with lathes and benches, band saws, circular saws with boring attachment, planer, wood trimmer, and the necessary accessories.

The machine shop contains modern high speed lathes with turret attachment, planer, sharper, drill press, a universal milling machine, a universal grinding machine, metal shop saw, emery wheels, and a complete equipment for bench and vise work.

The forge shop is equipped with a power hammer and down draft forges with suitable blower and necessary accessories.

The foundry is provided with a cupola of two tons capacity, a brass melting furnace, core oven, moulding machines, riddles, shakers, cinder mill, rattler, gas furnace and a traveling crane.

The new shop building furnishes adequate quarters for the wood shop, machine shop, forge shop, and foundry.

The floor space in this building is approximately thirteen thousand square feet, and is apportioned equally among the various shops.

Fourteen wood-working lathes have been added to an equal number now in the wood shop. Eight new engine lathes have been added to the machine shop equipment. The forge shop is supplied with nineteen down draft forges of the latest design, and one blacksmiths' forge.

LIBRARY

The library contains complete files of the transactions of the American Society of Civil Engineers, the American Society of Mechanical Engineers, and the American Society of Electrical Engineers; the proceedings of the American Railway Engineering and Maintenance of Way Association, and the American Society for Testing Materials; the Minutes of the proceedings of the Institution of Civil Engineers of Great Britain; the Engineering News, the Engineering Record, the Electrical World; reports of the United States Geodetic Survey, the United States Geological Survey, the United States Reclamation Service, and the United States Army Engineers; besides a collection of general engineering books, and the current engineering periodicals.

The mines section contains the following publications: Engineering and Mining Journal, The Mining World, Mining and Scientific Press, The Mining Magazine, Mines and Minerals, Mining Science, British Columbia Mining & Engineering Record,

Pacific Miner, Mines and Methods, The B. C. Mining Exchange, The School of Mines Quarterly, The Salt Lake Mining Review, The Business Monthly (coal, coke, iron, steel), The Iron Trade Review, Northwest Mining Journal, Northwest Mining News, Ideal Power, Science, Transactions American Institute of Mining Engineers, Bulletin Seismological Society of America, Bulletin Society for the Promotion of Engineering Education.

FORESTRY LABORATORIES

The general laboratories in forestry occupy a floor space 36 by 52 feet. The room is supplied with gas and water and is well lighted by ten windows and two large skylights. The north half of the room is provided with spacious laboratory tables, which will accommodate forty-six persons for work in dendrology and wood technology; the south half, which occupies the space directly under the skylights, has been equipped with 16 standard draughting tables for work in mensuration and surveying.

The equipment for undergraduate work in dendrology and wood technology includes Bausch and Lomb compound microscopes, each equipped with two objectives and two eye-pieces; one Leitz stand equipped for work in oil emersion; one Leitz microtome for wood sectioning; section cutters, dissecting instruments, and a complete equipment of glassware, chemicals, a drying oven, a water-bath and other paraphernalia for carrying out the technical work of the laboratory.

An additional laboratory for advanced students and for research work in wood technology and the utilization of minor forest products is in preparation.

As yet a special field laboratory for work in mensuration has not been provided, because the camps about Seattle which can be reached from the University in from one to two hours have afforded very ample opportunity for practice in all the phases of the subject. The equipment for field work includes six Barlow's cruising compasses, 18 Scribner's log scales, 6 scale rules illustrating other makes, 1 K. & E. pocket barograph, 10 hypsometers and clinometers each illustrative of a special form of construction, and calipers, steam analysis rules, angle mirrors, axes, etc., in quantities to meet all the present requirements of the school.

For the work in lumbering, wood preservation, and the manufacture and utilization of forest products, Seattle and the outlying districts offer most excellent opportunities for object lessons and study. Several large sawmills of modern equipment are located

within the University district; also tanneries, charcoal burners, wood-pulp and excelsior mills, wood distillation plants, two of the largest wood-preserving plants in the country, and many other industries utilizing minor forest products are within easy reach of the University.

A plant for the preservative treatment of timber by the open tank process has been installed as a part of the regular laboratory equipment of the school.

GEOLOGY LABORATORIES

The geology laboratories, six in number, are in Science hall, four on the first floor, and two occupying the well-lighted basement rooms at the southwest end of the building.

The largest room, fifty by sixty feet, formerly the geological museum, has been fitted up as a laboratory for general geology, physiography and meteorology. It is supplied at present with ten large tables, at which sixty students can work at one time. The laboratory is equipped with working collections of minerals and rocks for each table; forty sets of eighty-five topographic maps for physiographic studies; several complete sets of the United States Geological Survey folios and duplicate sets (forty of each) of a number of the folios for individual study of structural geology. It is also well provided with relief maps, photographs and lantern slides, illustrating the geology and geography of different parts of the United States, and especially of Washington.

A seismograph has been installed in the laboratory for assistance in the study of earthquake phenomena. It is one of the Bosch-Omori type, and is very sensitive, recording distant earthquakes of small intensity.

For the study of meteorology, the department is equipped with the usual weather bureau instruments, barograph, mercurial and aneroid barometers, thermograph, maximum and minimum thermometers, anemometer and tipping-bucket rain-gauge with self-recording apparatus, situated in the laboratory; also numerous charts and maps necessary for the work. Daily records are kept for comparison with other stations.

One of the basement rooms is to be used as a laboratory for map modeling and erosion work in connection with the courses in physiography and general geology. The other room is fitted with lathes, diamond saw, and grinding plates run by electric motor for preparation of rock slides for petrographic study. The

room is supplied with a tile-top table, fitted with gas, for mounting slides.

The petrographical laboratory is on the main floor, adjoining the mineralogy laboratory. It is supplied with a working collection, consisting of a large variety of rock specimens and sets of thin sections of numerous rocks for microscopic examination. There are four petrographical microscopes, with all accessories. Leading from this laboratory is a large dark room well arranged for photographic work.

The mineralogy laboratory, 38 by 45 feet, is situated in the east wing on the first floor of Science Hall. It has been especially designed for mineralogy, and is supplied with eight tables made with tile tops and provided with gas fixtures. These tables accommodate sixty-four students at one time. There are several cabinets filled with collections of minerals for descriptive and determinative work, collections of natural crystals and wood models.

The palaeontology collections are situated in the mineralogy laboratory, and consists of a general palaeontological collection, both of animals and plants from the fossiliferous formation of the state, and the college collection of palaeontology from the Ward Natural Science Establishment, representing all the characteristic invertebrate forms from the Palaeozoic, Mesozoic, and Coenozoic eras.

The other laboratory, adjoining the mineralogy laboratory, formerly used for physiography, is used for the Washington Geological Survey and research library and laboratory. The government reports and geological magazines are kept here, where they can be easily referred to by the students in connection with their other laboratory work.

The department lecture room is on the first floor of Science Hall; has a seating capacity of one hundred and is equipped with models, maps, photographs, and lantern slides, with a lantern and screen for use in class work.

PHARMACY AND MATERIA MEDICA LABORATORIES

The rooms devoted to pharmacy and materia medica are located in Bagley Hall (the new chemistry building). A room accommodating thirty-two students working at one time is used for manufacturing pharmacy. Work in prescription practice will receive special attention in a room constructed for this purpose.

The aim is to make this room a model prescription pharmacy. The materia medica room contains a drug museum of several hundred samples of official and unofficial crude drugs. This room is fitted with desks suitable for microscopic work. Work in drug assaying and the several courses in chemistry are located in suitable rooms in other parts of the building. Students in pharmacy, botany, physiology and bacteriology have well equipped laboratories in Science Hall.

PHYSICS LABORATORIES

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.

BUREAU OF TESTING

The bureau 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 has two rooms given over entirely to its work. It 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 to standardize weights. Those desiring to have work done should address the director, Frederick A. Osborn.

PSYCHOLOGY LABORATORY

The psychology laboratory occupies four rooms on the fourth floor of Science hall. The largest room, which is used for the general laboratory, is eighteen by thirty-six feet; two other rooms, each eighteen by eighteen feet, are used for accoustic and visual experimentation. The fourth room contains apparatus for the reaction experiment. The equipment of the laboratory includes the following pieces of apparatus: Five Koenig forks; an Edelmann's Galton whistle sonometer; two organ pipes; bellows and rubber wind-bag for actuating pipes; Ellis harmonical, and other minor instruments for acoustical work; colored papers, Hering's

color-blindness tester, Hering's binocular color-mixer, Hering's color-mixer and campimeter; six electro-motors, ophthalmoscope, ophthalmotrope, stereoscopes, pseudoscope, a clock-work kymograph, a Zimmerman ergograph, a Lehman plethysmograph; a Hipp chronoscope and accessories; materials for experimentation on the cutaneous sensations and taste and smell.

MINES LABORATORIES

The Mines building is located among the new University buildings on the east side of the Court of Honor of the Alaska-Yukon-Pacific Exposition. All the offices, class rooms, collections, metallurgical laboratories, mining and ore-dressing equipment of the department of mining and metallurgy are located in this building. The structure is of brick, with concrete foundation and sandstone finish. Although it was designed and used for several years for the University power house, its solid walls, heavy framing, excellent lighting and open interior fit it admirably for the needs of a School of Mines building. The detailed plan of arrangement is as follows:

STAMP MILLING, CONCENTRATING AND COAL WASHING PLANT

The mining and ore-dressing machinery occupies the rear wing of the building. Ores are stored in the basement, which is occupied also by the sump tanks. Lots of ores to be used in mill tests are elevated by an Otis elevator to bins in a tower 60 feet in height. Below the bins are a grizzly, jaw-breaker, Taylor wall feeder, Cornish sampling rolls, samplers, trommel and shaking screens. Milling ore is fed to a Challenge feeder, leading to an Allis-Chalmers three-stamp battery. The pulp may be passed over amalgamated plates of both plain and silvered copper, through an Everett placer gold saver or through a Pierce amalgamator, thence through mercury traps. A single Harz jig with three compartments, and a Richards pulsator jig with four compartments follow the trommel.

The set of classifiers consists of a Richards pulsator classifier, Richards vortex classifier, tubular classifiers, and Browne hydro-metric sizer. Unwatering devices are also provided. The concentrators in use are a Frue vanner, Wilfley, New Standard, revolving slime table, Wilfley slimer and Overstrom table.

When making test runs, Richards-Locke automatic feeders are used to furnish a constant stream of ore to any desired piece of apparatus. Cement-making materials, road materials, paving

blocks, and various artificial products are tested in an Abbe tube mill and Trojan mills. The heavy machinery rests on concrete foundations. The shafting is in two groups, driven by separate motors. Three tanks standing at different levels above the machinery yield water at constant head. Slimes and tailings are caught in sumps, from which the water may be pumped back for use again, to prevent the loss of any ore during a run. A large stock of ores, containing a wide variety of minerals, is kept on hand for testing purposes. The washing and testing of coal has been a special feature of the laboratory work. In the summer of 1911 several pieces of equipment will be added in order to give every facility for testing the coals of the Pacific coast.

MINING

The mining equipment consists of complete sets of hand tools, timber framing tools, forge, Jeffrey coal drill, Ingersoll-Sergeant A-35 air drill, Wood air drill, air compressor, reciver, piping, mine fan, pump, full-size Trenton Iron Co.'s wire rope tramway in working order, and various devices in use about a mine.

Numerous exhibits of sets of ores from various mining districts, handsome single specimens of building stones, rock salt, coals and ores, and exhibits of mining equipment were donated to the College of Mines by exhibitors at the Alaska-Yukon-Pacific Exposition. Among these may be mentioned the large model of the Renton mine, presented by the Seattle Electric Co.; the American Spiral Pipe Works exhibit, the Alundum exhibit, and the full series of Minnesota iron ores, maps and photographs presented by the Oliver Iron Mining Co.

Exhibits especially useful for study and comparative tests are the following: Coal from numerous mines in Washington, British Columbia and Alaska; sets of minerals to illustrate characteristics; ores of all the common metals and types of vein formations; and full sets of rock and ore specimens and mill products from the Alaska treadwell, Bunker Hill and Sullivan and De Lamar.

METALLURGY

The metallurgical furnaces occupy the east side of the College of Mines building. Four double-muffle coal-fired furnaces of the usual smelter size, six pot furnaces, two gas muffles, several gasoline muffle and combustion furnaces, a kiln for clay and brick

testing, a retorting furnace, a coke oven, and the usual tools and appliances.

The desks, balance rooms, private laboratories, stock room, sampling room, and cyanide plant are located in the main building. The balance room is equipped with a Keller button balance, sensitive to one two-hundredth of a milligram, a Heusser Bros. button balance of equal sensitiveness; Oertling, Ainsworth, and Becker button balances; two Thompson analytical balances; one Thompson button balance, sensitive to one two-hundredth of a milligram, and having multiple-rider attachment, and one Ainsworth No. 28 analytical balance. The University power plant supplies direct current for electrolytic work. High temperatures are obtained by means of a Heraeus electrically-heated tube furnace 60 cm. long, mounted on trunnions, and a Hoskins electric furnace. Temperatures from 1,200 to 2,000 degrees centigrade are measured by an optical pyrometer after Wanner, while ordinary muffle heats are taken by electric and other forms of pyrometer.

The stock room is supplied with all materials usually needed in the building. Samples are reduced by means of a Sturtevant roll-jaw crusher, an Allis-Chalmers sample grinder, and a Braun disc pulverizer. The usual tools, split samplers, and a large iron sampling floor are provided.

On the second floor are the class rooms, drafting rooms, magazine stand, collections, etc. The dean's office is located in a balcony room, directly over the front entrance to the building.

There is an excellent collection of drawings, blue prints, photographs and models, illustrating mining and metallurgical subjects. Over four hundred stereopticon views of machinery, mines, plants, and mining districts are available for class room and special lectures. In addition to the University library, the library of the College of Mines contains practically all of the standard texts and reference books, besides a large collection of trade catalogues carefully filed, and complete sets of the transactions of the American Institute of Mining Engineers, the proceedings of the Institution of Mining and Metallurgy, the School of Mines Quarterly, the Mineral Industry, the Copper Handbook, and the publications of the United States Geological Survey, including a nearly complete set of the geologic folios.

UNITED STATES MINE RESCUE TRAINING STATION

The United States Mine Rescue Training Station, operated in connection with the College of Mines, occupies the building erected by the United States government for the Philippine exhibit at the A.-Y.-P. Exposition. This building was remodeled by the coal mine operators of Washington at a cost of \$2,000 to fit it for its present use. It measures 50 by 140 feet and is 30 feet high. The office of the local director representing the United States Bureau of Mines occupies the southwest corner; next to this are the library and workshop. The "smokerroom," fitted with track and car, overcast airway, doghole, and smudge floors, is the largest of its kind in the country, measuring 25 by 50 feet. The miners' change room is fitted with shower baths and roomy lockers.

Several sets of the Draeger oxygen apparatus and pulmotor are kept on hand for practice as well as for use in mine rescue work.

ZOOLOGY LABORATORIES

The department of zoology, which occupies the greater portion of the second floor in Science Hall, includes four laboratories.

The laboratory for general zoology, which is semi-circular in form, is especially designed to provide an abundance of light for microscopic work. Eleven tables are arranged so as to accommodate forty-four students at a sitting. The center of the room is occupied by a large lead-lined aquarium to contain the living animals required for study. The equipment includes the microscopes and other apparatus necessary for elementary classes.

The laboratory for histology and embryology adjoins the above and is provided with an incubator, paraffine bath, microtomes, and the reagents required for carrying on work along these lines. A dark room connected with this laboratory offers facilities for making microphotographs and lantern slides.

The physiological laboratory is in the northern wing of Science Hall, and is designed to accommodate students in both elementary and experimental physiology.

The entomological laboratory is arranged to contain the extensive collections of insects derived for the most part from the Pacific coast. Special facilities are offered for the study of the classification and biology of the insect fauna of the state.

The zoological laboratory is amply supplied with material for dissection and demonstration. A great variety of marine speci-

mens has been procured through the collection and preservation of the animal life found in Puget sound and the waters of Alaska and other parts of the Pacific coast. The extensive lakes adjoining the campus furnish an unlimited supply of fresh water organisms.

An important feature of the work in zoology has been the preparation of collections of typical specimens for the use of high schools throughout the state. Assistance in the determination of specimens is also offered to teachers and others interested in the natural history of the region.

OBSERVATORY.

The observatory is housed in a substantial sandstone structure, occupying the highest point on the University campus. It consists of a dome for the equatorial instruments, a transit room, a library and computing room, and a wash room.

The instruments include an equatorially mounted telescope of six inches clear aperture and ninety inches focal length, made by Warner and Swazey, with optical parts by Brashear. The telescope is fitted with declination and hour circles, electrically illuminated verniers, a driving clock, solar eyepiece, a filar position micrometer, and a set of six eyepieces of magnifying power varying from fifty to five hundred diameters.

A Bamberg universal combined prismatic transit and zenith telescope of three-inch aperture is mounted in the transit room together with a Riefler astronomical precision pendulum clock, type B.

For the laboratory work there is a Bond sidereal chronometer (No. 1024), one standard time clock, one sidereal clock, three sextants and artificial horizons, twelve sidereal globes, two black-board globes, one terrestrial globe, two small telescopes, fourteen binoculars, fifteen wooden universal instruments, one stereopticon with five hundred lantern slides, general equipment for experiments in light, ephemerides, and one hundred fifty reference books.

In addition to the general library, the observatory receives all the publications of Harvard College observatory, the U. S. Naval observatory, the U. S. Coast and Geodetic Survey, and the Lowell observatory.

A valuable addition to the laboratory equipment is a gift from Harvard College observatory. This gift consists of ten large photographic transparencies, twenty star charts, and twenty volumes of the *Annals of the Observatory*.

ADMISSION AND GRADUATION.

ADMISSION TO THE FRESHMAN CLASS

The following fixed requirements have been made for the years 1911-12 to 1914-15, inclusive:

To be admitted to the freshman class, students must either (a) pass an examination based on a four-year course amounting in the aggregate to fifteen units, or (b) complete a course of the same length in an accredited school. Of these fifteen units, eight and one-half are prescribed and required of each student, the remaining six and one-half are wholly or partly elective from the list of optional studies. Students to be admitted to the freshman law class, must in addition to the above, present one year's work in the college of arts and sciences, or its equivalent.

I. Subjects prescribed for all.

Algebra, $1\frac{1}{2}$ units.

Plane geometry, 1 unit.

Physics, 1 unit.

*English, 4 units.

A history, 1 unit (American history preferred).

Or U. S. history and civics, 1 unit.

Total, $8\frac{1}{2}$ units.

II. Additional subjects prescribed for the several schools and colleges.

(a) College of Arts and Sciences.

GROUP 1.		GROUP 2.	GROUP 3.
Division 1. Classical	Division 2. Modern language— literature.	Mathematics and Science.	Philosophical.
Foreign language, 4 units, at least 2 units being Latin.	Foreign language, 4 units.†	A foreign language, 2 units. Chemistry or Biology, 1 unit. Solid Geom., $\frac{1}{2}$ unit.	Same as for Group 1 or 2.

*A student presenting four units of foreign language may be admitted with three instead of four units of English.

†A student presenting one or more units of foreign language in excess of the requirements for the group he desires to enter may be admitted with three instead of four units of English.

- (b) College of Engineering and College of Mines.
A foreign language, 2 units.
Chemistry, 1 unit.
Solid geometry, $\frac{1}{2}$ unit.
- (c) College of Forestry.
A foreign language, 2 units.
Botany, 1 unit.
Solid geometry, $\frac{1}{2}$ unit.
- (d) College of Pharmacy.
Same requirements as for any other College of the University.
- (e) School of Law.
Same requirements as specified for any College and the completion of 34 hours in the College of Arts and Sciences.

NOTE.—Candidates may present for entrance any modern foreign language in which they have had a course fairly equivalent to a high school course in English, *i. e.*, which they have used as a spoken and written language and of which they have studied the grammar and literature.

OPTIONAL SUBJECTS.

Agriculture, 1 or $\frac{1}{2}$ unit.‡	German, 1, 2, 3 or 4 units.
Astronomy, $\frac{1}{2}$ unit.	Greek, 1, 2, 3 or 4 units.
*Bookkeeping, $\frac{1}{2}$ unit.†	History, 1, 2 or 3 units.
Botany, $\frac{1}{2}$ or 1 unit.	*Home Economics, 1 or 2 units.‡
Chemistry, 1 unit.	Latin, 2, 3, or 4 units.
Civics, $\frac{1}{2}$ unit.	†Physical Geography, $\frac{1}{2}$ or 1 unit.
*Commercial Arithmetic, $\frac{1}{2}$ unit.†	†Physiology, $\frac{1}{2}$ or 1 unit.
*Commercial Law, $\frac{1}{2}$ unit.†	Solid Geometry, $\frac{1}{2}$ unit.
Drawing, $\frac{1}{2}$ or 1 unit.	Spanish, 1 or 2 units.
Economics, $\frac{1}{2}$ unit.	Trigonometry, $\frac{1}{2}$ unit.
*Economic Geography, $\frac{1}{2}$ unit.†	Zoology, $\frac{1}{2}$ or 1 unit.
French, 1, 2 or 3 units.	*Shop Work, 1 or 2 units.
†Geology, $\frac{1}{2}$ or 1 unit.	

*The aggregate amount presented in the following subjects, *viz.*: Bookkeeping, Commercial Arithmetic, Commercial Law, Economic Geography, Home Economics and Shop Work, may not exceed 3 units.

†1 unit accepted only after approval of a definite laboratory course.

‡Before credit can be received, the work in the following subjects, Bookkeeping, Commercial Law, Commercial Arithmetic and Economic Geography, must be specially inspected and the teachers presenting these courses must be up to the standard required for instruction in all other subjects in the high school.

§Credit in Agriculture will be given only on a prerequisite of $\frac{1}{2}$ unit in Botany, and credit for more than one unit in Home Economics will be given only on the prerequisite of one unit in Chemistry.

NOTE 1.—To count as a "unit" a subject must be taught five times a week, in periods of not less than forty-five minutes, for a school year of not less than thirty-six weeks.

NOTE 2.—Group 1, Division 1. While the language requirements for this division are specified in this way as a concession to the smaller high schools, students should by all means present, as the best preparation for entrance to the classical division, four years of Latin, and three years of Greek, wherever it is possible.

NOTE 3.—College of Engineering or College of Mines. For the present, graduates from schools not teaching chemistry may present a unit of biology.

NOTE 4.—A graduate of an accredited school may be admitted to the freshman class conditioned on not more than two units. Any student having any entrance condition must so register for work that the condition will be removed by or before the opening of the second year of residence. The recorder is authorized to hold up the registration of any student not complying with the above rule.

PREPARATION FOR ADMISSION

The following suggestions for preparation will enable students intending to enter to understand what is expected under the head of each subject.

Text-books mentioned in these suggestions are recommended as good and acceptable, but are not required to the exclusion of other good texts.

PREPARATION IN ASTRONOMY

A knowledge of general astronomy as is set forth in Young's Manual of Astronomy or the texts of Moulton and Comstock.

PREPARATION IN BOTANY

As stated in the requirements for admission, botany may be offered as one unit or one-half unit. In the former case it should consist of at least two recitations and four laboratory hours a week for nine months; in the latter, similar work for half that period.

The student should be familiar with the gross anatomy of the flowering plants, and should have some knowledge of plant physiology and ecology. He should have at least enough experience with the compound microscope to enable him to use it properly in the laboratory; and above all he should have a good set of drawings and laboratory notes as evidences of his year's work.

The work outlined in any of the following texts will serve to indicate what is desired. Coulter's Textbook of Botany, Bergen's Essentials of Botany, Atkinson's Botany for High Schools, Frye & Rigg's Laboratory Exercises in Botany.

PREPARATION IN CHEMISTRY

One unit of chemistry for admission is equivalent to one year's work in the high school. This work must include laboratory work, and the student must offer satisfactory evidence of a reasonable amount of work done and approved personally by the instructor in the high school. The text-books recommended are Newell's Descriptive Chemistry, Brownlee and Others, Hessler and Smith's, and McPherson and Henderson.

PREPARATION IN DRAWING

The equivalent of one year's work in mechanical drawing, including freehand lettering.

PREPARATION IN ENGLISH

English A: Reading and Practice.—A certain number of books will be set for reading. The candidate will be required to present evidence of a general knowledge of the subject-matter and to answer simple questions on the lives of authors. The form of examination will usually be the writing of a paragraph or two on each of several topics, to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books.

In preparation for this part of the examination, it is important that the candidate shall have been instructed in the fundamental principles of rhetoric.

The books set for this part of the examination in the year 1911-1912 are:

GROUP 1 (two to be selected)

SHAKESPEARE—As You Like It, Henry V, Julius Caesar, The Merchant of Venice, Twelfth Night.

GROUP 2 (one to be selected)

BACON—Essays; BUNYAN—The Pilgrim's Progress, Part 1; The Sir Roger de Coverley Papers in the Spectator; FRANKLIN—Autobiography.

GROUP 3 (one to be selected)

CHAUCER—Prologue; SPENSER—Selections from Faerie Queen; POPE—The Rape of the Lock; GOLDSMITH—The Deserted Village; PALGRAVE—Golden Treasury, first series, books II and III with special attention to Dryden, Collins, Gray, Cowper, and Burns.

GROUP 4 (two to be selected)

GOLDSMITH—The Vicar of Wakefield; SCOTT—Ivanhoe, Quentin Durward; HAWTHORNE—The House of Seven Gables; THACKERAY—Henry Esmond; GEORGE ELIOT—Silas Marner; MRS. GASKELL—Cranford; BLACKMORE—Lorna Doone; DICKENS—A Tale of Two Cities.

GROUP 5 (two to be selected)

IRVING—Sketch Book; LAMB—Essays of Elia; DE QUINCEY—Joan of Arc and the English Mail Coach; CARLYLE—Heroes and Hero-Worship; EMERSON—Essays (selected); RUSKIN—Sesame and Lilies.

GROUP 6 (two to be selected)

COLERIDGE—The Ancient Mariner; SCOTT—The Lady of the Lake; BYRON—Mazeppa and the Prisoner of Chilon; PALGRAVE—Golden Treasury (first series), book 4, with special attention to Wordsworth, Keats and Shelley; MACAULAY—Lays of Ancient Rome; POE—Poems; LOWELL—The Vision of Sir Launfal; ARNOLD—Sohrab and Rustum; LONGFELLOW—The Courtship of Miles Standish; TENNYSON—Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; BROWNING—Selections.

The books set for this part of the examination in the years 1913-1915 are:

GROUP 1 (two to be selected)

THE OLD TESTAMENT, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther; THE ODYSSEY, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVIII; THE ILIAD, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI; VERGIL'S AENEID.

GROUP 2 (two to be selected)

SHAKESPEARE—Merchant of Venice, Midsummer Night's Dream, As You Like It, Twelfth Night, Henry V, Julius Caesar.

GROUP 3 (two to be selected)

DEFOE—Robinson Crusoe; GOLDSMITH—Vicar of Wakefield; SCOTT—Ivanhoe or Quentin Durward; HAWTHORNE—House of the

Seven Gables; DICKENS—David Copperfield or Tale of Two Cities; THACKERAY—Henry Esmond; GASKELL—Cranford; GEORGE ELIOT—Silas Marner; STEVENSON—Treasure Island.

GROUP 4 (two to be selected)

BUNYAN—Pilgrim's Progress; The Sir Roger de Coverley Papers; FRANKLIN—Autobiography; IRVING—The Sketch Book; MACAULAY—Essays on Lord Clive and Warren Hastings; THACKERAY—English Humorists; PARKMAN—The Oregon Trail; THOREAU—Walden, or HUXLEY—Autobiography and selections from Lay Sermons, including the addresses on Improving Natural Knowledge, A Liberal Education, and A Piece of Chalk; STEVENSON—Inland Voyage and Travels with a Donkey.

GROUP 5 (two to be selected)

PALGRAVE—Golden Treasury, first series, books II and III; GREY—Elegy in a Country Churchyard; GOLDSMITH—Deserted Village; COLERIDGE—Ancient Mariner; LOWELL—The Vision of Sir Launfal; SCOTT—Lady of the Lake; BYRON—Childe Harold, Canto IV and The Prisoner of Chillon; POE—The Raven; PALGRAVE—Golden Treasury, first series, book IV; LONGFELLOW—Courtship of Miles Standish; WHITTIER—Snowbound; MACAULAY—Lays of Ancient Rome; ARNOLD—Sohrab and Rustum; TENNYSON—Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; BROWNING—Selections.

English B: Study and Practice.—This part of the examination presupposes more careful study of each of the works named below. The examination will be upon subject-matter, form, and structure, and will also test the candidate's ability to express his knowledge with clearness and accuracy. In addition, the candidate may be required to answer questions involving the essentials of English grammar, and questions on the leading facts in those periods of English literary history to which the prescribed works belong.

The books set for this part of the examination in the years 1911-1915 are: SHAKESPEARE—Macbeth; MILTON—Lycidas, Comus, L'Allegro, and Il Penseroso; BURKE—Speech on Conciliation with America, or WASHINGTON—Farewell Address and WEBSTER—First Bunker Hill Oration; MACAULAY—Life of Johnson; or, CARLYLE—Essay on Burns.

NOTE—Judicious substitutions in these lists will be allowed. Schools wishing to make substitutions would do well to refer them to the University for acceptance.

PREPARATION IN FRENCH

A good knowledge of grammar, such as may be acquired from the first part of Fraser and Squair's French Grammar, or an equivalent, is necessary.

The student must have the ability to use readily any of the elements essential to the continuation of his studies in this department. Constant drill in the composition of easy French sentences should be a large part of the student's training. Dictation should be given frequently enough to familiarize the ear with the spoken language. Emphasis should be laid upon the accuracy of pronunciation.

The reading of not less than three hundred pages of easy French prose, from at least three authors, should give the ability to translate any passage of moderate difficulty. Practical exercises in easy syntax should be given in connection with the texts read.

PREPARATION IN GERMAN

Students entering with two years of high school German should be able to pronounce fairly accurately, to read expressively, to translate simple German prose into good idiomatic English, to translate simple English sentences into German, and to carry on a simple conversation in German based upon the reading. They should have a thorough knowledge of elementary grammar, and should have read about 200 pages of easy prose, chiefly narrative, including one or two short comedies.

Students who offer more than two years of German for entrance should have had systematic work in German composition and conversation, and should have read at least one German classic, preferably Schiller's Wilhelm Tell or Lessing's Minna von Barnhelm.

Valuable suggestions concerning methods of teaching, and suitable texts to be read each year may be found in the Report of the Committee of Twelve (D. C. Heath & Co., 16c), and Bagster-Collins: *The Teaching of German in Secondary Schools* (Macmillan Co., \$1.25). These two books ought to be in the hands of every high school teacher of German.

PREPARATION IN GREEK

1. *Elementary Greek*.—To satisfy the requirements in elementary Greek, students must be able (a) to translate at sight easy passages of Attic prose; (b) to pass a thorough examina-

tion on the fundamental forms, constructions and idioms of the language. This examination will be based on Xenophon's *Anabasis*, Book 2.

These requirements presuppose a preparation of at least two years in a systematic course of at least four hours a week.

2. *Advanced Greek*.—To satisfy the requirements in advanced Greek, students must be able (a) to translate at sight easy passages from Homer, with questions on Homeric forms and constructions, and on prosody; (b) to translate into Greek an easy passage of connected English narrative.

These requirements presuppose the completion of the third year of the study of Greek in a systematic course of at least four hours a week.

The following division of the work is suggested:

First year.—Elements of Greek grammar, as represented in amount by Benner and Smyth's *Beginner's Greek Book* or White's *First Greek Book*.

Second Year.—Xenophon's *Anabasis*, Books I-IV; Goodwin and White's, or Smith's edition is recommended. Greek composition, as represented in amount by Bonner's or Pearson's *Greek Composition*.

Third Year.—Homer's *Iliad* or *Odyssey*, at least three books; Seymour's revised edition of the *Iliad*, and Perrin and Seymour's edition of the *Odyssey* are recommended. Review of grammar and of Xenophon's *Anabasis*, with special emphasis on Book II.

PREPARATION IN HISTORY AND GOVERNMENT

Preparatory schools are recommended to rely upon the suggestions of the committee of seven of the National Education Association. The ideal course embraces four full years as listed in the following suggestions for preparation. In case time and equipment preclude this ideal, then one or more of the suggested fields should be chosen rather than the ineffectual attempt to cover all the fields in a so-called general history course.

All candidates for credit in entrance history are expected to do considerable work in addition to the text-book preparation. For the sake of the training involved, as well as for the information acquired and the stimulating of interest, the following exercises are recommended: supplementary reading, including the use of original material where possible; notes and digests of reading; abstracts or analyses of specified chapters, both of the text-

book and supplementary reading; outlines of subjects, gathering material from all available sources; map drawing from printed data or comparison of existing maps, showing movements of exploration, migration or conquest, territorial changes, or social phenomena.

Such work should be regarded as a means rather than the end of historical study, and in every instance should be adapted in character and amount to the stage of advancement of the class and of the individual pupil. An excellent outline for each year's work has been prepared by a special committee of The New England Teachers' Association (D. C. Heath & Co.), which may be used as a guide to supplementary reading. For the State of Washington, the Superintendent of Public Instruction (Address: Olympia, Washington), is issuing a high school manual which should be obtained by every high school teacher of history.

1. **ANCIENT HISTORY.**—Special stress should be laid on the history of Greece and Rome as planned by the best modern text-books. A full year should be given to the work, and the following are recommended as among the best text-books: West's Ancient History, Myers' Ancient History (revised edition), Botsford's Ancient History, Wolfson's Essentials in Ancient History, Goodspeed's History of the Ancient World and Morey's Outline of Ancient History.

2. **MEDIEVAL AND MODERN HISTORY.**—This work should occupy a full year in a study of the history of the world from the death of Charlemagne to the present time. Among the best text-books are Munro and Witcomb's Medieval and Modern History, Harding's Essentials in Medieval and Modern History, Myers' Medieval and Modern History (revised edition), and West's Modern History.

3. **ENGLISH HISTORY.**—There are many good new texts on this field. Among those commended are Larned's History of England, Andrew's History of England, Walker's Essentials in English History, Cheyney's Short History of England, Terry's History of England for Schools, and Coman and Kendall's History of England. There should be collateral reading in more extensive works, such as the Epoch Monographs, Gardiner's larger history and Green's Short History of the English People. At least one year should be used in this preparation.

4. **AMERICAN HISTORY.** Every American high school and independent student should have abundant equipment to achieve

preparation in this field with one year of work. Among the texts commended are James and Sanford's American History, McLaughlin's History of the American Nation, Montgomery's Student's American History, Larned's History of the United States, Channing's Student's History of the United States, Ashley's American History.

5. CIVIL GOVERNMENT.—A knowledge of the relationships existing between subordinate and higher political units, together with a description of the chief functions performed by the institutions of the various political units, is expected. Bryce's American Commonwealth (abridged edition), or Ashley's American government are suitable texts. A valuable supplementary work in the hands of the teacher is Beard, American Government and Politics.

PREPARATION IN LATIN

Freshman Latin is the fifth year's work in the subject. The four years' work done in the high school must be the equivalent of the Latin course outlined by the State Board of Education. Throughout the course, the main object should be accuracy of knowledge of forms and syntax, accuracy of translation into idiomatic English, and the ability to translate at sight. Attention should also be given to pronunciation and reading aloud and to the consideration of Latin words as roots of English words. By years, the work should be apportioned as follows:

First. Thorough work with any of the Beginner's Books in Latin.

Second. Caesar, *Bellum Gallicum*, Books I-IV, or selections from Caesar equivalent in amount to those books, together with work in prose composition, based upon the Latin, read equivalent, in amount, to one period a week throughout the year. Selections from other prose writers, such as Nepos, may be read as a substitute for not more than two books of Caesar, or an equivalent amount may be read in any of the Second Year Latin books. The student should acquire a ready knowledge of the common uses of the cases and the modes, and should gain an intelligent comprehension of the authors read.

Third. Six of Cicero's Orations, with prose work, based upon Cicero, one period a week throughout the year. The orations recommended are the four *In Catilinam*, *De Lege Manilia*, and *Pro Archia*, but Sallust's *Catiline* may be substituted for the *De Lege Manilia* and one other. The student should be familiar

with the life and times of Cicero, the subject of Roman oratory, Roman institutions, particularly the courts and public officials. When the work of this year is completed, he should be able to translate an average passage of Caesar or Cicero at sight.

Fourth. Vergil, Aeneid, Books I-VI, together with practice in the reading of Latin hexameter verse and attention to mythology and the history and purpose involved in the poem. An equivalent amount of Ovid may be offered for three books of Vergil.

PREPARATION IN MATHEMATICS

ALGEBRA.—The required work in algebra ($1\frac{1}{2}$ units) consists of one and a half year's work at five recitations per week.

First Year Algebra. Algebra through quadratics as presented in any one of the following texts or their equivalents:

Collins' Practical Algebra (American Book Co.); Hawkes, Luby, and Touton's First Course in Algebra (Ginn & Co.); Slaughter and Lennes' High School Algebra, Elementary Course (Allyn and Bacon); Well's First Course in Algebra (Heath & Co.).

Third Half-Year Algebra. The following topics should be included in the course: Radicals, fractional and negative exponents, involution and evolution, proportion and variation, inequalities, quadratic equations with two unknowns and their graphs, binomial theorem, logarithms, progressions, and imaginary and complex quantities and their geometric representation. Slaughter and Lennes' High School Algebra, Advanced Course, Hawkes, Luby and Touton's Advanced Algebra, or an equivalent covers the required work.

The completion of either of the following texts or their equivalents will satisfy the entire algebra requirements: Young and Jackson's Elementary Algebra (Appleton); Beman and Smith's Elements of Algebra (Ginn & Co.); Wentworth's Elementary Algebra (Ginn and Co.); Smith's (C) Elementary Algebra (Macmillan Co.); Stone and Millis' Essentials of Algebra (Sanborn and Co.).

PLANE GEOMETRY.—The required work in plane geometry (1 unit) should extend over one year at five recitations per week. Whatever text-book or method is used, the theorems should not occupy over one third of the time allotted to the subject. Another third should be given to original demonstrations and exercises; this should be insisted upon as a part of the required work of

the course. The remaining third of the time should be given to experimental or laboratory work, to work on squared paper, to construction of models, to outdoor measurement of distances and areas, to careful geometric constructions, and to numerical calculations and verification of results. For construction purposes each student should be provided with a graduated straight edge or ruler, a pair of compasses, a protractor, and a drawing tablet.

Any of the following text-books cover the subject-matter in a satisfactory manner: Slaughter and Lennes (Allyn and Bacon); Wentworth (Ginn and Co.); Wells (Heath and Co.); Shutts (Atkinson, Mentzer and Grover); Robbins (American Book Co.).

SOLID GEOMETRY.—One-half year at four or five recitations per week. Here as in plane geometry the original exercises should constitute a part of the required work. Emphasis should be placed on the accurate construction of the figures. Whenever possible the student should be required to construct models of the solids under consideration either of wood, plaster or cardboard. In extent, the work as covered in Wentworth's Solid Geometry (Ginn and Co.) is satisfactory.

PLANE TRIGONOMETRY.—One-half year's work at five recitations per week. A thorough study of the trigonometric functions and their application to the solution of right and oblique triangles. Facility in an intelligent use of logarithms is indispensable. The extent of the work required is covered in the first eleven chapters of Moritz' Elements of Plane Trigonometry (Wiley and Sons) or an equivalent.

PREPARATION IN PHYSICS

An amount represented by Carhart and Chute's Physics or equivalent should be given in the junior or preferably the senior year, and be preceded by algebra and plane geometry.

At least fifty hours of quantitative laboratory work must accompany the study of the text. The following list of exercises taken from Chute's Laboratory Manual (revised edition) indicates the general character of the problems desired: 39, 40, 43, 44, 53, 55, 56, 58, 60, 63, 66, 67, 69, 70, 73, 76, 79, 85, 86, 87, 97, 101, 106, 107, 110, 122, 123, 126.

PREPARATION IN PHYSICAL GEOGRAPHY

The preparation in this subject should include at least one full year's course with regular laboratory work and field trips. For

a half year's course only one-half entrance credit is given. Any of the later texts and laboratory manuals suggest good work for such a course.

PREPARATION IN PHYSIOLOGY

Study of the elements of the mechanics, the physics and the chemistry of the living body, as outlined in Peabody's *Martins Briefer Physiology*. The text-book should be accompanied by experiments, dissection of animals and organs, and a certain amount of study of the tissues with the compound microscope.

PREPARATION IN ZOOLOGY

The student applying for a full unit of entrance credit in this subject must give evidence of nine months' work under a competent teacher, in the form of notes and drawings illustrating the course pursued. He should be familiar with the general structure of the more common forms of animal life, and he is expected to have some knowledge of the manipulation of the compound microscope. As a basis for preparation the use of Linville and Kelly's text-book of Zoology, or Jordan's *Animal Life*, accompanied by practical laboratory work, is suggested.

ADMISSION FROM ACCREDITED SCHOOLS

The University co-operates with the State Board of Education in the visiting and accrediting of high schools. Graduates of accredited high schools are admitted without examination upon the recommendation of the principal and the presenting of a certificate showing that the candidate has creditably completed a course meeting the requirements for admission to the college or school which he wishes to enter.

As a rule, the accredited school list of other state universities will be accepted by the University of Washington. Graduates of accredited schools in other states must present a certified record of work, as in the case of local students.

LIST OF ACCREDITED SCHOOLS.

PUBLIC HIGH SCHOOLS

Aberdeen	Elma	Prosser
Anacortes	Everett	Puyallup
Arlington	Garfield	Seattle—Washington
Auburn	Hoquiam	Lincoln
Bellingham, North	Juneau, Alaska	Ballard
Bellingham, South	Kent	Queen Anne
Blaine	La Conner	Sedro-Woolley
Bremerton-Charlestown	Marysville	Snohomish
Buckley	Mt. Vernon	Spokane
Castle Rock	Newport	Sumner
Centralia	North Yakima	Sunnyside
Chehalis	Olympia	Tacoma
Clarkston	Outlook	Vancouver
Colfax	Palouse	Waitsburg
Colville	Pomeroy	Walla Walla
Davenport	Port Angeles	Waterville
Dayton	Port Townsend	Wenatchee
Ellensburg		

OTHER SECONDARY SCHOOLS

Brunot Hall (Spokane). Seattle Seminary (Seattle).
 Holy Names Academy (Seattle).
 University of Puget Sound, Preparatory department.

PROVISIONALLY ACCREDITED

Burlington Union	Elma	Ritzville
Burton Union	Harrington	Roslyn
Cashmere	Kelso	Tekoa
Chelan	Lynden	Wilbur
Edmonds		

ADMISSION TO ADVANCED UNDERGRADUATE STANDING

Students from classes above the freshman 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 a semester.

ADMISSION OF NORMAL SCHOOL GRADUATES TO ADVANCED STANDING IN COLLEGE OF ARTS AND SCIENCES

Graduates of approved normal schools shall receive as heretofore 48 scholastic credits plus 8 in physical training. For

graduation they must present the following specific requirements: Ancient foreign language or literature, 8 hours; modern foreign language, 8 hours; physical science, 8 hours; biological science, 8 hours; economics, 8 hours; philosophy, 8 hours; major subject, 24 hours. On all these points however (except major) they may have the benefit of the stated exemptions for entrance subjects, and they may also be excused from any prescribed subject for which they have completed a fair equivalent in the normal school, such excuse to be granted by the Dean of the College upon the recommendation of the major professor.

ADMISSION TO GRADUATE STANDING

Graduates of this institution and of others of similar rank are admitted to graduate standing. A graduate student elects the department in which he wishes to do his major work, and is subject to the same general rules and regulations as apply to undergraduates. The work of a graduate student who is a candidate for a degree must be outlined by his major professor and approved by the Committee on Advanced Degrees.

ADMISSION AS SPECIAL STUDENTS

Persons who are at least twenty-one years of age may enroll for special courses of study, on giving satisfactory evidence of their preparation to pursue the particular courses which they desire to elect. The dean of each department concerned will pass upon the eligibility of the applicant for special standing.

NOTE 1. Students will not be admitted from an accredited school as special students unless they have graduated, or have not been in attendance for the previous year.

NOTE 2. Students, before being allowed to enroll as special students, must file a complete statement of credits for work done elsewhere, and these credits will be used to determine in a large degree whether or not the applicant is prepared to do university work.

NOTE 3. For the College of Pharmacy the minimum age limit for admission of special students is 20 years.

REGISTRATION

Registration days are the first three days of each semester. After a student has presented himself at the office of the registrar, he is sent to his dean, who assigns him to a class officer,

who assists the student in arranging his schedule of studies. Registration is not complete until all University fees are paid.

A penalty of \$1.00 is imposed for registration or change in election later than the third day of the semester, and no student will be allowed to register after the first week of the semester without qualifying by the aid of an approved tutor.

STUDIES

At the beginning of each semester, the student arranges his schedule of studies with the advice and assistance of his class officer. A regular course consists of sixteen hours of recitations per week. No student is allowed to carry more than sixteen hours or fewer than twelve hours per week, exclusive of physical culture and shopwork, without official consent granted by the faculty committee on petitions.

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

All men students in their freshman and sophomore years are required to take three hours per week in the department of Military Science and Tactics. Eight credits in Military Science are required of all men for a degree.

Neither the requirement of physical culture for women, nor that of Military Science for men applies to any student entering as a junior or senior. 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 Recorder.

A student who has once been registered for a study may not withdraw from said study without the written consent of his class officer endorsed by the instructor.

All responsibility of following the requirements for graduation from the several courses, as published in the catalogue of the University, rests with the student concerned.

The work of the senior year must be done in residence.

EXAMINATIONS

The regular semester examinations are held twice each year. Examinations for the first semester are held the last week of

the first semester, while those for the second semester are held during the week prior to Commencement week.

DEGREES

The courses leading to baccalaureate degrees in the College of Liberal Arts, the College of Engineering, the College of Mines, and the College of Forestry, are arranged to cover a period of four years. The course in the College of Pharmacy covers two years, and an advanced course takes two years longer. To complete the course in the School of Law three years are required. The courses leading to the masters' degree are not less than one year.

In the College of Arts and Sciences are given the degrees of bachelor of arts (A. B.), bachelor of science (B. S.), and master of arts (A. M.); in the College of Engineering, bachelor of science (B. S.), civil engineer (C. E.), mechanical engineer (M. E.), and electrical engineer (E. E.); in the School of Mines, bachelor of science (B. S.), and engineer of mines (E. M.); in the College of Forestry, bachelor of science in forestry (B. S. F.), and master of science in forestry (M. S. F.); in the College of Pharmacy, pharmaceutical chemist (Ph. C.), and bachelor of science (B. S.); and in the School of Law, bachelor of laws (LL. B.).

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

DEGREE 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, may be declared worthy of unusual distinction.

Early in May each head of a department shall bring to the attention of the committee on honors such seniors making majors 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 TEACHING DIPLOMAS

The University is authorized by law to issue teachers' diplomas, valid in all public schools of the state, as described below. 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 the department from time to time as to their work for the diploma and preparation for teaching.

I. *The University Five-Year Diploma*, valid in all public schools in the state for a period of five years from date of issue, is granted on the following conditions:

1. Attainment of a bachelor's degree equivalent to that of the College of Arts and Sciences of the University of Washington. In order to receive this diploma and the bachelor's degree, the candidate must present 132 hours instead of 128.
2. Completion of the teachers' course in the student's major subject.
3. 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 teacher will be considered.

Recommendation to teach particular subjects will be granted to those who have made appropriate special preparation.

4. Completion of at least 12 hours in the Department of Education, including course 2 (History of Education, 4 hours), and 8 hours selected from the following courses: 1, 3, 6, 7 and 8.

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.

NOTE.—All diplomas issued before June, 1909, will be life diplomas, as provided in the law in force up to that date.

SYSTEM OF GRADES

1. The following is the system of grades:

A.....	Honor	
B.....		}Intermediate
C.....		
D.....		
E.....	Failed	

An incomplete is given only for excusable delinquencies.

2. In addition to the requirement of total number of credits for a degree, there is the further requirement that three-fourths

of that number of credits must be obtained by the grades above D: *Provided, however,* That not more than 96 such credits need be obtained for any degree. (This rule does not apply to shop work).

3. Only grades above D may be counted toward a graduate degree.

SCHOLARSHIP STANDING

(a) If a student, during his first semester of residence, does not pass in one-fourth of his hours, he is dropped from the University.

(b) If a student, during his subsequent residence, does not pass in one-half of his hours, he is dropped from the University.

(c) A student must pass in three-fourths of his hours to keep off probation.

(d) A student on probation two semesters in succession must pass in all his hours.

**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.*

ORGANIZATION OF THE UNIVERSITY

THE UNIVERSITY OF WASHINGTON EMBRACES:

THE COLLEGE OF ARTS AND SCIENCES,

THE COLLEGE OF ENGINEERING,

THE COLLEGE OF MINES,

THE COLLEGE OF PHARMACY,

THE SCHOOL OF LAW,

THE COLLEGE OF FORESTRY,

THE SUMMER SESSION,

THE GRADUATE SCHOOL.

COLLEGE OF ARTS AND SCIENCES

THE FACULTY

THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, President.

*ARTHUR RAGAN PRIEST, A. M., De Pauw, Professor of Rhetoric and Oratory, *Dean*.

ARTHUR SEWELL HAGGETT, Ph. D., Johns Hopkins, Professor of Greek, *Dean*.

HENRY LANDES, A. M., Harvard, Professor of Geology and Mineralogy.

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

J. ALLEN SMITH, Ph. D., Michigan, Professor of Political and Social Science.

HORACE BYERS, Ph. D., Johns Hopkins, Professor of Chemistry.

CAROLINE HAVEN OBER, Professor of Spanish.

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

FREDERICK MORGAN PADLEFORD, Ph. D., Yale, Professor of English.

FREDERICK ARTHUR OSBORN, Ph. D., Michigan, Professor of Physics and Director of the Physics Laboratories.

WILLIAM SAVERY, Ph. D., Harvard, Professor of Philosophy.

DAVID THOMSON, A. B., Toronto, Professor of Latin.

PIERRE JOSEPH FREIN, Ph. D., Johns Hopkins, Professor of French.

THEODORE CHRISTIAN FRYE, Ph. D., Chicago, Professor of Botany.

ROBERT EDOUARD MORITZ, Ph. D., Ph. N. D., Strassburg, Professor of Mathematics and Astronomy.

EDWARD OCTAVIUS SISSON, Ph. D., Harvard, Professor of Pedagogy and Director of the Department of Education.

FREDERICK W. MEISNEST, Ph. D., Wisconsin, Professor of German.

DAVID CONNOLLY HALL, Sc. M., M. D., Chicago and Rush, Professor of Physical Training.

CHARLES O. KIMBALL, Director of Music.

* Resigned February, 1911.

HERBERT H. GOWEN, Professorial Lecturer on Oriental History, Literature and Institutions. F. R. G. S., M. R. S. A.

OLIVER H. RICHARDSON, Ph. D., Yale, Professor of European History.

WILLIAM T. PATTEN, West Point, Professor of Military Science and Tactics.

FRANK B. COOPER, A. B., Lecturer on Education.

ISABELLA AUSTIN, A. B., Minnesota, Lecturer on Education.

HERBERT GALEN LULL, A. B., Michigan, Associate Professor of Education.

HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.

JAMES EDWARD GOULD, A. M., Harvard, Assistant Professor of Mathematics.

*MAYNARD LEE DAGGY, Ph. B., De Pauw, Associate Professor of Rhetoric and Oratory.

JOHN WEINZIRL, Ph. D., Wisconsin, Associate Professor of Bacteriology.

THOMAS KAY SIDEX, Ph. D., Chicago, Assistant Professor of Greek and Latin.

ALLEN ROGERS BENHAM, Ph. D., Yale, Assistant Professor of English.

VANDERVEER CUSTIS, Ph. D., Harvard, Assistant Professor of Economics.

HERMAN CAMPBELL STEVENS, Ph. D., Cornell, Assistant Professor of Psychology.

FRANK MARION MORRISON, A. B., Michigan, Assistant Professor of Mathematics.

LOREN DOUGLAS MILLIMAN, A. B., Michigan, Assistant Professor of English.

OTTO PATZER, Ph. D., Wisconsin, Assistant Professor of French.

ARTHUR DAY HOWARD, Ph. D., Harvard, Assistant Professor of Zoology.

VERNON LOUIS PARRINGTON, A. B., Harvard, Assistant Professor of English.

* Resigned February, 1911.

MERLE HAROLD THORPE, A. B., Washington, Assistant Professor of Journalism.

EDWARD MCMAHON, A. M., Wisconsin, Assistant Professor of American History.

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

WILLIAM ALFRED MORRIS, Ph. D., Harvard, Assistant Professor of European History.

INSTRUCTORS

***IDA K. GREENLEE, A. B.**, Instructor in English.

HENRY LOUIS BRAKEL, A. M., Washington, Instructor in Physics.

CHARLES MONROE STRONG, A. M., Missouri, Instructor in Spanish.

WILLIAM THEODORE DARBY, A. M., Columbia, Instructor in English.

HARVEY BRUCE DENSMORE, A. B., Oxford, Instructor in Greek.

GEORGE IRVING GAVETT, B. S., Michigan, Instructor in Mathematics.

JOEL MARCUS JOHANSON, A. B., Washington, Instructor in German.

WILLIAM VERNON LOVITT, Ph. M., Chicago, Instructor in Mathematics.

STANLEY SMITH, A. M., Stanford, Instructor in French.

CHARLES EDWIN WEAVER, Ph. D., California, Instructor in Geology.

HANS JACOB HOFF, Ph. D., Illinois, Instructor in German.

PAUL EMIL WEITHAASE, A. M., Bucknell, Instructor in German.

GEORGE B. RIGG, A. M., Washington, Instructor in Botany.

ROBERT E. ROSE, Ph. D., Leipzig, Instructor in Chemistry.

MAX GARRETT, Ph. D., Munich, Instructor in English.

WALTER B. WHITTLESSEY, A. M., Washington, Instructor in French.

CURT JOHN DUCASSE, A. M., Washington, Instructor in Philosophy and Psychology.

LARS O. GRONDAHL, Ph. D., Johns Hopkins, Instructor in Physics.

RAYMOND B. PEASE, A. M., Harvard, Instructor in English.

* Resigned October, 1910.

JOHN C. HERBSMAN, A. B., LL. B., Illinois, Instructor in Public Speaking and Debate.

JESSIE B. MERRICK, B. S., Columbia, Instructor in Physical Training.

SARAH M. HUMMELL, A. B., Illinois, Instructor in Home Economics.

ALLEN CARPENTER, A. M., Nebraska, Instructor in Mathematics.

CHARLES W. WESTER, B. S., California, Instructor in Mathematics.

GEORGE W. HAUSCHILD, A. B., Northwestern College, Instructor in German.

H. BURTIS BENNETT, Ph. B., Cornell College, Instructor in Economics.

LUOY K. COLE, Instructor in Public School Music.

GRADUATE ASSISTANTS

A. D. McCLEVERTY, History.

A. ROGER MERRILL, History.

DAVID SOLTAU, Physics.

MRS. AGNES FAY MORGAN, Chemistry.

LEVI A. LOVEGREN, Chemistry (first semester).

PAUL GOERNER, Chemistry (second semester).

HANS D. GAEBLER, German.

R. E. NOELKER, German.

GRACE BOYD, Mathematics.

RAYMOND ASHMUN, Mathematics.

LILLIAN MADISON, Mathematics.

ARTHUR E. NAVE, English.

NEWELL W. SAWYER, English.

MARY S. WILTHERS, English (second semester).

ROBY C. ROBBINS, English, (second semester).

JESSE GARFIELD ARNOLD, English (second semester).

ALEX. GUERARD, French (first semester).

MEKKIN SVEINSON, French (succeeded Mr. Guerard).

LLOYD L. BLACK, Public Speaking and Debating.

MRS. THERESA McMAHON, Political and Social Science.

CURRICULUM OF COLLEGE OF ARTS AND SCIENCES GROUPS

The departments of the College of Arts and Sciences are grouped as follows:

I.—LANGUAGE AND LITERATURE GROUP.		II.—SCIENCE GROUP.		III.—PHILOSOPHICAL GROUP.	
Sub-group 1.	Sub-group 2.	Sub-group 1.	Sub-group 2.	Sub-group 1.	Sub-group 2.
Ancient Language and Literature.	Modern Language and Literature.	Mathematics, Physical Science.	Biological Science.	History and Political Science.	Philosophy and Education.
Greek Language and Literature Latin Language and Literature.	English French German Italian Spanish Scandinavian.	Astronomy Physics Chemistry Mathematics.	Botany Zoology Geology	History Political Science	Philosophy Education

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS.

To secure the degree of Bachelor of Arts the candidate must meet the following requirements:

1. He must be regularly admitted cf. p. 86.
2. He must complete the number of credits specified in each of the following subjects:

a. Ancient Language and Literature.....	†8 credits
b. Modern foreign Language.....	†8 credits
c. Rhetoric	†4 or 8 credits
d. Mathematics	4 credits
e. Physical science	8 credits
f. Biological science	8 credits
g. History	8 credits
h. Philosophy	8 credits
i. Political science	8 credits
j. Physical training or Military Science.....	8 credits

* NOTE.—By the term *credit* is meant one recitation a week for a period of one semester.

† A student entering with less than 4 years of foreign language must make a total of 5 years in high school and college combined.

† A student who completes the first semester of rhetoric with a grade of A will not be required to take that subject during the second semester.

EXEMPTIONS: A student may be exempt from certain of the above requirements on the following conditions:

From *a* if he presents for entrance 4 units of ancient language.

From *b* if he presents for entrance 4 units of modern foreign language.

From *d* if he presents for entrance $3\frac{1}{2}$ units of mathematics; viz. $1\frac{1}{2}$ units of algebra, 1 unit plane geometry, $\frac{1}{2}$ unit solid geometry, and $\frac{1}{2}$ unit trigonometry.

From *e* if he presents for entrance 3 units of science; viz. 1 unit physics, 1 unit chemistry, and 1 unit of any other science.

From *f* if he presents for entrance 3 units of science; viz. 1 unit of biological science, 1 unit of physics, and 1 unit of any other science.

From *g* if he presents for entrance 3 units of history.

NOTE: A student cannot obtain exemption from both *e* and *f*.

PENALTIES: Of the above requirements *c* must be completed within the first year, otherwise only $\frac{1}{2}$ credit will be allowed; *a* or *b*, *d*, *e* or *f*, *g* (*i. e.* History I) must be completed within the first two years, otherwise only $\frac{1}{2}$ credit will be allowed.

3. He must complete the requirements for a major.*

The department in which the student selects his major will be known as his major department and its head as his major advisor. Not more than forty credits in the major department may be counted toward graduation; rhetoric and journalism being counted as one subject for this maximum.

4. He must complete not less than 48 credits in the group in which his major department falls.

5. He must complete a total of 128 credits, but of these not more than 24 may be counted in any department other than the major department (except that in English 24 may be counted in addition to Freshman Composition).

GENERAL NOTE: Each student is to be held either for the admission and graduation requirements of the catalog under which he enters, or for those of the catalog under which he graduates.

DISTRIBUTION OF WORK BY YEARS.

Of the work in the prescribed subjects (see 2 above), that in English Composition (Rhetoric) must be completed in the Freshman year; that in Mathematics and in Medieval and Modern History (when taken in fulfillment of the History requirement) and also one year of Science and one year of Foreign Language must be completed by the end of the Sophomore year.* The work of the Junior and Senior years consists of those prescribed subjects which the student has not been able to take during the first two years, and of those additional courses which will fulfill the major and elective requirements as specified under 3, 4 and 5 above.

* A major consists of not less than 24 credits in some one department.

SUGGESTIVE SCHEDULE BY YEARS OF THE COURSES LEADING TO THE A. B. DEGREE.

112

UNIVERSITY OF WASHINGTON

I. LANGUAGE AND LITERATURE.		II. SCIENCE.		III. PHILOSOPHICAL.
Sub-group I.	Sub-group II.	Sub-group I.	Sub-group II.	Sub-groups I and II.
ANCIENT LANGUAGE AND LITERATURE.	MODERN LANGUAGE AND LITERATURE.	MATHEMATICS AND PHYSICAL SCIENCE.	BIOLOGICAL SCIENCE.	HISTORY AND POLITICAL SCIENCE, OR PHILOSOPHY AND EDUCATION.
<i>Freshman.</i>	<i>Freshman.</i>	<i>Freshman.</i>	<i>Freshman.</i>	<i>Freshman.</i>
English 8	English 8	English 8	English 8	English 8
Greek 8	Mod. For. Lang.. 8	Foreign Lang.... 8	Mod. For. Lang.. 8	History 8
Latin 8	History 8	Mathematics† ... 8	Bot., Geol., or	Science 8
Mathematics 4	Mathematics 4	Astron., Chem. or	Zoology 8	Mathematics 4
Greek or Rom. Lit. 4	Elective 4	Physics† 8	Astron., Chem. or	For. Lang. or Lit. 4
Phys. Training .. 4	Phys. Training... 4	Phys. Training... 4	Physics 8	Phys. Training... 4
<i>Sophomore.</i>	<i>Sophomore.</i>	<i>Sophomore.</i>	<i>Sophomore.</i>	<i>Sophomore.</i>
Latin 8	Anc. Language... 8	Foreign Lang.... 8	Mod. For. Lang.. 8	Foreign Lang.... 8
Greek 8	Philosophy 8	History 8	History 8	Philosophy 8
History 8	Science 8	Science 8	Science 8	Political Science. 8
Phys. Science 8	Elective* 8	Elective 8	Mathematics 4	Elective 8
Phys. Training .. 4	Phys. Training... 4	Phys. Training... 4	Elective 4	Phys. Training... 4
<i>Junior.</i>	<i>Junior.</i>	<i>Junior.</i>	<i>Junior.</i>	<i>Junior.</i>
Major 8	Major 8	Major 8	Major 8	Major 8
Mod. For. Lang.. 8	Pol. Economy... 8	Pol. Econ. or	Anc. Lang. or	Science 8
Philosophy 8	Science 8	Sociology 8	Literature 8	Foreign Lang.... 4
Biol. Science 8	Elective 8	Elective 8	Philosophy 8	Electives 12
<i>Senior.</i>	<i>Senior.</i>	<i>Senior.</i>	<i>Senior.</i>	<i>Senior.</i>
Major 8	Major 8	Major 8	Major 8	Major 8
Pol. Science 8	Electives 16	Philosophy 8	Political Econ.... 8	Electives 8
Electives 16		Electives 16	Electives 16	

* This elective should be applied on the student's proposed major.

† Eight hours of mathematics recommended, but only four hours required.

‡ Students making mathematics their major should choose physics for their freshman science.

For recommendation to teach mathematics or physics in the high schools of the state the student must have secured, in addition to the specified requirements for the A. B. degree, twelve credits in mathematics (including analytics and calculus), sixteen credits in physics (including courses 1, 2, 3, 4 catalogue of 1909-10), and eight credits in mechanics and spherical astronomy.

SCHEME OF ELECTIVES.

The following courses given outside the College of Arts and Sciences may be counted toward a bachelor of arts degree. However, not more than twelve such credits altogether shall be counted toward this degree.

COLLEGE OF PHARMACY.

Materia medica	}	Total amount allowed, eight credits.
Therapeutics		
Toxicology		

COLLEGE OF ENGINEERING.

Mechanical drawing, 4 credits	}	Total amount allowed, twelve credits.
Descriptive geometry, 4 credits		
Surveying, 4 credits		
Dynamo machinery, 4 credits		
Alternating currents, 4 credits		

{	Provided, that when either of these courses is offered in the	}
	College of Liberal Arts, credits for the corresponding course in the School of Engineering shall cease to apply.	

SCHOOL OF MINES

General metallurgy—four credits.

MUSIC

A total of twelve credits in music may be counted toward the bachelor of arts degree.

COLLEGE OF FORESTRY.

The following courses may be counted toward the A. B. degree: (1) General Forestry (for Arts and Science students, 2 hours); (2) Dendrology, 4 hours; (3) Forest Economics, 2 hours; (4) Silviculture, 8 hours. The maximum number of hours elected from these subjects is twelve.

LIBRARY ECONOMY.

A total of twelve credits in Library Economy may be counted toward the A. B. degree.

* If taken later than the time indicated here these subjects will count but half credit.

SCIENTIFIC COURSE PREPARATORY TO MEDICAL COURSE

Students who wish to specialize in the sciences, with a view of studying medicine after graduation, must offer two years of Latin as an entrance requirement. For such students the following course leading to the B. S. degree is offered:

<i>Freshman.</i>		<i>Sophomore.</i>	
English	4	English literature.....	8
Mathematics	4	German or French.....	8
Chemistry	8	Organic chemistry.....	8
German or French.....	8	Zoology	8
Botany	8	Physical training.....	2
Physical training.....	2		
<i>Junior.</i>		<i>Senior.</i>	
Physiology	8	Psychology	8
Physics	8	Political economy.....	4
Comparative anatomy.....	8	Elective	20
Bacteriology	8		

NOTE.—Electives should be histology, physiological chemistry, pharmacy, materia medica, toxicology, bacteriological hygiene.

COMBINED SIX-YEAR ARTS AND LAW COURSE

This combined course allows the student with a good record to complete the A. B. and LL. B. 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 work. At the end of three years these students, provided they have earned ninety or more credits, including all of the required work, together with major and minor, may for the fourth year register in the law school for the first year's work in law. They must, however, earn in the College of Liberal Arts additional credits sufficient to make the total of Liberal Arts credits amount to ninety-six. Twenty-four credits in the first year law work may apply toward the A. B. degree, thus making 128 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 Law School.

Students are strongly advised to complete their full ninety-six 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 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 Liberal Arts work, and earn at least thirty Liberal Arts credits in this university before entering Law.

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

ASTRONOMY

ROBERT EDOUARD MORITZ *Professor*;

JAMES EDWARD GOULD, *Associate Professor*.

The work of the department of astronomy is planned for three classes of students:

1. For those who desire some knowledge of astronomy as a part of a liberal education.
2. For engineers and others who need some knowledge of astronomy as a part of their technical training.
3. For those who wish to pursue the subject more intensively than either of the other classes.

REQUIREMENTS OF THE DEPARTMENT.

For a major, 24 credits, provided however that 1a, 2a, and 1b 2b, can not both be counted. Reinforcing subjects of not less than 32 credits selected from mathematics, physics, chemistry, and geology, are recommended.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	General Astronomy	1, 2	2	Fr. Soph.....	None
1a, 2a	Laboratory Astronomy ..	1, 2	2	Fr. Soph.....	None
1b, 2b	Mathematical Astronomy...	1, 2	2	Fr. Soph.....	Math. 1
3, 4	Engineering Astronomy...	1, 2	2	Jr. Sr.	Math. 4 or 4b
5	Least Squares	1	2	Jr. Sr. Grad.	Math. 4 or 4b
6	Elements of Geodesy.....	2	2	Jr. Sr. Grad.	Ast. 4, 5 and Math. 4 or 4b
7, 8	Analytical Mechanics	1, 2	2	Jr. Sr. Grad.	Math. 4 or 4b
9, 10	Advanced Astronomy	1, 2	4 or 6	Jr. Sr. Grad.	Ast. 2a or 2b, 5, and 8

COURSES PRIMARILY FOR UNDERGRADUATES

Physical Science Requirement: Courses 1, 2 and 1a, 2a combined are offered to fulfill the requirement of 8 credits in physical science in the College of Arts and Sciences.

1, 2. **GENERAL ASTRONOMY.** *A two-hour course.* Lectures, recitations, and observation. The six-inch telescope in the observatory will be used for illustrative purposes. The lectures will include the fundamental facts, principles, and laws of the planetary and stellar universe. Associate Professor GOULD.

A deposit of fifty cents for each hour of credit is required. The deposit is intended to cover the cost of materials and breakage.

1a, 2a. **LABORATORY ASTRONOMY.** This course must be accompanied or preceded by course 1 and 2. The work will consist of a study of the sun's diurnal path, the path of the moon and the planets, the constellations, time, the celestial sphere, the Nautical Almanac and American Ephemeris, the use of telescope, spectroscope, sextant, etc. Associate Professor GOULD.

A deposit of fifty cents for each hour of credit is required. The deposit is intended to cover the cost of materials, breakage, and laboratory guides.

1b, 2b. **MATHEMATICAL ASTRONOMY.** This course is planned primarily for students majoring in mathematics, physics, and chemistry, and accompanies courses 1, 2 in place of courses 1a, 2a.

Emphasis is laid on the mathematical treatment of principles and laws. Solution of illustrative problems. Observational work with sextant and theodolite. Prerequisite: Mathematics 2.

Associate Professor GOULD.

3, 4. **ENGINEERING ASTRONOMY.** *First semester.* Spherical trigonometry and applications to astronomy. Theory and use of sextant and theodolite.

Second semester. A study of such fundamental facts and principles as relate to the various methods of determining azimuth, latitude, and time. Actual determination of azimuth, latitude, and longitude by means of the sextant and theodolite. Prerequisite: Mathematics 4 or 4b. Associate Professor GOULD.

COURSES FOR UNDERGRADUATES AND GRADUATES.

5. **LEAST SQUARES.** *First semester.* A study of the best methods for the adjustment of measurements and observations, the determination of probable errors and empirical formulas, with numerous applications to actual problems. Prerequisite: Mathematics 4 or 4b. Associate Professor GOULD.

6. **ELEMENTS OF GEODESY.** *Second semester.* General study of the figure of the earth and of the methods and instruments used in precise surveys over large areas. Field work. Prerequisites: Course must be preceded or accompanied by astronomy 4. Associate Professor GOULD.

7, 8. **ANALYTICAL MECHANICS.** Mathematical treatment of the laws of force and motion. A course intended to reinforce the work in astronomy, mathematics, physics, and chemistry. Prerequisites: Mathematics 4 or 4b. Associate Professor GOULD.

9, 10. **ADVANCED ASTRONOMY.** The subject matter of this course will be arranged to meet the needs of the particular students who elect the course. The credit will be determined by the amount of work done.

Work will be offered along two general lines:

(a) **PRACTICAL ASTRONOMY.** Precise determination of time, latitude, longitude, and azimuth by means of the fixed transit. Corrections to observations, parallax, refraction, aberration, etc. Use of star catalogue.

(b) **THEORETICAL ASTRONOMY.** The elements of celestial mechanics. The problems of two and three bodies. Computations of cometary and planetary orbits.

Prerequisites: Astronomy 2a or 2b; 5, 7.

Associate Professor GOULD.

BOTANY.

THEODORE CHRISTIAN FRYE, *Professor;*

JOHN WEINZIRL, *Associate Professor of Bacteriology.*

GEORGE BURTON RIGG, *Instructor in Botany.*

Requirements of the Department:

1. For a major in Botany: courses 1 and 2 or their equivalent, 5 and 6, and other to make a total of 24 credits in the department.

2. For a major in Bacteriology: courses 1 and 2 or their equivalent, 3 and 4, or 7 and 8, 27 and 28, 27a and 28a. The total number of credits in the department must be at least 24.

3. For the required science in the College of Arts and Sciences: only courses 1 and 2 (not for seniors), 3, 4, 5, 6, 9, 10 will be accepted.

Suggested selections:

- a. For those preparing to teach botany: 1, 2, 5, 6, 9, 10, 35, 36.
- b. For pharmacy students: 7, 8, 13, 14.
- c. For forestry students: 1, 2, 11, 12, 15, 16.
- d. For Home economics students: 1, 2, 3, 4, 17, 18.
- e. For those desiring to become bacteriologists in private or public laboratories: 7, 8, 20, 27, 27a, 28, 28a.
- f. For medical students: 7, 8, 20, 27, 28, 27a, 28a.
- g. For teachers in general, or as a part of a liberal education, 3, 4.
- h. For engineers, 22.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Elementary Botany	1	4*	All.....	None
2	Elementary Botany	2	4*	All.....	None
3, 4	El. and Hyg. Botany....	1, 2	4	All.....	None
4a	Hyg. Bact.	2	2	All.....	None
5, 6	Crypt. Bot.	1, 2	4	All.....	See course
7, 8	Gen. and Med. Bact.....	1, 2	4	Jr., Sr., Gr.	See course
9, 10	Field Botany	1, 2	4	All.....	See course
11	Forester's Botany	1	4	All.....	1, 2
12	Fungi	2	4	All.....	1, 2
13	Pharm. Botany	1	4	All.....	None
14	Ph. Bot. and Drugs.....	2	4	All.....	13
15	Plant Physiology	1	4	Jr., Sr., Gr.	See course
16	Forest Pathology	2	4	Jr., Sr., Gr.	1, 2, 12
17	Fibres	1	4	All.....	1 or 2
18	Foods	2	4	All.....	1 or 2
19	Plant Histology	1	3	Jr., Sr., Gr.	1, 2, 5, 6
20	Immunology	2	1	Sr., Gr.....	7, 13
22	Engineer's Bacteriology..	2	2	Sr.	None
25, 26	Elementary Agriculture..	1, 2	8	Soph. Jr. Sr.	1, 2
27, 28	Bacteriology Analysis....	1, 2	4	Jr., Sr., Gr.	3, 4, or 7, 8
27a, 28a	Sanitary Problems	1, 2	4	Sr., Gr.....	3, 4, or 7, 8
31, 32	Research in Bacteriology	1, 2	.....	Sr., Gr.....	3, 4, or 7, 8
33, 34	Research in Botany.....	1, 2	.....	Sr., Gr.....	1, 2, 5, 6
35, 36	Teacher's Course	1, 2	3	Jr., Sr., Gr.	See course
37, 38	Journal Club	1, 2	1	Jr., Sr., Gr.	See course

* Seniors will receive only three (3) credits per semester.

1. **ELEMENTARY BOTANY.** *First semester. Four hours.* A study of the structure and functions of the leaves, stems, roots and seeds of flowering plants. This course is for those who do not offer botany for entrance. Those who offer a half year of botany for entrance should take either course 1 or 2, depending upon the nature of their preparation. *Seniors will receive only three hours credit for this course.* Deposit two dollars.

Mr. Rigg.

2. **ELEMENTARY BOTANY.** *Second semester. Four hours.* Continuation of course 1. A study of types of plants from the lowest to the highest. Flowers are studied when they appear, in the spring, and are used in exercises in elementary plant analysis. A herbarium of twenty specimens is prepared, with ecological notes. Open to students entering the second semester. Students may enter this course without course 1. *Seniors will receive only three hours credit for this course.* Deposit two dollars.

Mr. Rigg.

3, 4. **ELEMENTARY AND HYGIENIC BACTERIOLOGY.** *Four hours.* Methods of growing and studying bacteria, their form, structure, physiology and distribution, and the common disease-producing organisms are considered in a general way to serve as a basis for the hygienic work. Special consideration is given to bacteria in relation to food and water supply, sewage and garbage disposal, home and disinfection, etc. No prerequisite. Intended especially for freshmen and sophomores. May count as year of required science. Five dollars deposit per semester.

Associate Professor WEINZIRL.

4a. **HYGIENIC BACTERIOLOGY.** *Second semester.* This course is identical with course 4 above except that no laboratory work is required, and cannot count as required science. No prerequisite.

Associate Professor WEINZIRL.

5, 6. **CRYPTOGAMIC BOTANY.** *Four hours.* The study of types of plants from the lowest to the highest. Adaptation to environment. The greater steps in the evolution of plants. The work is mainly in algae, fungi and bryophytes. Ferns and flowering plants are considered chiefly from the standpoint of their reproduction and evolution. Prerequisites: Botany 1, and 2; or zoology 1 and 2; or senior standing. Two dollars per semester deposit.

7, 8. **GENERAL AND MEDICAL BACTERIOLOGY.** *Four hours.* Methods of growing and studying, and the structure, functions and distribution of the bacteria are studied during the first semester. The second semester is given entirely to the consideration of the disease bacteria and their study in the laboratory. Prerequisites: Chemistry 1 year, botany or zoology 1 year. Five dollars deposit per semester. Associate Professor WEINZIRL.

9, 10. **FIELD BOTANY.** *Four hours.* The lectures are on ecology and on the plants of the region. The laboratory work is the

analysis of plant and their recognition at sight. An all-day trip every other Saturday and one laboratory period during the week. Teachers may take the Saturday work only, and receive two credits per semester. Prerequisite: Botany 1 and 2, except for teachers and seniors. Deposit two dollars per semester.

11. FORESTERS' BOTANY. *First semester. Four hours.* The morphology of the algae, bryophytes and pteridophytes. Field work in the spring. Lectures on ecology and plant evolution. Primarily for forestry students. Deposit two dollars.

12. FUNGI. *Second semester. Four hours.* A course in the morphology and physiology of fungi with special emphasis on those that cause tree diseases. Primarily for forestry students. Deposit two dollars.

13. PHARMACY BOTANY. *First semester. Four hours.* The structure of flowers, leaves, stems, roots, seeds and fruits. Variations in the forms of these organs. Medicinal plants are used for study as far as possible. Deposit two dollars.

14. PHARMACY BOTANY AND POWDERED DRUGS. *Second semester. Four hours.* (a) A brief study of types of plants from the lowest to the highest. (b) The histological elements in vegetable drugs. The study of powdered drugs and their adulterants. Micro-chemical reagents. The accessories of the microscope. Deposit two dollars.

15. PLANT PHYSIOLOGY. *First semester. Four hours.* The manner in which gases, water and salts get into plants; how the plants form food from them; how they are digested and used by the plants; the resulting growth and movement in plants. Prerequisites: Botany 1, 2; Chemistry 1, 2. Deposit two dollars.

16. FOREST PATHOLOGY *Second semester. Four hours.* Lectures on the diseases of forest trees. Lectures and laboratory work on the histology of stems with special reference to the timber trees. Deposit two dollars.

17. FIBRES. *First semester. Four hours.* A study of fibre-producing tissues and structures in plants. The processes by which fibres are manufactured into cloth, paper, ropes and other commercial products. Tests for the genuineness of cotton, wool, linen, hemp and other products. Micro-chemical reagents. The accessories of the microscope. Deposit two dollars.

18. **FOODS.** *Second semester.* The gross structure and histology of those organs of plants that are used for human food. The processes by which these are manufactured into commercial products. Food adulterants. Micro-chemical reagents. The accessories of the microscope. Deposit two dollars.

19. **PLANT HISTOLOGY.** *First semester. Three hours.* One recitation and six hours laboratory work. The preparation of slides for the microscope. Includes imbedding, use of the microtome and various stains, examination of tissues, methods of drawing, measurements of magnifications. Deposit two dollars.

Professor FRYE.

20. **IMMUNOLOGY.** *Second semester. One hour.* A consideration of the various classes of immunity and the methods of their production. Theories of immunity. Immuno-therapy in the specific infectious diseases. Associate Professor WEINZIRL.

22. **GENERAL BACTERIOLOGY FOR ENGINEERS.** *Second semester. Two hours.* A general course covering the cultivation and study of common forms of bacteria, the distribution of bacteria in nature, and the application of the knowledge to water supplies, sewage disposal, etc. Intended for senior engineers. Time to be arranged. Deposit three dollars. Associate Professor WEINZIRL.

25, 26. **ELEMENTARY AGRICULTURE FOR TEACHERS.** *Four hours.* Soils and their nature; fertilizers. Plant propagation. Plant and animal enemies of crops. Varieties of cultivated plants and animals. Rudiments of forestry. Deposit two dollars per semester.

27, 28. **BACTERIOLOGICAL ANALYSIS AND DIAGNOSIS.** *Two hours.* Part of the time is devoted to technical analysis, and the remainder to specific diagnosis of disease bacteria. Part of the work may be done in the public and private laboratories in Seattle. Deposit five dollars per semester.

27a, 28a. **SANITARY PROBLEMS.** *First and second semesters. Two hours.* A consideration of the bacteriology of water, milk, meat and other food supplies; sewage and garbage disposal; and such other problems as the class may elect. About six weeks are devoted to each topic, taking up the source and kinds of bacteria present, their effects, methods of treatment, prevention, etc. Extensive reading is required. Intended for students specializing in bacteriology and for others who may be especially interested in

sanitary matters. Courses 11 and 12 may accompany the above with advantage, and makes a full year's work.

Associate Professor WEINZIRL.

31, 32. RESEARCH IN BACTERIOLOGY. *First and second semesters.* Students who are qualified to do research work may take up such problems as the facilities of the laboratory permits. The work may be taken either for credit or for satisfying thesis requirement. Deposit five dollars per semester.

Associate Professor WEINZIRL.

33, 34. RESEARCH IN BOTANY. *First and second semesters.* Students who are qualified will be assigned original work, either for thesis or credit only. Deposit two dollars per semester.

35, 36. TEACHER'S COURSE. *Two hours.* For those who expect to teach Botany in high schools. The aims, methods, and text-books. Practice in teaching. Open only to those who have taken or are taking botany 5, 6.

37, 38. JOURNAL CLUB. *One hour.* Reviews and discussions of current botanical literature. This is intended to bring the student in touch with the research work going on in other universities.

CHEMISTRY.

HORACE G. BYERS, *Professor;*

HENRY KREITZER BENSON, *Associate Professor;*

WILLIAM MAURICE DEHN, *Assistant Professor;*

ROBERT E. ROSE, *Instructor;*

JAMES E. BELL, *Instructor;*

HARLAN L. TRUMBULL,* *Instructor;*

AGNES FAY MORGAN, *Graduate Assistant;*

PAUL GOERNER, *Graduate Assistant;*

CHARLES W. JOHNSON, *Dean of the College of Pharmacy.*

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 also 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.

* On leave at University of Chicago, 1910-11.

REQUIREMENTS OF THE DEPARTMENT.

For a major, twenty-four credits selected from the courses outlined and including 1a, 2a, 3, 4 and 9.

The laboratory fee for each course is ten dollars per semester for all courses.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	General Chemistry	1, 2	4	Fr.	None
1a, 2a	General Chemistry	1, 2	4	Fr.	H. S. Chem.
1c, 2c	General Chemistry	1, 2	4	Fr. Women ..	None
2b, 1b	General Chemistry	1, 2	4	Fr.	H. S. Course
1d	General Chemistry {	Jan. 1 to May 1	4	Entering 2d Sem., Short Session Miners	None
3, 4	Organic Chemistry	1, 2	4	Soph., Jr., Sr.	1, 2 or equiv.
5, 6	Adv. Organic Chemistry ..	1, 2	4	Jr., Sr., Gr.	3, 4
7	Adv. Organic Chemistry ..	1 or 2	2	Jr., Sr., Gr.	3, 4
8	Adv. Qual. Analysis	1	4	Soph. and Jr.	1, 2
8b, 8b	Qualitative Analysis	1, 2	4	Soph.	1, 2
9, 9	Quantitative Analysis	1, 2	4	Soph. and Jr.	8 or 8b
10, 11	Food Analysis	1, 2	4	Sr. and Gr. ..	9 and 4
12	Industrial Chem. O. E.	1	3	Soph.	1, 2
13	Industrial Chem. E. E.	1	3	Soph.	1, 2
14	Chemical Technology	2	4	Jr.	9
15	Water Analysis	1	4	Sr. and Gr. ..	9
16	Gas and Fuel Analysis	2	4	Sr.	9
17	Soil Analysis	2	2	Jr.	1, 2
18	Road Oils and Tars	2	2	Sr.	1a, 2a, 12 or 13
19	Urinary Analysis	2	2	Jr. and Sr.	3, 4
20, 21	Physiological Chemistry ..	1, 2	4	Jr. and Sr.	3, 4
22	Physical Chemistry	1	4	Sr. and Gr. ..	9 & Physics 2
23	Electro Chemistry	2	4	Sr. and Gr. ..	9 & Physics 2
24	Research	1, 2	.....	Gr.	
25	Seminar, Organic	2	2	Sr. and Gr. ..	4, 9, 6 or 23
27	History of Chemistry	1, 2	2	Gr.	

1, 2. GENERAL CHEMISTRY. *Four hours.* Many students come from accredited schools in which chemistry is not required. To meet the needs of such students, a course is offered consisting of two lectures and six hours laboratory work per week. Text-books, Smith's College Chemistry and Laboratory Manual. Deposit ten dollars per semester.

Professor BYERS, Instructors and Assistants.

1a, 2a. GENERAL CHEMISTRY. *Four hours.* This course is designed primarily for engineers, but is open to all students who have had a year's work in chemistry in an accredited high school.

It consists of two lectures and six laboratory hours per week. At least one of these laboratory hours will be devoted to quiz work upon the subject-matter of the lectures. The text-books used are Smith's General Chemistry, Smith's Laboratory Manual and Byers and Knight's Qualitative Analysis. Deposit ten dollars per semester. Professor BYERS, Dr. TRUMBULL and Assistants.

1b. GENERAL CHEMISTRY. *Second semester. Four hours.* To meet the need of students coming from high schools at the beginning of the second semester, the course 1a, 2a is repeated, beginning the second semester. Strong students or those carrying light course will be permitted to elect this course without the prerequisite high school course; but to satisfy the required work of the engineering course, such students must elect some other four-hour course in the department of chemistry. Deposit ten dollars per semester.

Dr. ROSE.

2b. GENERAL CHEMISTRY. *First semester. Four hours.* Continuation of 1b of second semester. Deposit ten dollars per semester.

Dr. ROSE.

1c, 2c. GENERAL CHEMISTRY. *Four hours.* A course in inorganic chemistry for students of domestic science and women of the College of Arts and Sciences. This course consists of two lectures and six laboratory hours per week. General chemistry will be taken up in the lectures during the first semester and analytical during the second semester. The laboratory work will consist in part of qualitative and quantitative analysis. Text-books to be selected. Deposit ten dollars per semester. Dr. ROSE.

1d. PROSPECTOR'S COURSE. *Four hours.* To meet the demand, a special course in chemistry will be given to miners who may enter January 1, and will continue to April 1. It will not require any previous knowledge of chemistry, and will be merged into a course of qualitative analysis. The text-book required is Brownlee. Deposit ten dollars per semester.

Associate Professor BENSON.

3, 4. ORGANIC CHEMISTRY. *Four hours.* A lecture course on the chemistry of the compounds of carbon. Laboratory work on the preparation and testing of representative compounds. Bernthsen-Sudborough's text is used as a reference book in connection with the lectures and Sudborough-James's laboratory manual is used as a laboratory guide. Deposit ten dollars per semester.

Assistant Professor DEHN.

5, 6. **ADVANCED ORGANIC CHEMISTRY.** *Four hours.* In this course a special study will be made of the following: The chemistry of volatile oils; the chemistry of dyestuffs; the chemistry of alkaloids, and the chemistry of sugars. One semester will be devoted to each subject, so that a subject will be repeated only once in two years. For the first semester of 1910-11, the chemistry of volatile oils will be taken up. Special laboratory work can be arranged. Prerequisite: 4 and 6. Deposit ten dollars per semester.

Dr. ROSE.

7. **ORGANIC ANALYSIS AND GLASS BLOWING.** A laboratory course of either two or four hours. Individual instruction is given in both ultimate and proximate analysis of organic compounds, together with special work in glass blowing and other organic technique.

Assistant Professor DEHN.

8. **ADVANCED QUALITATIVE ANALYSIS.** *First semester. Four hours.* Lectures on the theory of solution as applied to analytical work. Laboratory work on the analysis of alloys and minerals and illustrations of the subject-matter of the lectures. Two lectures and six laboratory hours per week. Deposit ten dollars per semester.

Professor BYERS.

8b. **ELEMENTARY QUALITATIVE ANALYSIS.** *First semester. Four hours.* Chemistry 1, 2, is followed by a course in qualitative analysis. The course consists of two lectures and six laboratory hours per week. Text-book: Byers and Knight. Deposit ten dollars per semester.

Assistant Professor DEHN.

8b. **ELEMENTARY QUALITATIVE ANALYSIS.** *Second semester. Four hours.* This course is a repetition of 5b of first semester, for pharmacy students.

Assistant Professor DEHN.

9. **QUANTITATIVE ANALYSIS.** *Each semester. Four hours.* Gravimetric and volumetric analysis. Olsen's Quantitative Analysis. Twelve laboratory hours and one recitation per week. Deposit ten dollars per semester. Associate Professor BENSON.

10. **FATS AND OILS.** *First semester. Four hours.* Study of the source, preparation and chemical nature of the various fats and oils of food and pharmaceutical use. The laboratory includes methods of identifying fats and oils and of testing for adulterants. Laboratory, three afternoons per week. Deposit ten dollars per semester.

Professor JOHNSON.

11. **FOOD ANALYSIS.**—*Second semester. Four hours.* Various food products on the market are analyzed for preservatives and other added ingredients that would be in opposition to the existing food and drug laws. Published methods of the official association of agricultural chemists are used, as well as liberal reference made to standard books on analysis of food and drugs. Laboratory, three afternoons per week. Deposit ten dollars per semester.
Professor JOHNSON.

12. **INDUSTRIAL CHEMISTRY.** *First semester. Three hours.* A course designed for civil engineers. It takes up the study of the chemistry of the materials of engineering, such as cement, building stones, wood preservation, paints, explosives, paving materials, clay products, structural steel and sanitary water. Two lectures and one laboratory afternoon. Prerequisite: Qualitative analysis. Deposit ten dollars per semester.

Associate Professor BENSON.

13. **INDUSTRIAL CHEMISTRY.** *First semester. Three hours.* A course designed for mechanical and electrical engineers. It deals with the chemistry of materials of engineering such as explosive mixtures, oils, lubricants, fuels, boiler water, insulating materials, alloys and the commercial forms of iron. Two lectures and one laboratory period. Prerequisite: Qualitative analysis. Deposit ten dollars per semester.

Associate Professor BENSON.

14. **CHEMICAL TECHNOLOGY.** *Second semester. Four hours.* Required of chemical engineers and elective for students who have had quantitative chemistry. A course dealing with a detailed study of the industries of the Northwest and intended to acquaint the student with the materials and processes employed in these industries. Two lectures and two laboratory periods per week. Deposit ten dollars per semester.

Associate Professor BENSON.

15. **WATER ANALYSIS.** *First semester. Four hours.* A course consisting of one lecture and twelve hours laboratory work per week will be given in the analysis of water for both industrial and sanitary purposes. Deposit ten dollars per semester.

Professor BYERS.

16. **GAS AND FUEL ANALYSIS.** *Second semester. Four hours.* Required of chemical engineers and elective for students with prerequisite. The lectures deal with the properties of the natural

fuels and the preparation of artificial fuels. The laboratory work deals with the testing of fuels and a study of fuel specifications and the analysis of flue gases and commercial gases. Two lectures and two laboratory periods per week. Prerequisite: Quantitative chemistry. Deposit ten dollars per semester.

Associate Professor BENSON.

17. SOILS AND FERTILIZERS. *Second semester. Two hours.* A lecture course dealing with the soils of Washington and the methods of soil enrichment. It aims to present the fundamental ideas necessary for field identification and classification and a discussion of the elements of fertility. Prerequisite: General chemistry. Deposit ten dollars per semester.

Associate Professor BENSON.

18. ROAD OILS AND TARS. *Second semester. Two hours.* A course offered as a civil engineering option for students in highway engineering. A study of the composition and properties of road-binding materials. One hour is used for lecture and three hours for laboratory tests. Deposit ten dollars per semester.

Associate Professor BENSON.

19. URINARY ANALYSIS. *Second semester. Two hours.* Laboratory work only. Practical methods of analysis of normal and pathological urines. This course is designed especially for students entering upon the study of medicine. Deposit ten dollars per semester.

Assistant Professor DEHN.

20, 21. PHYSIOLOGICAL CHEMISTRY. *Four hours.* A course designed for medical, chemical and general science students. Chemical composition of foods, tissues, secretions and excretions, their physiological and pathological changes, with special attention to the composition and chemical analysis of blood, milk, and urine. Deposit ten dollars per semester.

Assistant Professor DEHN.

20a. PHYSIOLOGICAL CHEMISTRY. *Second semester. Four hours.* Essentially the same course as 20 above, but designed especially for students in pharmacy.

Assistant Professor DEHN.

22. PHYSICAL CHEMISTRY. *First semester. Four hours.* An elementary lecture course dealing with fundamental theories of chemistry based upon physical measurements. The laboratory work consists of measurements of density, molecular weights,

thermal effects, reaction, velocity and a short research problem. Three lectures and one laboratory period per week. Prerequisites: Quantitative chemistry and college physics. Deposit ten dollars per semester. Associate Professor BENSON.

23. **ELECTRO CHEMISTRY.** *Second semester. Four hours.* The lecture course deals with the historical development of electro chemistry, the theories of electrolysis, migration of ions, concentration cells, solution pressure, etc. The laboratory work consists of the preparation of compounds by electrolysis and electro synthesis, electro-plating etc., and of illustrations of the subject-matter of the lecture work. Prerequisites: 8 and college physics. Deposit ten dollars per semester. Professor BYERS.

24. **INORGANIC PREPARATIONS.** *Second semester.* Methods of preparation of important inorganic compounds. Designed to illustrate special chemical principles. Twelve laboratory hours per week. Prerequisite: 6. Professor BYERS.

25. **SEMINAR, ORGANIC.** *Second semester. Two hours.* The work consists of readings, reports and discussions based upon the chemical literature and designed to give practice in the use of the journals. Assistant Professor DEHN.

26. **INVESTIGATION.** Any student who has completed at least three years' work in chemistry may, if he desires, undertake some original investigation under the direction of one of the instructors. Such work will not be encouraged, however, except when the student is presenting himself for a master's degree.

27. **HISTORY OF CHEMISTRY.** *Two hours.* All graduate students registering in the department of chemistry will be expected to take a two-hour course throughout the year in the historical development of the subject. The work will be conducted as a seminar and will consist of assigned readings and discussions, taking up first the general subject and subsequently special chapters. Two hours credit. Professor BYERS.

EDUCATION.

EDWARD OCTAVIUS SISSON, *Professor;*HERBERT GALEN LULL, *Associate Professor;*JOSEPH KINMONT HART, *Assistant Professor;*FRANK B. COOPER, *Superintendent Seattle Public Schools,*
*Lecturer on School Administration;*DEAN ISABELLA AUSTIN, *Lecturer on Primary Education;*LUCY K. COLE, *Special Instructor in Public School Music.*

Students are not regularly admitted to the department before the junior year.

Elementary psychology is prerequisite to all courses. Some knowledge of ethics, sociology, and zoology is also very desirable, and is required of students doing major work in education.

TEACHERS' DIPLOMAS

For information concerning the Teachers' diplomas conferred by the University, which are valid in all public schools of the state, see University Teachers' Diplomas, p. 103.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Principles of Education...	1 or 2	4	Jr., Sr.	General
2	History of Education....	1 or 2	4	Jr., Sr.	Hist. 1
3, 4	Observation and Teaching	1, 2	4	Jr., Sr.	
5	School Grounds, Buildings	1	2	Jr., Sr.	
6	The High School.....	2	4	Sr., Gr.	
7, 8	Educational Psychology...	1, 2	2	Sr., Gr.	
10	School Administration ...	2	1	Sr., Gr.	(See statement of course)
11	Educ. Ad. in U. S.	1	4	Sr., Gr.	
12	Foreign School Systems..	2	4	Sr., Gr.	4 hrs. in Dept.
13, 14	Current Educ. Thought...	1, 2	2	Jr., Sr.	
15, 16	Educational Classics	1, 2	2	Sr., Gr.	Educ. 2
17	Elementary School	1	4	Jr., Sr.	
18	Social Aspects	2	2	Sr., Gr.	4 hrs. in Dept.
21, 22	Seminar	1, 2	2	Sr., Gr.	
23, 24	Educational Epochs	1, 2	2	Sr., Gr.	Educ. 2
31, 32	Primary School	1, 2	1	Jr., Sr.	
33, 34	School Music	1, 2	2	Jr., Sr.	

1. PRINCIPLES OF EDUCATION. *Each semester. Four hours.*
Chief topics: The nature and development of the child as the basis of the methods and processes of education; ideals of in-

dividual and social character as determining the aim of education; physical, intellectual and moral training; the special tasks and methods of the school and the teacher, as compared with other agencies, such as the home, the calling, the church, social intercourse; the branches of study, their values and methods; discipline, organization and administration; the qualifications and preparation of the teacher.

Professor Sisson.

2. HISTORY OF EDUCATION. *Each semester. Four hours.* A survey of the forces, institutions, theories and practices in the past and present of education. Owing to shortness of time, a selection must be made from among much valuable material, and emphasis must be placed upon certain more important periods. The development of educational ideals, especially in the modern period, will be the central thread of the course.

Assistant Professor HART.

3, 4. OBSERVATION AND TEACHING. *Each semester. Four hours.* This course includes the systematic observation and study of school work in both elementary grades and high school. Later the members of the class are assigned to do actual teaching in the various schools. The course is planned primarily for those who have not had experience in teaching.

Associate Professor LULL; Assistant Professor HART.

NOTE.—Students who elect this course must keep open at least four consecutive afternoons in the week, or an equivalent time in the morning.

5. SCHOOL GROUNDS, BUILDINGS AND EQUIPMENT. *First semester. Two hours.*

6. THE HIGH SCHOOL. *Second semester.* Outline of historical development; aim and function in school system; peculiar characteristics of high school age, early adolescence; the course of study; election and prescription; discipline; student activities; social life; training for vocation and leadership; a study of typical high schools; organization and administration. The course will include some visiting of high schools in the vicinity.

Professor Sisson.

7, 8. EDUCATIONAL PSYCHOLOGY. *Both semesters. Two hours.* In this course those psychological elements which have direct application to teaching problems will be studied. During the

year 1910-11 Dewey's *How We Think* and Herbart's *Outlines of Educational Doctrine* were used as text-books. The work in the text-books is supplemented by lectures and reports. Each student is assigned some practical pedagogical problem suggested by the regular work of the course.

Associate Professor LULL.

10. SCHOOL ADMINISTRATION. *Second semester. One hour.* Practical consideration of the management of town and city school systems. Some of the topics treated will be: The motive of school administration; organization and its agency; conditioning elements in management; the superintendent and his relations; the principal and his functions; the individual and the system; the determination and promotion of teaching efficiency; the generation of confidence and support; the reduction of friction and waste; and community forces in relation to the school. Open to advanced students, especially those who have had teaching experience.

Superintendent COOPER.

11. EDUCATIONAL ADMINISTRATION IN THE UNITED STATES. *First semester. Four hours.*

Associate Professor LULL.

12. FOREIGN SCHOOL SYSTEMS. *Second semester. Four hours.* Attention is given mainly to Germany, England, France, and Switzerland. Students are encouraged to study some limited field intensively. Emphasis is placed upon secondary schools. Prerequisite: Four hours in education.

Professor SISSON.

13, 14. CURRENT EDUCATIONAL THOUGHT. *Two hours. Both semesters.* Reports, discussions and criticisms of current theories and practices in education, on the basis of readings in current literature. The course aims to help the student to become familiar with present-day education problems and tendencies.

Assistant Professor HART.

15, 16. EDUCATIONAL CLASSICS. *Two hours. Both semesters.* (Not given in 1911-12).

17. THE ELEMENTARY SCHOOL. *First semester. Four hours.* This course is designed for students preparing to teach in the elementary grades and, also, for those preparing for superintendencies and principalships of elementary schools. Chief topics for study and discussion. Elementary school curricula; grading and promotion; discipline; methods of instruction; supervision of instruction; group activities; play-grounds.

Associate Professor LULL.

18. **SOCIAL ASPECTS OF EDUCATION.** *Second semester. Two hours.* A study of the field of educational influence in typical communities for the purpose of understanding how educational results are actually produced. Sociological data will be called upon to furnish the foundation of the course; problems for investigation will be undertaken, and the student will work toward a consistent view of the forces that are educative, and the place of the school among those forces. Assistant Professor HART.

23, 24. **EPOCHS IN EDUCATIONAL HISTORY.** *Two hours. Both semesters.* Courses dealing with those rather definite periods or peoples whose history is particularly important for the history of education. For the year 1911-12 the work will be as follows: First semester: Hebrew contributions to education; Second semester: Greek contributions to education. Prerequisite: Education 2. Assistant Professor HART.

31, 32. **THE PRIMARY SCHOOL.** *Both semesters. One hour.* Lectures, discussions and visits to schools. DEAN AUSTIN.

33, 34. **SCHOOL MUSIC.** *Both semesters. Two hours.*

MISS COLE.

21, 22. **SEMINAR. THE THEORY OF EDUCATION.** *Both semesters. Two hours.* The general aim will be a unified and systematic doctrine of education as a whole. The first semester will be given to examination and criticism of a small number of the leading educational thinkers, past and present. This will be followed by a consideration of the outlines of a system taking into account both previous theories and recent additions to the essential data of the problem. Prerequisite: Education 1 and 2, philosophy 2 or 4. Professor Sisson.

THE EDUCATION OF DEFECTIVES AND DELINQUENTS

Courses in the study, care and training of backward, defective, and delinquent children will be given, beginning 1911-12, under the *Gatzert Foundation* (see p. 49). Full announcement will be made in the near future. All persons interested in this subject are asked to send their addresses so that the announcements may be mailed to them. The work will be open to seniors and graduates.

ENGLISH

FREDERICK MORGAN PADELFORD, *Professor*;
ALLEN ROGERS BENHAM, *Assistant Professor*;
LOREN DOUGLAS MILLIMAN, *Assistant Professor*;
VERNON LOUIS PARRINGTON, *Assistant Professor*;
WILLIAM THEODORE DARBY, *Instructor*;
ROBERT MAX GARRETT, *Instructor*;
RAYMOND BURNETTE PEASE, *Instructor*;
JOEL MARCUS JOHANSON, *Instructor*;
_____, *Instructor*;
_____, *Instructor*;
_____, *Instructor*;
_____, *Instructor*.

The courses offered by the department are designed to cover as adequately as possible the three main divisions of the general field, namely: practice in composition, the scientific study of the language, and the critical and appreciative investigation of the literature.

REQUIREMENTS OF THE DEPARTMENT

For a major: Either courses 7, 8 or courses 33, 34. By a special rule of the faculty the eight hours prescribed work in composition do not count in limiting the maximum of work done in the department to thirty-two hours, but they may be counted in making up the minimum of twenty-four hours.

For a teacher's certificate: Either courses 7, 8 or courses 33, 34, together with courses 35, 36. The latter may also be counted toward a major.

For all students, not majors in the department, who desire the recommendation of the department for positions as teachers of English, either courses 7, 8 or courses 33, 34 are required.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Remarks
1	English Composition	1, 2	4	All.....	See note A
2	English Composition	1, 2	4	All.....	See note A
1A	English Composition	1, 2	2	Engineers	See note B
3	Introd. to Eng. Lit.....	1	4	Soph.	See note C
4	Introd. to Eng. Lit.....	2	4	Soph.	See note C
5	Shakespeare	1	4	Fr., Soph....	
5A	Shakespeare	2	4	Fr.	
6	Victorian Essayists	2	4	Fr., Soph....	
7	Historical Eng. Gram....	1	2	Soph. Jr. Sr.	
8	Historical Eng. Gram....	2	2	Soph. Jr. Sr.	
9	Technique of Verse.....	1	2	Fr., Soph....	
10	XIX Cent. Prose Styles...	2	2	Fr., Soph....	
11	Eng. Comp. The Essay...	1	2	Soph. Jr. Sr.	
12	Eng. Comp. Style.....	2	2	Soph. Jr. Sr.	
13	Georgian Poets	1	4	Jr., Sr.	See note D
14	Victorian Poets	2	4	Jr., Sr.	See note D
15	Early XIX Cent. Lit.....	1	4	Jr., Sr.	See note D
16	Victorian Literature	2	4	Jr., Sr.	See note D
17	Shakespeare	1	4	Jr., Sr.	
18	Shakespeare	2	4	Jr., Sr.	
19	Shakespeare	1	4	Jr., Sr. (men)	
20	Shakespeare	2	4	Jr., Sr. (men)	
21	Chaucer	1	2	Jr., Sr., Gr.	
22	Eng. Lit. 1400-1579	2	2	Jr., Sr., Gr.	
23	Social Ideals in Eng. Lit.	1	4	Jr., Sr., Gr.	See note E
24	Social Ideals in Eng. Lit.	2	4	Jr., Sr., Gr.	
25	The English Novel.....	1	4	Jr., Sr.	
26	The English Novel.....	2	4	Jr., Sr.	
27	Amer. Lit. before 1820....	1	4	Jr., Sr., Gr.	See note F
28	Amer. Lit. XIX Century..	2	4	Jr., Sr., Gr.	See note F
29	Emerson and Hawthorne.	1	2	Soph. Jr. Sr.	
30	Longfellow and Lowell...	2	2	Soph. Jr. Sr.	
31	Eng. Lit. in XVII Cent...	1	4	Jr., Sr.	
32	Eng. Lit. in XVIII Cent..	2	4	Jr., Sr.	
33	Old English	1	4	Jr., Sr., Gr.	
34	Middle English	2	4	Jr., Sr., Gr.	
35	Teacher's Course	1	4	Jr., Sr.	See note G
36	Teacher's Course	2	4	Jr., Sr.	See note G
37	Hist. Eng. Lit.....	1, 2	4	Gr.	
38	Seminar—Spenser	1, 2	1-4	Gr.	
39	Aristotle's Poetics	1	2	Gr.	
40	Aristotle's Rhetoric	1	2	Gr.	

Note A.—Required of all freshmen in the College of Liberal Arts. If taken later than the freshman year only half credit will be given. Those who have passed Course 1 with a grade of A may be excused from Course 2.

Note B.—Required of all freshmen in the School of Mines, in the School of Forestry, in the School of Pharmacy, and in the College of Engineering.

Note C.—Course 4 must be elected by those who take Course 3.

Note D.—Courses 13 and 14 and Courses 15 and 16 are companion courses. Candidates are requested to consult with the head of the department before enrolling in either.

Note E.—This course will be especially interesting to men majoring in Political and Social Science, Law, and History.

Note F.—Candidates must secure the consent of the instructor before they will be permitted to enroll in Courses 25 and 26.

Note G.—Before a candidate will be admitted to Courses 35 and 36 he will be required to pass a satisfactory examination in the outline history of English literature.

STATEMENT OF COURSES

1, 2. ENGLISH COMPOSITION. *Four hours, throughout the year.* A study of the principles of rhetoric, with abundant practice in theme writing and some consideration of modern English prose. Every member of the class will be required to meet his instructor at stated times to confer on his work. Given in fourteen sections. Course 1 will be repeated the second semester.

1A. ENGLISH COMPOSITION. *Two hours, throughout the year.* A brief consideration of the principles of rhetoric, with practice in theme writing. Given in eight sections.

3, 4. AN INTRODUCTION TO ENGLISH LITERATURE. *Four hours, throughout the year.* The more important movements and schools in the development of the literature will be studied, and representative works will be read and discussed. Given in two sections, one for men and one for women.

MR. DARBY and MR. JOHANSON.

5. SHAKESPEARE. *First semester. Four hours.* An introduction to the plays. Examples of the several forms of Shakespeare's dramas, as seen in the comedy, tragedy, historical play, and romance, will be read. Given in three sections, one for men and two for women. MR. PEASE, MR. ———, and MR. ———.

6. VICTORIAN ESSAYISTS. *Second semester. Four hours.* A study of representative works of Carlyle, Newman, Arnold, and Ruskin. Given in three sections, as above.

MR. PEASE, MR. ———, and MR. ———.

7, 8. HISTORICAL ENGLISH GRAMMAR. *Two hours, throughout the year.* An historical account of English as a spoken and written language, its vocabulary, inflection, and usage. Designed for those who intend to teach English.

ASSISTANT PROFESSOR BENHAM.

9. TECHNIQUE OF ENGLISH VERSE. *First semester. Two hours.* An introduction to XIX century poetry. The work of Tennyson and Swinburne will be considered, and special attention will be given to the technique of poetry and to practice in versification.

ASSISTANT PROFESSOR PARRINGTON.

10. XIX CENTURY PROSE STYLES. *Second semester. Two hours.* An introduction to modern English prose. The work of such writers as Thackeray, Arnold, Stevenson and Kipling will

be studied closely, supplemented by practice in composition based upon the models read. Assistant Professor PARRINGTON.

11, 12. **ENGLISH COMPOSITION.** *Two hours, throughout the year.* Studies in rhetorical structure. An examination of the types of discourse as they are variously combined in one production, with special attention to the elements of style. A critical study of selected texts, with practice in writing short and long papers. Assistant Professor MILLIMAN.

13. **THE GEORGIAN POETS.** *First semester. Four hours.* A study of the chief poets of the English romantic movement, with particular attention to Wordsworth, Shelley and Keats. Open to women only. Assistant Professor PARRINGTON.

14. **THE VICTORIAN POETS.** *Second semester. Four hours.* A study of the development of English poetry between 1830 and 1900, dealing with Browning, Tennyson, Arnold, Rossetti, Swinburne, Morris and Kipling; with some account of Victorian ideals of art. Open to women only. Assistant Professor PARRINGTON.

15. **EARLY XIX CENTURY LITERATURE.** *First semester. Four hours.* The precise character of the course will be determined after consultation with those who elect it. Open to men only. Professor PADELFORD.

16. **VICTORIAN LITERATURE.** *Second semester. Four hours.* Similar to course 15, of which it is a continuation. Professor PADELFORD.

17, 18. **SHAKESPEARE.** *Four hours, throughout the year.* A critical reading of all the plays, supplemented by lectures on the more important Shakesperean problems, and on the development of the English drama. A number of plays, other than Shakespeare's, are read by way of illustrating the different dramatic periods. Mr. DARBY.

19, 20. **SHAKESPEARE.** *Four hours, throughout the year.* A companion course to 17, 18. Open only to men. Mr. ———.

21. **CHAUCEER AND HIS CONTEMPORARIES.** *First semester. Two hours.* Abundant reading in Chaucer, Langland, Gower and the *Pearl*; emphasis being laid upon the literary rather than the linguistic characteristics of the period. Dr. GARRETT.

22. **ENGLISH LITERATURE FROM 1400 TO 1579.** *Second semester. Two hours.* A study in the late mediaeval and early renaissance literary production. Readings in the English and Scotch successors to Chaucer, in the ballads, and in Malory, the Courtly Makers, Puttenham, Lyly, and the like. Dr. GARRETT.

23, 24. **SOCIAL IDEALS IN ENGLISH LITERATURE.** *Four hours, throughout the year.* A study of model commonwealths, and of such other literature as illustrates the evolution of English social and economic thought. Attention will be given to the influences, both native and foreign, which prompted this social literature. Assistant Professor BENHAM.

25, 26. **THE ENGLISH NOVEL.** *Four hours, throughout the year.* An historical study of the evolution of English fiction, and of the novel as a literary type. Assistant Professor MILLIMAN.

27. **AMERICAN LITERATURE.** *First semester. Four hours.* A study of the literary production of America before the year 1820, with special attention to social forces and ideals. The greater part of the time will be given to the investigation of puritanism and the beginnings of democracy.

Assistant Professor PARRINGTON.

28. **AMERICAN LITERATURE.** *Second semester. Four hours.* A study of XIX century American culture as revealed in the literature. Special attention will be given to the New England school, to Cooper and Whitman, and to the rise of a literature of democracy. Assistant Professor PARRINGTON.

29. **EMERSON AND HAWTHORNE.** *Two hours. First semester.* A critical study of representative works, together with reports on outside readings. Assistant Professor MILLIMAN.

30. **LONGFELLOW AND LOWELL.** *Two hours. Second semester.* A somewhat careful study of their works as a whole, with more critical examination of selected poems. Assistant Professor MILLIMAN.

31. **ENGLISH LITERATURE IN THE XVII CENTURY.** *First semester. Four hours.* A study of the Jacobean, Puritan, and Restoration movements, with special attention to the rise of classicism. Mr. DARBY.

32. **ENGLISH LITERATURE IN THE XVIII CENTURY.** *Second semester. Four hours.* A study of the Queene Anne "Wits," of the later development of classicism, and of the beginning of the romantic reaction.

Mr. DARBY.

33. **OLD ENGLISH.** *First semester. Four hours.* A study of the language and literature, emphasis being laid upon the phases which bear directly on the understanding of modern English grammar and etymology. One hour a week will be given over to the study of Old English literature in translation.

Dr. GARRETT.

34. **MIDDLE ENGLISH.** *Second semester. Four hours.* A continuation of course 33, attention being directed to the decay of Old English grammar and the transition to modern English.

Dr. GARRETT.

35, 36. **TEACHER'S COURSE.** *Four hours, throughout the year.* Two hours a week will be given to the consideration of the problems which confront the teacher of English in the secondary schools, and two hours will be given to the study of literary types as represented by the texts assigned for careful study in the College Entrance Requirements.

Dr. GARRETT.

37. **HISTORY OF ENGLISH LITERATURE.** *Four hours, throughout the year.* A critical study of the development of English literature, with special attention to the consideration of sources.

Assistant Professor BENHAM.

38. **SEMINAR.** The field of the work will change from year to year. For 1911-1912 the subject will be Spenser, and the work will be conducted by Professor Padelford; for 1912-1913 the subject will be Chaucer, and the work will be conducted by Assistant Professor Benham.

39. **ARISTOTLE'S POETICS.** *Two hours. First semester.* A critical examination of this foundation work, as introductory to the study of literary criticism.

Mr. ———.

40. **ARISTOTLE'S RHETORIC.** *Two hours. First semester.* A careful examination of this foundation work, as introductory to the study of rhetorical principles.

Mr. ———.

FRENCH

PIERRE JOSEPH FREIN, *Professor*;OTTO PATZER, *Assistant Professor*;STANLEY ASTREDO SMITH, *Instructor*;WALTER BELL WHITTLESEY, *Instructor*;MEKKIN SVEINSON, *Graduate Assistant*.

REQUIREMENTS OF THE DEPARTMENT.

For a major, not less than 24, nor more than 40 credits, are required. If French be taken as a major, the minor subjects allowed are Spanish, Italian, German, Latin, Greek.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Elementary	1, 2	4*	All.....	None
2, 3	Advanced First Year.....	1, 2	4	All.....	1
3, 4	Reading and Syntax.....	1, 2	4	All.....	2
1	Elementary	2	4*	All.....	None
4	Reading and Syntax.....	1	4	All.....	3
5, 6	Comp. and Conversation.....	1, 2	4	All.....	4
7, 8	Classical French	1, 2	4	All.....	4
9	The French Drama.....	†.....	.....	.....	.....
10	Hist. Fr. Lit. XIX Cent..	†.....	.....	.....	.....
11	Lyric Poetry	1	4	All.....	8
12	Hist. Fr. Lit. 1500-1800...	2	4	All.....	8
13	Teacher's Course	2	2	Major Seniors	
14, 15	Old French Reading.....	1, 2	3	Gr.....	
16, 17	Hist. of Old Fr. Lit.....	1, 2	2	Gr.....	
18, 19	Fr. Historical Gram.....	1, 2	2	Gr.....	
	Italian—				
1, 2	Elementary	1, 2	4*	All.....	None
3, 4	Advanced	1, 2	2	All.....	2

* Both semesters must be completed before credit is given for the first semester.

† Alternate years with Course 11; not given in 1911-12.

‡ Alternate years with Course 12; not given in 1911-12.

SUBJECTS FOR UNDERGRADUATES

1, 2. FIRST YEAR. *Four hours.* Fraser and Squair's French Grammar, part I, Halvéy, L'Abbé Constantin; Labiche et Martin, La Poudre aux Yeux; Mérimée, Colomba. Emphasis is laid upon the acquirement of a correct pronunciation, and a sys-

tematic drill in composition is given. No credit if offered for entrance.

Assistant Professor PATZER, Mr. SMITH, Mr. WHITTLESEY, Miss SVEINSON.

1. **FIRST YEAR. First semester. Four hours.** Repetition of course 1, intended primarily for those who enter the University at the beginning of the second semester, but open to all. Provision is made for an uninterrupted course of two or more years for those desiring it. Mr. WHITTLESEY.

2, 3. **ADVANCED FIRST YEAR. First semester. Four hours.** Open to those who have had only one semester of French in the University, and to those who have had one year of French in the high school. Those who have studied French one year in the University or three semesters in the high school may enter the class at the beginning of the second semester. Mr. WHITTLESEY.

4. **READING AND SYNTAX. First semester. Four hours.** For students who have studied French three semesters in the University, or four semesters in the high school. This course completes two full years of French. Those wishing to continue the work may enter courses 6 and 8. Mr. WHITTLESEY.

3, 4. **READING AND SYNTAX. Four hours.** Two hours per week are devoted to the syntax of the present day, and two hours per week are spent in translating masterpieces of the literature of the entire century. The work in syntax is based upon Fraser and Squair's French Grammar, part II. The texts read in 1910-11 were About, *Le Roi des Montagnes*; Hugo, *Hernani*; Balzac, *Cinq Scènes de la Comédie Humaine*; Daudet, *Tartarin de Tarascon*; Rostand, *Cyrano de Bergerac*. No credit if offered for entrance. Prerequisite 2. Assistant Professor PATZER and Mr. SMITH.

5, 6. **COMPOSITION AND CONVERSATION. Four hours.** The exercises for composition will be founded upon the customs and manners, history, geography, literature and industries of France. Conversation, two days per week but only one credit, will be centered upon the composition exercise of the previous day. Composition (M. and W.) may be taken without the conversation (Tu. and Th.), but it is not advisable to take the conversation without also taking the composition. Prerequisite, 4 or an equivalent.

Assistant Professor PATZER.

7, 8. **CLASSICAL FRENCH.** *Four hours.* The student is given a general knowledge of the literature of the entire classical period, but the reading is selected from the works of only a few of the most noted writers. The texts to be read are: Corneille, *Le Cid*, Horace; Polyencte; Molière, *Le Bourgeois Gentilhomme*, *Les Précieuses Ridicules*, *Le Tartuffe*; Racine, *Andromaque*, *Athalie*; Boileau, *L'Art Poétique*; La Fontaine, *Fables*. Prerequisite, 4 or an equivalent. Assistant Professor PATZER and Mr. SMITH.

FOR UNDERGRADUATES AND GRADUATES

9. **THE FRENCH DRAMA.** *First semester. Four hours.* The aim of this course is two-fold; to acquaint the student with the best French dramatic literature since the *Pléiade*, and to furnish an admirable medium for French conversation in the class room. This course may be taken in the same year with course 7, 8, but it may not precede it. Professor FREIN.

(Given in alternate years with course 11; it will not be given in 1911-12).

10. **HISTORY OF THE FRENCH LITERATURE OF THE NINETEENTH CENTURY.** *Second semester. Four hours.* Lectures in French; assigned reading of some of the works of each important author, with copious notes to be submitted for inspection; special topics assigned to each student for careful study, and report to the class. Prerequisite, 8. Professor FREIN.

(Given in alternate years with course 12; it will not be given in 1911-12).

11. **LYRIC POETRY.** *First semester. Four hours.* An introduction to French versification, structure of the verse, hiatus, rhyme; variations in the stanzas, and in the forms of the lyric poems. Short history of French lyric poetry. Special attention is given to the lyrics of the Romantic period. Canfield's *French Lyrics* is used to give the student a knowledge of the important writers of the French lyric, but the poems of Lamartine, De Musset and Hugo are studied from more complete editions of their works. Prerequisite, 8 or an equivalent. Professor FREIN.

(Given in alternate years with course 9; it will be given in 1911-12).

12. HISTORY OF FRENCH LITERATURE FROM THE RENAISSANCE TO THE ROMANTIC MOVEMENT. *Second semester. Four hours.* Lectures in French, and assigned reading from the important authors. Prerequisite, 8. Professor FREIN.

(Given in alternate years with course 10; it will be given in 1911-12).

13. TEACHERS' COURSE. *Second semester. Two hours.* Study of phonetics, and review of grammar from the teacher's standpoint. Discussion of books, magazines, and courses of study. Professor FREIN.

FOR GRADUATES

14, 15. OLD FRENCH READING. *Four hours.* Elements of Old French grammar, and translation of Old French texts from Bartsch, *Chrestomathie de l'Ancien Français*. Open only to advanced students of French. Professor FREIN.

16, 17. HISTORY OF OLD FRENCH LITERATURE. *Four hours.* This course is open to graduates in French, even to those who have not read any Old French texts. It is intended to furnish an opportunity to become acquainted with the very rich literature written in France previous to the Renaissance. The course will be given in French. Professor FREIN.

18, 19. FRENCH HISTORICAL GRAMMAR. Lectures on Old French phonology and morphology. Professor FREIN.

GEOLOGY

HENRY LANDES, *Professor*;EDWIN J. SAUNDERS, *Assistant Professor*;CHARLES EDWIN WEAVER, *Instructor*;GEORGE NELSON SALISBURY, *Lecturer in Meteorology*.

REQUIREMENTS OF THE DEPARTMENT

(a) For the required 8 credits in science: Courses 1 and 2, or 3 and 4.

(b) For a major: 24 credits with 24 additional credits in the science group. Not more than 40 credits may be counted in the major department.

(c) For a teacher's certificate: The same as for a major.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	General Geology	1	4	Fr., Soph....	None
2	General Geology	2	4	Fr., Soph....	1 or 4
1a	General Geology	1	4	Fr., Soph....	None
1b	General Geology	2	4	Fr., Soph....	None
3	Climatology	1	4	Fr., Soph....	None
4	Physiography	2	4	Fr., Soph....	None
5	Mineralogy	2	4	Fr., Soph....	None
6	Optical Crystallography...	1	4	Jr., Sr., Gr.	1, or 1a, and 5
7	Glacial Geology	1	2	Jr., Sr., Gr.	1, or 1a, or 4
8	Vulcanism and Metamorp.	1	2	Jr., Sr., Gr.	1, or 1a, or 4
9	Petrography	2	4	Jr., Sr., Gr.	1, or 1a, or 4, 6
10	Economic Geology	2	4	Jr., Sr., Gr.	1 and 2, or 1a, 5, 9
11	Paleontology	1	4	Jr., Sr., Gr.	1 and 2, or 1a
12	Paleontology	2	4	Jr., Sr., Gr.	1 and 2, or 1a, 11
13	Continental Evolution ...	2	2	Jr., Sr., Gr.	1, or 1a, or 4
14	Geology and Geography of Washington	2	2	Jr., Sr., Gr.	1, or 1a, or 4
15, 16	Field Work *	1 or 2	.....	Jr., Sr., Gr.	1 and 2, 1a, or 4 and 5
17, 18	Advanced Petrography ...	1, 2	4	Jr., Sr., Gr.	See statement
19, 20	Advanced Paleontology ...	1, 2	4	Jr., Sr., Gr.	See statement
21, 22	Research Work	1 or 2	.....	Jr., Sr., Gr.	See statement

* Primarily for graduates.

PRIMARILY FOR UNDERCLASSMEN

1, 2. GENERAL GEOLOGY. *Four hours. A year's course.* Three recitations and one laboratory period per week. This course

treats of the fundamental principles of dynamical, structural and historical geology, including a brief study of the common rocks and minerals; occasional field trips on regular laboratory days and Saturdays. Laboratory fee of \$1 each semester.

Professor LANDES, Assistant Professor SAUNDERS, and assistants.

1a. GENERAL GEOLOGY. *First semester. Four hours.* A semester's course for engineering students. Lectures, recitations and laboratory work. Laboratory fee \$1. Professor LANDES.

1b. GENERAL GEOLOGY. *First semester. Four hours.* A semester's course for forestry students. Lectures, recitations, and laboratory work. Laboratory fee \$1. Professor LANDES.

3. CLIMATOLOGY. *Second semester. Four hours.* Three recitations and one laboratory period a week. A general consideration of the different climatic elements of the atmosphere; origin and movement of storms, methods of forecasting weather, and practical work in making weather maps and using meteorological instruments. Distribution of rainfall and climate in different parts of the world especially in the United States. Laboratory fee \$1.

Assistant Professor SAUNDERS and Mr. SALISBURY.

4. PHYSIOGRAPHY. *Second semester. Four hours.* A study of the surface features of the earth with special reference to their origin, development, classification, and relation to geologic structure. A brief study of the common minerals and rocks and the principles of oceanography. Instruction and practice in the use of topographic maps and in making relief maps. Laboratory fee \$1.

Assistant Professor SAUNDERS.

N. B.—It is recommended that those preparing to teach in the high schools or those entering the second semester should take courses 3 and 4 instead of 1 and 2.

5. MINERALOGY. *Second semester. Four hours.* Two laboratory periods. Descriptive and determinative mineralogy. Practice in the determination of unlabeled minerals by means of their physical properties and by blow-pipe analysis. Laboratory fee of \$2.

Dr. WEAVER.

FOR UPPERCLASSMEN AND GRADUATES

6. OPTICAL CRYSTALLOGRAPHY. *First semester. Four hours.* Chemical and optical properties of crystallized matter. Demon-

strations of the different methods of investigation of the rock-forming minerals in thin sections under the microscope. Use of the polarizing microscope and preparation of thin sections. Laboratory fee of \$2.

Dr. WEAVER.

7. GLACIAL GEOLOGY. *First semester. Two hours.* Lectures, required reading, and discussions upon the characteristics of glaciers, and the geological work that they accomplish. Excursions to the glaciers of Mount Rainier, and field examinations of the glaciated regions about Puget sound. Prerequisite: Some knowledge of general geology 1 or 1a, or 4. Professor LANDES.

8. VULCANISM AND METAMORPHISM. *First semester. Two hours.* A discussion of the theories concerning volcanoes and volcanic phenomena. The general principles of metamorphism; the behavior of rocks under fracture and flowage with the resulting petrographical changes in them. Prerequisite: Some knowledge of general geology 1 or 1a, or 4.

Dr. WEAVER.

9. PETROGRAPHY. *Second semester. Four hours.* Principles and methods of investigation of rock-forming substances. A study of the distinguishing characteristics of the different groups and species of rocks with practice in their determination by modern petrographical methods. Preparation of thin sections. Prerequisite: 1a, or 1, or 4, 5, 6.

Dr. WEAVER.

10. ECONOMIC GEOLOGY. *Second semester. Four hours.* A study of the origin and extent of metalliferous veins and ore deposits; varieties of coal, extent and locations of coal fields; gas and oil; origin, occurrences, and uses of clays; building and ornamental stones; minor mineral products of use in the arts and of commercial importance. Prerequisites: 1 and 2, or 1a, 5, 9.

Professor LANDES.

11, 12. PALEONTOLOGY. *Four hours.* The general principles of the study of fossil organisms, with their geologic and geographic distribution. A laboratory study of the most important forms of fossil invertebrates. Excursions in the field in the vicinity of Puget sound. Prerequisites: 1 and 2, or 1a.

Dr. WEAVER.

13. CONTINENTAL EVOLUTION. *Second semester. Two hours.* A study of the geological history of sedimentation, volcanic ac-

tivity, the major earth movements, and geographic changes in the development of the North American continent. Prerequisite: Some knowledge of general geology 1 or 4, or 1a. Dr. WEAVER.

14. GEOLOGY AND GEOGRAPHY OF WASHINGTON. *Second semester. Two hours.* Lectures and discussions concerning the general geology and principal features of the geography of the state, with particular reference to the things of economic importance. Prerequisite: Some knowledge of general geology 1, or 1a, or 4. Professor LANDES.

15, 16. FIELD WORK. Credits and time to be arranged for arts students. One hour or eight days in second semester for mining engineers. Instruction and practice in methods of field observation, mapping and interpretation of results. A study of special problems presented by the structural, physiographic and petrographic conditions in the Puget sound basin with occasional extended excursions. Prerequisites: 1 and 2, 1a, or 4 and 5. Professors LANDES, SAUNDERS, and Dr. WEAVER.

PRIMARILY FOR GRADUATES

17, 18. ADVANCED PETROGRAPHY. *Two hours.* Detailed laboratory and field investigation of the petrography of special areas in Western Washington, and the preparation of a report on the same. Discussion of current literature. Prerequisites: 1, 2, 5, 8, 9. Dr. WEAVER.

19, 20. ADVANCED PALEONTOLOGY. *Two hours.* Investigation of some stratigraphic area and its fossil fauna, or the biological study of some group of invertebrate fossils associated with a section of Western Washington. Discussion of current literature pertaining to stratigraphy and paleontology. Prerequisites: 1, 2, 11, 12. Dr. WEAVER.

21, 22. RESEARCH WORK. *Credit and hours to be arranged.* Investigation of special problems in geology, physiography, meteorology, petrography, and paleontology. Courses arranged by permission. Professors LANDES, SAUNDERS, WEAVER.

SPECIAL SHORT COURSES

A. FORESTRY GEOLOGY. A course of twenty lectures on general geology given in January, February, and March, to the students in the short course in forestry.

Assistant Professor SAUNDERS.

B. PROSPECTORS' GEOLOGY AND MINERALOGY. Lectures, recitations, and laboratory work in general geology and mineralogy. This course is given in January, February, and March, to the students in the short course for mining men. Dr. WEAVER.

GERMAN

FREDERICK W. MEISNEST, *Professor*;

OTTILIE G. BOETZKES, *Assistant Professor*;

HANS J. HOFF, *Instructor*;

PAUL E. WEITHAASE, *Instructor*;

GEORGE W. HAUSCHILD, *Instructor*;

HANS D. GAEBLER and ROBERT E. NOELKE, *Graduate Assistants*;

ELLY LAWATSCHER, *Student Assistant*.

REQUIREMENTS OF THE DEPARTMENT

Major: 24 to 40 credits, including at least two of the following courses: 15, 16, 17 and 18.

Normal Diploma with German as major: 13, 14, 19 and 20. Students who have not studied German before entering the University will ordinarily not find it advantageous to choose German as their major study. Those taking courses 3 and 4 in their freshman year should devote at least four hours each semester during the remaining three years to the study of German, if they choose German as their major study and wish to prepare themselves as teachers of the language. Students may enter the first or second semester and continue their German consecutively for four or more years. Students who choose German as a minor subject for teaching and desire the recommendation of the department are advised to take 13, 14, 19 and 20.

Deutscher Verein. See p. 52.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	First Year	1, 2	4	All.....	None
1a	First Year	2	4	All.....	None
2a, 3a	Advanced First Year.....	1, 2	4	All.....	1, 1a, or one year H. S.
3, 4	Second Year	1, 2	4	All.....	2, 2a, or two years H. S.
3s, 4s	Second Year	1, 2	4	Science and Engineering	2, 2a, or two years H. S.
4a, 5a	Advanced Second Year...	1, 2	4	All.....	3, 3a, 3s, or 3 yrs. H. S.
5	Schiller	1	4	All.....	4, 4a, 4s, or 4 yrs. H. S.
6	Goethe	2	4	All.....	5, 5a, or four years H. S.
7, 8	Mod. German Dramas....	1, 2	2	All.....	4, 4a, 4s, or 4 years H. S.
9, 10*	Mod. German Novels.....	1, 2	2	All.....	4, 4a, 4s, or 4 years H. S.
11, 12	Scientific German	1, 2	2	All.....	4, 4a, or 4s
13, 14	Conversation—Comp.	1, 2	4	All.....	See statement
13a	Conversation—Comp.	2	4	All.....	See statement
15, 16	Hist. Ger. Lit. —Lyrics...	1, 2	4	All.....	See statement
17, 18	Lessing—Faust	1, 2	4	All.....	See statement
19, 20	Teacher's Course	1, 2	2	All.....	See statement
21, 22*	Storm and Stress	1, 2	2	Grad.	See instructor
23, 24	Romantic School	1, 2	2	Grad.	See instructor
25, 26*	Middle High German.....	1, 2	2	Grad.	See instructor
27, 28	Old High Ger.—Gothic....	1, 2	2	Grad.	See instructor

* Omitted in 1911-12.

FOR UNDERGRADUATES

1, 2. **FIRST YEAR.** *Four credits. Four sections.* Pronunciation, grammar and reading of easy prose and verse with practice in speaking and writing. For beginners. Students entering the second semester with one year of German in the high school may take course 2. Two semesters must be completed before credit is allowed.

Professor MEISNEST, Mr. HAUSCHILD, Mr. GAEBLER and Mr. NOELKER.

1a. **FIRST YEAR.** *Second semester. Four credits.* The same as course 1. For beginners. Two semesters must be completed before credit is allowed.

Miss LAWATSCHEK.

2a, 3a. **ADVANCED FIRST YEAR.** *Four credits.* Continuation of grammar and reading of simple prose with practice in pronunciation, speaking and writing. Equivalents of 2 and 3. Prerequisite, 1, 1a, or one year in the high school. Mr. NOELKER.

3, 4. **SECOND YEAR.** *Four credits. Six sections.* Modern prose, narrative and dramatic, and at least one drama by Schiller or Lessing during the second semester. Review of elementary grammar, syntax, composition and conversation. Prerequisite, 2, 2a, or two years in the high school.

Miss BOETZKES, Dr. HOFF, Mr. WEITHAASE, Mr. HAUSCHILD and Mr. GAEBLER.

3s, 4s. **SECOND YEAR.** *Four credits. First semester:* Modern prose, review of grammar, composition and conversation *Second semester:* Introduction to scientific German and review of grammar and composition continued. For students specializing in science and engineering. Prerequisite, 2 or 2a, or two years in the high school.

Mr. HAUSCHILD.

4a, 5a. **ADVANCED SECOND YEAR.** *Four credits. Two sections.* Modern prose and dramas. Prerequisite, 3, 3a or 3s, or three years in the high school. Miss BOETZKES and Mr. HAUSCHILD.

5. **SCHILLER.** *First semester. Four credits. Three sections.* Introductory study of his life and selected works. Maria Stuart or Die Braut von Messina and Wallenstein. Prerequisite, 4, 4a, or 4s, or four years in the high school.

Miss BOETZKES, Dr. HOFF and Mr. WEITHAASE.

6. **GOETHE.** *Second semester. Four credits. Three sections.* Introductory study of his life and selected works. Goetz von Berlichingen, Egmont and Iphigenie. Prerequisite, 5 or 5a, or four years in the high school.

Miss BOETZKES, Dr. HOFF and Mr. WEITHAASE.

7, 8. **MODERN GERMAN DRAMAS.** *Two credits.* Selections from Grillparzer, Hebbel, Sudermann and Hauptmann. A rapid reading course. Prerequisite, 4, 4a or 4s, or four years in the high school.

Mr. WEITHAASE.

9, 10. **MODERN GERMAN NOVELS.** *Two credits.* Selections from Freytag, Schiffel, Hauff, Ludwig and Sundermann. A rapid reading course. Prerequisite, 4, 4a or 4s, or four years in the high school. (Omitted in 1911-12).

Mr. WEITHAASE.

11, 12. **SCIENTIFIC GERMAN.** *Two credits.* Advanced scientific prose and special monographs. Prerequisite, 4, 4a or 4s.

Mr. WEITHAASE.

13, 14. GERMAN CONVERSATION AND COMPOSITION. *Four credits. Three sections.* Prerequisite, at least four credits in advance of course 4. New students cannot enter the second semester without permission from the head of the department. Recommended to all students preparing to teach German.

MISS BOETZKES, DR. HUFF and MR. WEITHAASE.

13a. GERMAN CONVERSATION AND COMPOSITION. *Second Semester. Four credits.* Course 13 repeated. Prerequisite, same as 13.
Professor MEISNEST.

FOR UNDERGRADUATES AND GRADUATES

15. HISTORY OF GERMAN LITERATURE. *First semester. Four credits.* Selected readings, reports and lectures. A general survey for students specializing in German. Thomas's German Anthology and Priest's History of German Literature. Prerequisite, eight credits in advance of course 4.

MR. HAUSCHILD.

16. GERMAN LYRICS AND BALLADS. *Second semester. Four credits.* Reading and interpretation of the best and most characteristic German lyrics and ballads of Goethe, Schiller, Heine, Uhland, Geibel, and others. Von Klenze's Deutsche Gedichte. Prerequisite, eight credits in advance of course 4.

MR. HAUSCHILD.

17. LESSING. *First semester. Four credits.* Introductory study of his life and selected works. Emilia Galotti, Nathan der Weise and Hamburgische Dramaturgie or Laokoon. Prerequisite, eight credits in advance of course 4.

Professor MEISNEST.

18. GOETHE'S FAUST. *Second semester. Four credits.* Reading, interpretation and discussion of parts I and II, with collateral reading in Faust literature. Prerequisite, eight credits in advance of course 4.

Professor MEISNEST.

19, 20. TEACHER'S COURSE. *Two credits. First semester:* Elementary phonetics, practice in pronunciation. *Second semester:* review of grammar from the standpoint of the teacher, critical study of the methods of teaching German, discussion of textbooks and course of study for high schools, observation and teaching. Prerequisite, eight credits in advance of course 4.

Professor MEISNEST.

FOR GRADUATES

(All graduate courses are conducted in German).

21, (22) **STORM AND STRESS PERIOD.** *Two credits.* A study of the principal tendencies and characteristics of the Storm and Stress period in German literature as revealed in the writings selected from Lessing, Herder, Goethe, Schiller, Klinger, Leisewitz, Lenz, Wagner and Maler Mueller; the interrelations of English and German literature during the eighteenth century. Assigned readings, reports and lectures. (Omitted in 1911-12).

Professor MEISNEST.

23, 24. **ROMANTIC SCHOOL.** *Two credits.* A study of the origin, principal tendencies and characteristics of the early romantic movement in German literature and its relations to the Storm and Stress period. The principal writers studied are Goethe, Jean Paul, A. W. Schlegel, Friedrich Schlegel, Novalis, Tieck, Brentano and Arnim. Assigned readings, reports and lectures.

Professor MEISNEST.

25, (26) **MIDDLE HIGH GERMAN.** Grammar and selected readings, drill in phonology, morphology and syntax; comparison of mediaeval with modern German. Paul's *Mittelhochdeutsche Grammatik*. *Nibelungenlied*, Gottfried's *Tristan* and *Isolde* and selections from *Walter von der Vogelweide*. (Omitted in 1911-12).

Dr. HOFF.

27. **GOTHIC.** General introduction to the study of Germanic philology, phonology, morphology and syntax. Streitberg's *Gotisches Elementarbuch*.

Dr. HOFF.

28. **OLD HIGH GERMAN.** Phonology and forms; critical reading of Old High German texts. Prerequisite, course 27. Texts: Braune's *Althochdeutsche Grammatik* and *Althochdeutsches Lesebuch*.

Dr. HOFF.

GREEK

ARTHUR SEWALL HAGGETT, *Professor*;
 HARVEY BRUCE DENSMORE, *Instructor*;
 ———— *Instructor*.

REQUIREMENTS OF THE DEPARTMENT.

Students desiring to take Greek as their major subject should present the regular three years preparatory Greek for entrance.

For a major, at least 24 credits in College Greek are required. The requirement of one year ancient languages or Literature (see page) may be satisfied by any one of the following:

- a. Greek civilization and Greek literature (Greek 13 and 14).
- b. Greek civilization and Roman civilization (Greek 13 and Latin 12).
- c. Greek literature and Roman literature (Greek 14 and Latin 14).
- d. Roman civilization and Roman literature (Latin 11 and 13).

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Elementary Greek	1	4	Fr., Soph....	1
2	Xenophon	2	4	Fr., Soph....	2
3	Homer	1	4	Soph.Jr. Gr.*	
4	Plato	2	4	Soph.Jr. Gr.*	3
5	Dramatic Poetry	1	2	Jr., Sr.†	4 or equiv.
6	Dramatic Poetry	2	2	Jr., Sr.†	5
7	Lyric Poetry	1	2	Adv. students	
8	Oratory	2	2	Adv. students	
9	Epic Poetry	1	2	Adv. students	
10	Historical Prose	2	2	Adv. students	
11	Adv. Reading Course.....	1	.....	Gr.	
12	Adv. Reading Course.....	2	.....	Gr.	
13	Greek Civilization	1	4	All.	
14	Greek Literature	1	4	Soph. Jr. Sr.†	

* Freshmen who present Greek for entrance.

† Others presenting Greek for entrance.

‡ Freshmen who have two years Ancient Language.

1. **ELEMENTARY GREEK.** *First semester. Four hours.* This course is intended for those who have not had an opportunity of studying Greek in the preparatory school or who have neglected

to do so. Special attention will be devoted to the forms and constructions of the language and to the acquisition of a vocabulary sufficient for the reading of easy prose.

Mr. DENSMORE and Mr. _____

2. XENOPHON. *Second semester. Four hours.* Reading of portions of the *The Anabasis*, with exercises in writing Greek. Prerequisite, 1.

Mr. DENSMORE and Mr. _____

3. HOMER. *First semester. Four hours.* Selections from the *Odyssey* will be read and interpreted in the class and the rest of the poem will be read through the medium of the best English translations. There will be lectures and discussions on the development of the epos and on the life of the prehistoric age of Greece. Photographs and lantern slides will be used to illustrate the subject. Prerequisite, 2. Open also to Freshmen who present at least two years of Greek for entrance.

Professor HAGGETT.

4. PLATO. *Second semester. Four hours.* Reading of *The Apology*, *Crito*, and parts of the *Phaedo*, with sight reading in Xenophon's *Memorabilia*. Study of the life and influence of Socrates. Prerequisite, 3.

Professor HAGGETT.

5. DRAMATIC POETRY. *First semester. Two hours.* One play of Euripides and one of Sophocles, with the study of the history of the Greek drama and the Greek theater. Prerequisite, 4, or equivalent.

Mr. DENSMORE.

6. DRAMATIC POETRY *Second semester. Two hours.* One play of Aeschylus and one of Aristophanes, with special study of the Greek Comedy. Prerequisite, 5.

Mr. DENSMORE.

7. LYRIC POETRY. *First semester. Two hours.* Selections from the elegaic iambic, and melic poets, supplemented by lectures on the development of lyric poetry. For advanced students.

Mr. DENSMORE.

8. ORATORY. *Second semester. Two hours.* Selections from Lysias and Demosthenes, with study of the development of Greek oratory. For advanced students.

Mr. DENSMORE.

9. EPIC POETRY. *First semester. Two hours.* Rapid reading of selections from Homer and Hesiod. Supplemented by lectures

and topical reading. This course is designed to give a comprehensive knowledge of the life and literature of the epic age. For advanced students. Mr. DENSMORE.

10. HISTORICAL PROSE. *Second semester. Two hours.* Selections from Thucydides and Xenophon with study of the era of the Peloponnesian war, lectures on Greek historiography. For advanced students. Mr. DENSMORE.

NOTE.—Courses 7 and 8 and 9 and 10 will be given in alternate years.

11. ADVANCED READING COURSE. *First semester.* Rapid reading of the entire work (or a considerable portion) of some one author, or extensive work in some one department of Greek literature. This course is designed to give a comprehensive knowledge of a particular author or period of Greek literature, and is supplemented by topical reading and thesis work on the author or period selected. For graduate students.

Professor HAGGETT.

12. ADVANCED READING COURSE. *Second semester. Four hours.* Continuation of course 11. For advanced students.

Professor HAGGETT.

13. GREEK CIVILIZATION. *First semester. Four hours.* Part of the time will be devoted to the history of the Greek peoples, the remainder to their life and art, under such topics as (a) mythology and religion; (b) public and private life; (c) art and archaeology. Open to all students. A knowledge of the Greek language is not required. This course is intended to be followed by Greek 14 or Latin 12.

Professor HAGGETT and Mr. DENSMORE.

14. GREEK LITERATURE. *Both semesters. Four hours.* Text-book, lectures, and readings from English translations, with assignments of selected works for special study, and periodic written tests. Primarily for Sophomores, Juniors and Seniors, but open to Freshmen who have had at least two years of ancient language. A knowledge of the Greek language is not required. This course is intended to be followed by Latin 14.

Professor HAGGETT and Mr. DENSMORE.

HISTORY

EDMOND STEPHEN MEANY, *Professor*;

OLIVER HUNTINGTON RICHARDSON, *Professor*;

EDWARD McMAHON, *Assistant Professor*;

WILLIAM ALFRED MORRIS, *Assistant Professor*;

ALANSON ROGER MERRILL and ADELBERT DURKEE MCCLEVERTY,
Graduate Assistants.

REQUIREMENTS OF THE DEPARTMENT

THE EIGHT-HOUR REQUIREMENT IN HISTORY may be satisfied by one of the following courses:

1, 2. *Medieval and Modern European History.* (Primarily for Freshmen; Juniors and Seniors receive only half credit). It is especially desirable that this course be selected in fulfilment of the history requirement and that it be taken in the Freshman year. It is the natural introduction to further historical studies, is prerequisite to all advanced courses in the history of Continental Europe, except for Greece and Rome, and is required of all history majors. (For further information, see statement of the course).

7, 8. *History of the United States.* (Primarily for Sophomores; not open to Freshmen except in the case of students in the Law School, or students who are taking work in the College of Liberal Arts to satisfy requirements for entrance to the Law School.)

5, 6. *English Political History.* (Primarily for Sophomores and Juniors; not open to Freshmen). To this course, however, course 1, 2 is a *prerequisite except* in the case of (a) students admitted to advanced standing from other colleges and universities; (b) students in the Law School, or students who are taking work in the College of Liberal Arts to satisfy requirements for entrance to the Law School; (c) majors in English Literature and in Political Science; (d) students who receive the special permission of the instructor in charge of the course.

(In 1911-12 the prerequisite is Medieval History only).

FOR A MAJOR, not less than 24 history credits are required, of which at least 8 shall be obtained in the most advanced undergraduate courses. Course 1, 2 is required of all history majors.

It is *recommended* that all history majors shall take, in excess of the 24 history credits and of the credits formally required in various other departments for graduation, additional work in History, Political and Social Science, Philosophy, Modern Languages, and English Literature. Latin is especially desirable for all who intend to study European History as a profession.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Med. and Mod. Eur. Hist.	1, 2†	4†	All.....	None
4	Roman History	2	4	All.....	None
5, 6	English Political History*	1, 2	4	Soph., Jr., Sr.	See req'rem'ts
7, 8	History United States*....	1, 2	4	Soph., Jr., Sr.	None
9, 10	Makers of Nation.....	1, 2	2	Soph., Jr., Sr.	None
11	English Const. History†..	1	4	Jr., Sr., Gr.	See statement
12	France to 1515.....	2	4	Jr., Sr., Gr.	1
14	Medieval Civilization§ ....	.....	.....	.....	.....
15, 16	Renaissance and Reform..	1, 2	2	Jr., Sr., Gr.	2
17, 18	Prussia and North. Europe	1, 2	2	Jr., Sr., Gr.	2
19, 20	France from Reformation§	.....	.....	.....	.....
21	French Rev. and Nap. Era	1	4	Jr., Sr., Gr.	2
22	Europe since 1814.....	2	4	Jr., Sr., Gr.	2
23, 24	Econ. and Soc. Hist. Amer. Colonies§ .....	.....	.....	.....	.....
25	U. S. Hist., 1783-1823.....	1	4	Jr., Sr., Gr.	None
26	U. S. Hist., 1823-1860.....	2	4	Jr., Sr., Gr.	None
27	Civil War and Reconst....	1	4	Jr., Sr., Gr.	None
28	Hist. Nat'l Development..	2	4	Jr., Sr., Gr.	None
29	Spain in America.....	1	4	Jr., Sr., Gr.	None
30	Development of Pacific....	2	4	Jr., Sr., Gr.	None
31, 32	American Diplomacy	1, 2	2	Jr., Sr., Gr.	See statement
33, 34	Northwestern History	1, 2	2	Jr., Sr., Gr.	None
36	Meth. of Teaching Hist....	2	2	Jr., Sr., Gr.	None
37, 38	England Under Tudors.....	1, 2	2	Grad.	See statement
39, 40	Seminar in Amer. Hist.....	1, 2	2	Grad.	See statement
41, 42	Joint Seminar	1, 2	2	Grad.	See statement

† Juniors and Seniors receive only half credit.

* Open to certain classes of Freshmen; see requirements of the department.

† See statement.

§ Omitted, 1911-12.

1, 2. **MEDIEVAL AND MODERN EUROPEAN HISTORY.** *Four hours.*
A general survey of the political economic and social development of the principal European peoples from the fourth to the end of the nineteenth century. Prerequisite to all advanced courses in the history of Continental Europe, except for Greece and Rome, and required of all history majors.

Students who enter the University in the second semester

will be allowed to enter this course, with the understanding that they will take the first semester's work in the following year.

Assistant Professor MORRIS and Assistants.

4. HISTORY OF ROME TO THE FALL OF THE WESTERN EMPIRE. *Second semester. Four hours.* Emphasis is placed upon the wars with Carthage and their results; the establishment of Roman rule throughout the civilized world; the economic and social causes which undermined the Republic; the foundation of the Empire; the nature, methods and results of Roman Imperialism; the causes of Rome's fall; and the direct connections of Roman history with medieval. Attention is given to the development of Roman institutions and the Roman law. See course 15, department of Latin. Mr. DENSMORE.

INTERMEDIATE COURSES.

NOT OPEN TO FRESHMEN

5, 6. ENGLISH POLITICAL HISTORY. *Four hours.* A study of the political, social and intellectual development of the English people from the Saxon conquest to the end of the nineteenth century. The history of institutions is not studied in detail; but care is taken to point out the political conditions which influenced the growth of the constitution. Economic developments receive attention. Prerequisite, 1. (For exceptions, see Requirements of the Department). Professor RICHARDSON.

7, 8. HISTORY OF THE UNITED STATES *Four hours.* A general survey with emphasis upon political history. Lectures, text-book, collateral reading and topics. Assistant Professor McMAHON.

9, 10. MAKERS OF THE NATION. *Two hours.* Lectures on the lives of Washington, Franklin, Jefferson, Jackson, Clay, Webster, Lincoln, Grant, Lee, and others, with relation to the historic development of their times. Professor MEANY.

ADVANCED COURSES

FOR JUNIORS AND SENIORS

Students must have had at least one year of history to elect any course in this group.

11. ENGLISH CONSTITUTIONAL HISTORY. *First semester. Four hours.* The development of the principal legal and governmental

institutions of the English people is traced from the Anglo-Saxon period to the present time. This course is of special value to those who intend to study law, but the interest of the general student is also kept in view. Open to juniors and seniors who have taken or are taking 5, 6, and to law students with consent of the instructor. Assistant Professor MORRIS.

12. FRANCE TO 1515. *Second semester. Four hours.* A study of the political and institutional development of France to the close of the middle ages, including the fusion of Roman and Teutonic elements in society, the empire of Charlemagne, the principal institutions of the feudal period, medieval theories of royal power, the constitutional developments of the Hundred Years' War, the territorial consolidation of France and the establishment of royal absolutism. A reading knowledge of easy French such as can ordinarily be gained from the second year's work is desirable. Prerequisite, 1. (Given in alternate years with course 14. It will be given in 1911-12). Assistant Professor MORRIS.

14. MEDIEVAL CIVILIZATION *Second semester. Four hours.* Designed to supplement course 1 by a more special study of the intellectual life of the feudal period, and a somewhat detailed treatment of the organization of society. Prerequisite, 1. (Given in alternate years with course 12. It will not be given in 1911-12). Assistant Professor MORRIS.

15, 16. THE RENAISSANCE AND REFORMATION. *Two hours.* In this course the Renaissance and Reformation will be treated primarily as intellectual movements and considered in their relations to the intellectual development of Europe. The Reformation is treated in its relations to all the larger problems of modern history. Prerequisite, 2. Professor RICHARDSON.

17, 18. PRUSSIA AND NORTHERN EUROPE. *Two hours.* This course deals with Sweden as a Great Power, its rise, progress and decline; the rise of Russia and Prussia; the Partition of Poland; and the beginnings of the Eastern Question. Special attention is paid to the history of Brandenburg-Prussia from the time of its rapid economic, political and military development under the Great Elector and Frederick William I to its acquisition of world-power under Frederick the Great. Constitutional

and economic topics receive due attention. Prerequisite, 2. (Given in alternate years with 19, 20. It will be given in 1911-12).

Professor RICHARDSON.

19, 20. HISTORY OF FRANCE FROM THE REFORMATION TO THE FRENCH REVOLUTION. *Two hours.* 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. (Given in alternate years with 17, 18. It will not be given in 1911-12).

Professor RICHARDSON.

21. THE FRENCH REVOLUTION AND NAPOLEONIC ERA. *First semester. Four hours.* Among the principal topics considered are the following: the material conditions out of which, in France, the Revolution emerged, and the nature of the ideals which inspired it; contemporary conditions in the European states system which facilitated the extension of the Revolution over Europe; the epoch of International Wars, with especial reference to the territorial redistribution of Europe, the beginnings of modern liberalism, and the career of Napoleon. Due attention is paid throughout to notable personalities as well as to notable events. Prerequisite, 2.

Professor RICHARDSON.

22. EUROPE SINCE 1814. *Second semester. Four hours.* Mainly political, introductory to European politics of the present time. The course deals with the fundamental principles and policies of the Era of Reaction under Metternich and the subsequent triumph of liberalism. Attention is given to Russia, Greece and the Eastern Question from the time of Napoleon's downfall to 1870; but the chief emphasis is laid upon the establishment of constitutional government and national unity in Germany, Italy and the other states of Western Europe, and upon the careers of great leaders, notably Bismarck and Cavour. Prerequisite, 2.

Professor RICHARDSON.

23, 24. ECONOMIC AND SOCIAL HISTORY OF THE AMERICAN COLONIES. *Four hours.* Attention will be given to the European background and to the motives and methods of colonization. A study will be made of the transfer of population to the colonies, and of the social, economic and political forces that acted on it there. This will be followed, in the second semester, by a study of the issues leading to the political revolt and independence of

the colonies, the formation of state constitutions, the operation of the confederation, and the framing of the constitution of 1787. (Omitted 1911-12). Assistant Professor McMAHON.

25. HISTORY OF THE UNITED STATES, 1783-1828. *First semester. Four hours.* A study of the organization of the government of the United States and the leading forces shaping its development down to the presidency of Jackson.

Assistant Professor McMAHON.

26. HISTORY OF THE UNITED STATES, 1828-1860. *Second semester. Four hours.* A continuation of course 25, bringing the study down to the outbreak of the civil war. In this and the preceding course constitutional history will be studied as the outgrowth of economic and social conditions in the physiographic sections.

Assistant Professor McMAHON.

27. CIVIL WAR AND RECONSTRUCTION. *First semester. Four hours.* A general study of the civil war and the period of reconstruction. Some attention will be given to the problems growing out of this period.

Assistant Professor McMAHON.

28. THE HISTORY OF NATIONAL DEVELOPMENT. *Second semester. Four hours.* A continuation of course 27, in which the development of the American nation will be traced from the close of the reconstruction period to the present time.

Assistant Professor McMAHON.

29. SPAIN IN AMERICA. *First semester. Four hours.* A study of the rise and fall of Spanish power in the new world, and an outline of the history of the Spanish-American republics. Lectures and theses.

Professor MEANY.

30. DEVELOPMENT OF THE PACIFIC. *Second semester. Four hours.* History of the countries bordering upon the Pacific ocean, with special reference to the changes now in progress of development. Lectures, collateral reading and theses.

Professor MEANY.

31, 32. HISTORY OF AMERICAN DIPLOMACY. *Two hours.* A study of the treaties and foreign policy of the United States. Open to those who have taken a narrative course in American history.

Professor MEANY.

33, 34. **NORTHWESTERN HISTORY.** *Two hours.* From the earliest voyages to the settlement and organization of the territories. Lectures. Theses on assigned topics. Professor MEANY.

36. **METHODS OF TEACHING HISTORY.** *Second semester. Two hours.* A course with special reference to the work of secondary schools. Text-books, assigned readings, courses of study and the best method of presentation will be considered. Required of advanced students who expect to teach history.

Assistant Professor McMAHON.

GRADUATE COURSES

37, 38. **ENGLAND UNDER THE TUDORS.** *Two hours.* A graduate course which lays more stress upon the constitutional than upon the political side of the subject. Special attention is given to the legislation of Henry VII and to constitutional developments under Henry VIII and Elizabeth. Emphasis is placed upon methods of historical research and criticism. Open to graduates and to a few other advanced students by special permission of the instructor. Hours to be arranged. Professor RICHARDSON.

39, 40. **SEMINAR IN AMERICAN HISTORY.** *Two hours.* One evening a week. This course is primarily for graduates or other advanced students who may be admitted by permission of the professor, and will follow the seminary plan of instruction.

Assistant Professor McMAHON.

41, 42. **JOINT SEMINAR.** *Two hours.* Designed for study and reports upon the problems in the historical, political, and legal development of the State of Washington and the Pacific Northwest. (Open to graduate students and to a limited number of seniors on recommendation of their major professors).

Professors MEANY, SMITH, and CONDON.

HOME ECONOMICS.

SARAH MATILDA HUMMEL, *Instructor in charge of Department.*

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Selec. and Prep. of Food.	2	3	Fr., Soph....	Chem. 1c
2	Economic Uses of Food...	1	3	Soph., Jr. ...	1
3	Textiles	1	2	Fr., Soph....	None
4	Home Arch. and San....	1	2	Jr., Sr.	Chem. 1c
5	Home Decoration	2	2	Jr., Sr.	3 and 4
6	Dietetics	1	4	Jr., Sr.	1 and 2 and Phys. 7
7	Household Management ..	2	3	Jr., Sr.	2, 3, 4, 6 and Econ. 1
8	Dress	1, 2	2	Fr., Soph....	None
9	Food and Nutrition.....	2	4	Sr.	1, 2, 6, Bact. 7 and Org. Ch.
10	Hist. of Home Economics.	1	1	Jr., Sr.	None
11	Normal Course	2	2	Sr.	1, 2, 3, 4, 5, 6

The department of home economics offers a number of courses which have a definite relation to the affairs of the home.

Most of these courses are given in the department of home economics, which aims (1) to give a liberal education upon the basis of pure and applied science; (2) to provide an opportunity for a scientific study of the problems of the home.

The courses are planned to meet the needs of three classes of students:

1. Those students who specialize in other lines of work, but desire a knowledge of the general principles and facts of home economics as a part of a liberal education.

2. Those students who desire to make a detailed study of home economics in relation to the arts and sciences which are fundamental in the management of the home.

3. Those students who wish to teach home economics or some of its phases, as domestic science.

The courses in the related subjects, as art, and the physical, biological and social sciences are given in the different departments of the College of Arts and Sciences.

TERMS OF ADMISSION

Students taking the course in home economics must offer for entrance the requirements for admission to any group of the Col-

lege of Arts and Sciences, or a certificate of graduation from an accredited high school course in domestic science.

HOME ECONOMICS.

With the exception of courses 8 and 11, candidates for the degree of bachelor of arts are allowed to elect from the course in home economics studies to an amount not to exceed the equivalent of twenty-four unit-hours.

FOR UNDERGRADUATES

1. **SELECTION AND PREPARATION OF FOOD.** *Second semester. Three hours.* The nature and use of food, its chemical composition and the changes effected by heat, cold, or fermentation. Some of the processes of the manufacture of foods are considered, as well as the combination of different kinds. Lectures and laboratory work. Prerequisites: Entrance credit in physics, chemistry 1. Deposit four dollars. Miss HUMMEL.

2. **ECONOMIC USES OF FOOD.** *First semester. Three hours.* This course is a continuation of course 1. Emphasis is put upon the economic side of the food question. Studies of state and national pure-food laws and a relative study of time-saving devices in preparation of food for consumption are included in this course. Lectures and laboratory work. Prerequisites, home economics 1. Deposit four dollars. Miss HUMMEL.

3. **TEXTILES.** *First semester. Two hours.* Evolution of the textile industries. A microscopical study of the various fibres, dyeing processes and tests given in judging cloth and in the application of the principles of selection of color and design in costumes. Deposit one dollar.

4. **HOME ARCHITECTURE AND SANITATION.** *First semester. Two hours.* The situation, surroundings and construction of the house; the hygiene of the home, heating, lighting, ventilation, water supply and drainage. Lectures on house planning, with exercise in making skeleton plans, and on sanitary plumbing and fixtures and internal drainage. A practical architect will give lectures in this course. Prerequisite, chemistry 1c. Miss HUMMEL.

5. **HOME DECORATION.** *Second semester. Two hours.* A continuation of course 4. A study of house furnishings, their color, design, suitability for purpose and cost. The theory of color and

its application in home decoration. Working out economic problems in house furnishing. Prerequisites: Art and design and home economics 3, and 4. Miss HUMMEL.

6. DIETETICS. *First semester. Four hours.* A study of the principles of diet; the relation of food to health, standard dietaries, construction of dietaries and diet in disease. The principles of home nursing and preparation of food for the sick are given at the close of the other work. Lectures, recitation and laboratory work are combined. Prerequisites: Home economics 1, 2, and physiology 7. Deposit three dollars. Miss HUMMEL.

7. HOUSEHOLD MANAGEMENT. *Second semester. Three hours.* This course deals with the organization of the household; expenditure of income; care of the house and family, including the chemistry of cleaning metals, wood fabrics, and other essentials of a well-ordered home. Lectures and laboratory work. Prerequisites: Home economics 2, 3, 5, 6, and economics 1.

8. DRESS. *Each semester. Two hours.* In this course economics, hygiene, design and color are all considered in their relation to dress. In the laboratory work each student selects material, plans, cuts, fits and finishes a set of garments. The course also gives a knowledge of the various stitches used in hand sewing. Art and design should be taken with this course.

9. FOOD AND NUTRITION. *Second semester. Four hours.* A further study of food principles. Opportunity is given for original work in investigating the problems of food and nutrition. The problems may be physiological, chemical or bacteriological. Prerequisites: Bacteriology 7, organic or food analysis, physiology 7, and courses in home economics 1, 2 and 6. Deposit three dollars. Miss HUMMEL.

10. HISTORY OF HOME ECONOMICS. *First semester. One hour.* This course deals with the growth and development of home economics. It includes the work in different types of institutions. Open to juniors and seniors. Miss HUMMEL.

11. NORMAL COURSE. *Second semester. Two hours.* This course is intended for the students who prepare to teach. Courses of study are examined and practice given in making them.

Some practice is given in presenting and criticising lesson plans. Open to seniors. Prerequisites: Home economics 1, 2, 3, 4, 5 and 6. MISS HUMMEL.

TEACHERS' COURSE IN HOME ECONOMICS

Prescribed subjects required for the degree of Bachelor of Science in Home Economics.

FRESHMAN YEAR			
<i>First Semester—</i>	Hours	<i>Second Semester—</i>	Hours
Rhetoric, 1	4	Rhetoric, 2	4
Chemistry, 1c	4	Chemistry, 2c	4
Home economics, 3	2	Botany or zoology	4
Home economics, 8	2	Home economics, 1	3
History, 1	4	Home economics, 8	2
	<u>16</u>		<u>17</u>

SOPHOMORE YEAR

Hours	Hours
Chemistry, 3, organic	4
Physiology, 7	4
Home economics, 2	3
Art and design	1
Electives	4
	<u>16</u>
Economics, 1	4
Chemistry	4
Physics of the home	4
Art and design	1
Electives	2
	<u>15</u>

JUNIOR YEAR

Hours	Hours
Psychology	4
Bacteriology, 7	4
Home economics, 6	4
Home economics, 4	2
Electives	2
	<u>16</u>
Education, 1	4
Home economics, 7	3
Electives	6
Home economics, 5	2
	<u>15</u>

SENIOR YEAR

Hours	Hours
English literature, 1	4
Sociology, 3	4
Home economics, 9	4
Home economics, 10	1
Electives	2
	<u>15</u>
English literature, 2	4
Education, 2	4
Elements of ethics	4
Home economics, 11	2
Electives	1
	<u>15</u>

Students must have a reading knowledge of German or French. Students having had two years of high school sewing will receive no credit in home economics 8. Students will elect in the Department of Education those subjects necessary to obtain the normal diploma.

ITALIAN

PIERRE JOSEPH FREIN, *Professor*;STANLEY ASTREDO SMITH, *Instructor*.

SUBJECTS

1, 2. **ELEMENTARY.** *Four hours.* The first year in Italian corresponds to the same course in French and Spanish. The books used will be Grandgent's Italian Grammar, Grandgent's Italian Composition, Bowen's First Italian Readings and two or three easy texts from modern Italian authors. The course will be open only to those who have entrance credits in French or Spanish. No student will be allowed to begin Italian and French (or Spanish) the same year.

Mr. SMITH.

3, 4. **ADVANCED.** *Two hours.* Selections from Dante's *La Divina Commedia*. Open only to those who have completed Italian 1, 2.

Professor FREIN.

JOURNALISM

MERLE THORPE, *Assistant Professor*;JOSEPH W. PIERCY, *Instructor*;FRED W. KENNEDY, *Laboratory Assistant*.

Men and women intending to enter newspaper work as a profession or as a stepping stone to higher literary endeavor should be given that specialized university training which has long been accorded to other professions. With this in view, the department has outlined the student's four years work so that each subject may lend itself to the purpose of the department. Special stress is laid on the study of social and economic problems, political history, and English literature. The department itself endeavors to teach the student to express his ideas in clear-cut, virile English, and to develop any original style he may possess.

Practical journalism is studied, following as closely as possible work in a newspaper office. The department has installed a laboratory, in which a six-column four-page daily paper is published. For this a 12,000-word daily telegraph service has been secured from the United Press Association. Classes are organized into a staff, members in turn acting as telegraph, northwest, and news editors; editor-in-chief, managing editor, editorial writers, and reporters. On Fridays a "Sunday" edition of eight pages is planned, containing interesting and instructive feature stories.

In short, the department's idea of an ideal newspaper is worked out. In addition to the daily, students have opportunity of working on the *Washingtonian*, the literary monthly, and the *Alumnus*.

Metropolitan papers are studied throughout the four years in an endeavor to develop the student's sense of news value. The press associations, the law of libel, and copyright, the history and development of the American press, and similar topics are covered fully by lectures and required reading. The Seattle papers are co-operating with the department in its effort to afford training for the coming newspaper men of the state. Through their courtesy, students have edited the magazine section of the *Seattle Sunday Times*, and were guests of the *Post-Intelligencer*, accompanying reporters on their rounds, editing copy, and observing other work. As further testimony of the active support of the press of the state, a dozen prominent editors addressed the department on various phases of the work.

Since its organization, a little more than two years ago, the department has had an extraordinary growth, ninety-two students now registering for the four years' course, and thirty more taking incidental courses. This is due to the fact that it offers work of a cultured nature, and at the same time sends the student out with a profession. It gives a student a large part of a liberal arts course, and allows him to specialize. This appeals to high school students who wish more culture, yet who feel that they must choose their vocation at once and begin specialization, sacrificing breadth for strength. The study of journalism as outlined bridges over the two extremes in education—the German conception of specialization and the English idea of culture.

The work as outlined below leads to an A. B. degree.

REQUIREMENTS OF THE DEPARTMENT.

For a major, twenty-four credits, together with reinforcing subjects, (thirty credits) selected from English literature, and rhetoric, history, political science, and law.

One year's satisfactory work on one of the college publications, the *University of Washington Daily*, *The Washington Alumnus*, or *The Washingtonian*.

A senior thesis.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
7, 8	The Newspaper	1, 2	6	Soph., Jr. ...	Rhet. 1, 2
7a	History of Amer. Jour..	1	2	All.....	None
8a	Comparative Journalism.	2	2	Soph., Jr. ...	Rhet. 1, 2
9, 10	Short Story	1, 2	6	Soph., Jr. ...	Rhet. 1, 2
9a, 10a	Narration	1, 2	4	Soph., Jr. ...	Rhet. 1, 2 (Statement)
11, 12	Edit. Problems	1, 2	6	Sr.	7, 8, 7a, 8a, 15, 16
11a, 12a	Edit. Practice	1, 2	4	Sr.	Same as 11, 12
15, 16	News Interpretation	1, 2	6	Jr., Sr.	7, 8, 7a, 8a or 9, 10, 9a, 10a
17, 18	Advertising	1, 2	4	Jr., Sr.	Same as 11, 12
19	Mechanics of Printing....	1, 2	3	Soph.	None
20	Art of Printing.....	1, 2	2	Soph.	19

DESCRIPTION OF COURSES

7, 8. THE NEWSPAPER. *First semester. Three hours.* Materials and methods. The news story. The human interest story and its kinship to the short-story. The feature. The editorial. Gathering campus news and practice in handling the above forms. Text, Thorpe: First Book in Journalism.

Second semester. Three hours. Newspaper administration. Organization of the office; function of departmental heads, editor-in-chief, managing, news, city and telegraph editors; sub-editors, sporting, society, financial, etc.; copy-readers, reporters. The relation of the circulation and advertising departments to the editorial. The press associations; the special correspondent; women in newspaper work; the Sunday edition; newspaper photography and cartooning; law of libel and copyright; tainted news—political and advertising. Practical work in reporting and copy-reading. Text, Givens: Making a Newspaper.

7a. HISTORY OF AMERICAN JOURNALISM. *First semester. Two hours.* A comprehensive view from the early beginnings in Massachusetts through the following epochs: The Colonial Press, 1704-1748. Troubles with the clergy, and government; the first libel suit and Hamilton's defense; the Franklins, etc., etc. The Revolutionary Press, 1748-1783. The Political Party Press, 1783-1832. The first dailies; the religious journals and the beginnings of class journalism. The Penny Press, 1832-35. The Independent Press, 1835-72. The comic papers; the copyright treaty; ad-

vertising agencies, and lectures on Greeley, Bennett, Bowles, Dana, Raymond, etc. The Modern Press, 1872-. Influence of mechanical inventions; sensationalism, commercializing influences, etc.

8a. COMPARATIVE JOURNALISM. *Second semester. Two hours.* Intensive study of great newspaper personalities: *The Boston Transcript, Springfield Republican, New York American, Journal, Sun, Times, Evening Post, Herald, World, Washington Post, Philadelphia North-American, Indianapolis News, Chicago Record-Herald, Tribune, News, Atlanta Constitution, Louisville Courier-Journal, New Orleans Picayune, Kansas City Star, Times, San Francisco Call, Chronicle, Oregonian, Seattle Post-Intelligencer, Star, Times, London Times, Chronicle.* With auxiliary lectures on journalism in England, France, Germany, and the orient.

9, 10. THE SHORT-STORY. *Three hours. First semester.* A historical growth of the short-story form, from early Hebrew, Egyptian and Arabian tales, through the Gesta Romanorum, Apuleius, Boccaccio, Aesop and Le Fontaine, Chaucer, the Grimm brothers and Anderson, Hoffman, Zschokke, Merimee, Gautier, Daudet, Balzac, Voltaire, Scott, Addison, Irving, Poe, Hawthorne, Turgeneff, Stevenson, etc. to De Maupassant, Conan Doyle, "O. Henry," and Kipling. Including a brief survey of the types of prose fiction. Texts, Jessup and Canby: *The Book of the Short-story*; Matthews, *The Short-story*; Bliss Perry: *A Study of Prose Fiction.*

Second semester. A critical study of representative short stories with practical work of gathering material, constructing and sketching plots, delineating and developing characters, etc. Classification of short-stories; the theme, the plot, plot development, the elements of setting, characters and characterization, dialogue, the title, special characteristics. With lectures on the qualifications for authorship; talent and training; preparing the manuscripts and finding a market; the short-story's kinship to the human interest story. Text, Esenwein: *Writing the Short-story.*

9a, 10a. NARRATION. *Two hours. Both semesters.* Special properties of narrative style as applied to newspaper, magazine, and short-story work. Exercises in tone, color, proportion, emphasis; and in accessories of narration, local color, characters,

dialogue, and vizualization. Given to supplement the Short-story course; the two should be taken together.

11, 12. EDITORIAL PROBLEMS AND POLICIES. *Three hours. Both semesters.* Ethics of journalism; the problems of the editor, his relation to the public, to his readers, and to himself, etc., etc. The managing editor, outlining news campaigns, etc. The news editor, his editorial capacity in display, quantity and position of news, etc. And kindred problems. Lectures on class journalism, the varied appeal; the trend of modern journalism, etc., etc.

11a, 12a. EDITORIAL PRACTICE. *Two hours. Both semesters.* Practical work in collecting, preparing, and editing matter for dailies, weeklies, and class periodicals.

15, 16. NEWS INTERPRETATION. *Three hours. Both semesters.* Editorial writing; a study of contemporaneous politics, science and discovery, religion and ethics, literature and art, drama and music. Object of course is to train student to seize upon the essential of daily events and comment on them intelligibly and intelligently. Students will prepare weekly dummy of world's news after manner of *The Literary Digest* and *The Independent*, and a monthly resumé after manner of *Current Literature* and *The Review of Reviews*.

17, 18. ADVERTISING. *Two hours. Both semesters.* Introduction to science and psychology of advertising. The creative power of publicity. Good and bad advertising copy. Pictorial advertising. "Notoriety" vs. "selling copy." Magazine and newspaper publicity. Relative value of "position." Mail-order advertising and follow-up systems. "Keying" advertisements, or the mathematics of returns. Bill-board and street-car publicity. Planning advertising campaigns. The advertising agency.

With additional lectures on attention, suggestion, the direct command, fusion, perception, and apperception, in relation to commercial publicity. With some exercises in writing advertisements. Texts, Scott: *The Theory of Advertising*; DuWeese: *Practical Publicity*.

19. THE MECHANICS OF PRINTING. *Three hours. Given each semester.* Two lectures and eight hours laboratory weekly. Students are instructed in faces and value of type by actual work in composing room; taught to set type, make up and lock up forms, estimate costs; judge quantities and qualities of paper,

inks, read proof, etc. This class works on the mechanical end of the University of Washington Daily, the Alumnus, The Washingtonian, and other publication from the press of the department of journalism. Laboratory fee, five dollars.

20. **THE ART OF PRINTING.** *Two hours. Given each semester.* Two lectures and five hours laboratory. Lectures on history and development of printing, with practical work in designing advertisements, title pages, etc., etc., and study of color schemes. Laboratory fee, three dollars.

NOTE.—The above courses in printing are designed, First: To give student working knowledge of mechanical department of a newspaper that he may be better fitted for editorial supervision. Second: To equip better those students who plan to own country papers. Third: To reinforce rhetorical principles of mass, proportion, accuracy, emphasis, contrast, harmony, unity and variety, by practical work with type faces.

SENIOR THESIS. Weekly conferences with instructors. Subjects (general) for research 1910-11: The power of the headline; the psychology of the yellow journal; journalism, a profession or a trade; good and bad results of impersonal journalism; is a newspaper trust possible; the newspaper of 1930; is it the province of the newspaper to print facts without comment; influence of the "beat" policy on journalistic methods; the world's peace, does it depend on the newspaper.

LATIN

DAVID THOMSON, *Professor*;
THOMAS KAY SIDEY, *Assistant Professor*;
HARVEY BRUCE DENSMORE, *Instructor*.

REQUIREMENTS FOR A MAJOR

1. Four years of preparatory Latin.
2. One year of Greek. Students are strongly urged to present at least two.
3. Courses 1, 2, 3, 4, and others to the amount of at least 8 credits.

For the normal diploma with Latin as a major, courses 1, 2, 3, 4, 7, 8, 9, and 10 must be taken.

The requirement of one year's work in ancient language and literature may be satisfied by:

- a. Greek civilization and Roman civilization (Gr. 13, Lat. 12).
- b. Greek civilization and Greek literature (Gr. 13 and 14).
- c. Greek literature and Roman literature (Gr. 14 and Lat. 14).
- d. Roman civilization and Roman literature (Lat. 11 and 14).
- e. Roman literature and Roman civilization (Lat. 13, 12).
- f. Courses A, B, or C, D, or 1, 2.

Courses A, B, and C, D, do not count toward the major of 24 hours. If taken to satisfy entrance requirements they count each as one unit; taken as regular college courses they carry each 8 credits.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
A	Cicero Orations	1	4	Fr.	2 yrs. prep. Latin
B	Cicero Orations	2	4	Fr.	2 yrs. prep. Latin
C	Virgil	1	4	Fr.	2 yrs. prep. Latin
D	Virgil	2	4	Fr.	2 yrs. prep. Latin
1	Cicero	1	4	Fr.	4 yrs. prep. Latin
2	Livy	2	4	Fr.	4 yrs. prep. Latin
3	Catullus, Tibullus	1	4	Soph.	1 and 2
4	Horace	2	4	Soph.	3
4	Plautus, Terence	1	4	Soph.	
5	Pliny, Tacitus	2	2	Jr., Sr., Gr.	3 and 4
6	Tacitus, Seneca	1	2	Jr., Sr., Gr.	5
7	Caesar, Suetonius	2	2	Jr., Sr., Gr.	5 and 6
8	Sallust, Virgil	1	2	Jr., Sr., Gr.	5 and 6
9	Teachers	1	2	Jr., Sr., Gr.	5 and 6
10	Teachers	2	2	Jr., Sr., Gr.	5 and 6
11	Roman Civilization	1	4	All.	None
12	Roman Civilization	2	4	All.	None
13	Hist. of Roman Lit.	1	4	Soph. Jr. Sr.*	None
14	Hist. of Roman Lit.	2	4	Soph. Jr. Sr.*	None
15	History of Rome	2	4	All.	None
16	Roman Law	1	2	All.	4 yrs. prep.
17	Roman Law	1	2	All.	4 yrs. prep.
18	Lucræti, Cicero	1	2	Grad.	
19	Cicero, Seneca	2	2	Grad.	
20	Quintilian	1	2	Grad.	
21	Tacitus	2	2	Grad.	
22	Statius, Martial	1	2	Grad.	
23	Tacitus	2	2	Grad.	

* Freshmen who have had two years of Latin.

A. CICERO. Orationes, with exercises in syntax and prose composition. *First semester. Four hours.*

B. CICERO. Course A continued. *Second semester. Four hours.*

C. VERGIL. Aeneid I-III, with exercises in syntax and practice in the reading of Latin hexameters. *First semester. Four hours.*

D. VERGIL. Aeneid IV-VI. Course C continued. *Second semester. Four hours.*

Courses A, B, and C, D, are given in alternate years. Courses A, B, will not be given in 1911-12.

1. CICERO. De Senectute and selected letters with exercises in prose composition and sight translation. *First semester. Four hours.* Primarily for freshmen.

Professor THOMSON and Mr. ———

2. LIVY. Book I and selections from others of the early books. In other respects this course is a continuation of course 1. *Second semester. Four hours.*

Professor THOMSON and Mr. ———

3. CATULLUS, TIBULLUS AND HORACE. (Odes and Epodes). Prerequisites 1 and 2. Primarily for sophomores. *Second semester. Four hours.*

Assistant Professor SIDEX.

FOR JUNIORS, SENIORS AND GRADUATES

5. PLINY, Letters. TACITUS, Agricola. *First semester. Two hours.*

Professor THOMSON.

6. TACITUS, Germania. SENECA, Epistulae Morales. *Second semester. Two hours.*

Professor THOMSON.

7. CAESAR. Bell. Gall. V-VII and Bell. Civile. SUTONIUS, Life of Julius Caesar. Prerequisites, 5 and 6, or may be taken along with these. *First semester. Two hours.*

Assistant Professor SIDEX.

8. SALLUST, Catiline. VERGIL, Bucolics and Georgics. Ancient Lives of Vergil. A continuation of course 7. *Second semester. Two hours.*

Assistant Professor SIDEX.

9. TEACHERS' COURSE. Practice in the writing of Latin. Review of the portions of CAESAR, CICERO, VERGIL usually prescribed in high schools. Teaching by members of the class under the

supervision of the instructor. Prerequisites 5 and 6, or may be taken along with these. *First semester. Two hours.*

Assistant Professor SIDEY.

10. TEACHERS' COURSE. A continuation of course 9. From time to time visits will be made to schools where Latin is taught and reports of the teaching observed will be presented by members of the class. *Second semester. Two hours.*

Assistant Professor SIDEY.

Courses 7-10 constitute a Teachers' Course provided for those preparing to teach Latin in the high schools and are prescribed for the normal diploma in the case of those who major in Latin.

FOR GRADUATES

18. LUCRETIVS. Books I and III; CICERO, Tusculan Disputations I and IV. *First semester. Two hours.*

Professor THOMSON.

19. CICERO, De Officiis. SENECA, Moralia. *Second semester. Two hours.*

Professor THOMSON.

20. QUINTILLIAN. I, X, XII. *First semester. Two hours.*

Professor THOMSON.

21. TACITUS, Histories I, II. *Second semester. Two hours.*

Professor THOMSON.

22. STATIUS, Silvae; MARTIAL, Epigrams. *First semester. Two hours.*

Professor THOMSON.

23. TACITUS, Dialogus. *Second semester. Two hours.*

Professor THOMSON.

OPEN TO ALL STUDENTS

11. ROMAN CIVILIZATION. This course is designed to give a clear notion of the part played in history by the Romans and to set forth their contributions to civilization in general. A general survey of Roman history will serve as a basis for the discussion of the religious, political and legal systems of the Romans, their literature and art, and their family life. Lectures (illustrated, when possible, by slides) and collateral reading. *First semester. Four hours.*

Assistant Professor SIDEY.

12. ROMAN CIVILIZATION. Course 11 repeated. *Second semester. Four hours.* Mr. DENSMORE and——.

13. HISTORY OF ROMAN LITERATURE. MacKail's Latin Literature, supplemented by lectures and collateral reading. Illustrative selections from English versions of the more important authors. *First semester. Four hours.*

N. B.—Not open to freshmen who have not had at least two years of Latin. Assistant Professor SIDEY.

14. HISTORY OF ROMAN LITERATURE. Course 13 repeated. *Second semester. Four hours.* Not open to freshmen who have not had at least two years of Latin. Assistant Professor SIDEY.

15. HISTORY OF ROME TO THE FALL OF THE WESTERN EMPIRE. Emphasis is placed upon the wars with Carthage and their results; the establishment of the Roman rule throughout the civilized world; the economic and social causes which undermined the republic; the foundation of the empire; the nature, methods and results of Roman imperialism; the causes of Rome's fall, and the direct connections of Roman history with mediaeval. Attention is given to the development of Roman institutions and Roman law. See course 4, Department of History. *Second semester. Four hours.* Mr. DENSMORE.

16, 17. ROMAN LAW. This course is open to all who have had four years of Latin but it is intended primarily for law students or those who intend to enter law. It will consist of the translation and discussion of selections from the public and private laws of the Romans, together with lectures. *First and second semesters. Two hours each.* Professor THOMSON.

LIBRARY ECONOMY

WILLIAM E. HENBY, A. M.

CHARLES W. SMITH, A. B., B. L. S.

JOSEPHINE MEISSNER, B. L. S.

The department of library economy seeks to give such instruction and practice in all lines of librarianship as will enable a capable student to enter upon library work in any department of a public or institutional library.

The work extends through the junior and senior years of the college of arts and sciences, and consists of four five-hour courses for which twenty credits are granted, twelve of which may be counted toward the A. B. degree.

The requirement for admission to this department is junior standing in the college of arts and sciences or its equivalent in some other school or college.

Library economy naturally divides itself into two divisions. The logical sequence of the subject is:

1. **LIBRARY ORGANIZATION.** (Placing the book upon the shelf ready for service). Book selection; book buying and trade bibliography; accessioning; classification and book numbers; shelf listing; cataloguing; book making and mending.

2. **LIBRARY SERVICE.** (Placing the book in the hand of the reader). Circulation and loan systems; reference; library extension; work with special classes; library inspection; comparative information; library administration.

The teaching order of courses follows: Book buying; accessioning; classification and book numbers; shelf listing, trade bibliography; library extension; book making and mending; cataloguing; circulation; reference; book selection and bibliography; work with special classes; library inspection; comparative information; library administration.

Each student completing the work of this department must have had at least four weeks of successful experience in some public library selected in each case by the faculty. This experience can usually be had in the summer between the junior and senior years.

Experience in public library work before entering this department may be accepted for the four weeks above mentioned at the discretion of the faculty.

MATHEMATICS

ROBERT EDOUARD MORITZ, *Professor*;

JAMES EDWARD GOULD, *Associate Professor*;

FRANK MARION MORRISON, *Assistant Professor*;

GEORGE IRVING GAVETT, *Instructor*;

WILLIAM VERNON LOVITT, *Instructor*;

ALLEN FULLER CARPENTER, *Instructor*;

CHARLES WILLIAM WESTER, *Instructor*;

RAYMOND ASHMUN, MISS GRACE BOYD, MISS LILLIAN MADISON,
Graduate Assistants.

SUGGESTIONS AS TO CHOICE OF COURSES

Mathematics may be studied for several distinct purposes; the courses should be selected with reference to the purpose in view. Under each of the four headings below the courses best adapted to certain ends are enumerated in the order in which they should be taken.

1. Mathematics as a science for its own sake. Courses 1, 2, A, B, 3, 4, 5, 6, 7, 8, and as many of the following courses as are desired.

2. Mathematics as an instrument for use in other arts and sciences. Courses 1a, 2a, A, B, 3a, 4a, 7, 8, 9, 10, 11, 12.

3. Mathematics for high school teachers. Courses 1, 2, A, B, 3, 4, 5, 6, 21, 22.

4. Mathematics as a source of culture to students in literature, history and philosophy who can devote but one year to the study. Courses 1b, 2b.

REQUIREMENTS OF THE DEPARTMENT

1. For all students in College of Arts and Sciences, course 1, or 1b, 2b, except when trigonometry has been offered for admission, in which case course 2 may be offered in the place of course 1.

2. For students who select mathematics as their major study, 24 credits not including courses 21, 22. It is expected that students who make mathematics their major take at least one year's work in physics.

3. For a teacher's certificate, courses 21, 22, in addition to the other requirements.

Students conditioned in the mathematics requirements for admission may remove the condition with the assistance of a tutor, regularly authorized by the department, and paid by the student. All entrance conditions must be removed during the first or second year.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 1	Trigonometry*	1, 2	4	Fr.	2½ yrs. entr. †
2	Analytical Geometry	1, 2	4	Fr.	1
A, B	Solid Geometry	1, 2	2	Fr.	Plane Geom.
1a, 1a	Trigonometry, Algebra ..	1, 2	4	Fr.	2½ yrs. entr.
2a, 2a	Anal.-Algebra	1, 2	4	Fr.	1a
1b, 2b	College Mathematics	1, 2	4	Fr., Soph....	Same as 1
3, 4	Calculus†	1, 2	4	Soph.	2
3a, 3a	Diff. Calculus†	1, 2	4	Soph.	2a
4b, 4b	Int. Calculus	1, 2	4	Soph.	3a
5	Advanced Calculus	1	4	Jr., Sr.	4 or 4a
6	College Algebra	2	4	Jr., Sr.	1 or 1a
7, 8	Analytic Mechanics	1, 2	2	Jr., Sr., Gr.	4 or 4a
9, 10	Vector Analysis	1, 2	2	Jr., Sr., Gr.	4 or 4a
11, 12	Diff. Equations	1, 2	2	Jr., Sr., Gr.	4 or 4a
13, 14	Proj. Geometry	1, 2	2	Jr., Sr., Gr.	4 or 4a
15	Functions	1	4	Sr., Gr.	5 and 6
16	Elliptic Functions	2	4	Sr., Gr.	5 and 6
17	Diff. Geometry	1	4	Jr., Sr., Gr.	4 or 4a
18	Modern Geometry	2	4	Jr., Sr., Gr.	4 or 4a
19	Infinite Series	1	4	Jr., Sr., Gr.	4 or 4a
20	Universal Algebra	2	4	Jr., Sr., Gr.	4 or 4a
21, 22	Teacher's Course	1, 2	2	Sr.	4 or 4a

* Juniors and Seniors are allowed only half credit.

† Students who enter the University conditioned in Algebra can not take Math. 1 or 1a until such condition has been removed.

‡ Must be preceded or accompanied by A, B.

COURSES

I. FOR UNDERGRADUATES.

✓ **A, B. SOLID GEOMETRY.** *Two hours throughout the year.* The usual theorems and constructions with exercises and applications to mensuration. Required to be taken during the first year by all students in the Colleges of Engineering, Forestry, and Mines, who do not offer solid geometry for admission. Students who expect to make mathematics their major subject of study should take this course either in the first or second year. *Wentworth's Solid Geometry.*

LOVETT, GAVETT.

Two sections.

1. PLANE TRIGONOMETRY. *Each semester. Four hours.* The trigonometric functions. Solution of right and oblique triangles. The general angle and its measures. Functions of two or more angles. Trigonometric equations. Trigonometric graphs. Moritz's Plane Trigonometry.

This course satisfies the mathematics requirements for students in the College of Arts and Sciences except when trigonometry has been offered for admission. Juniors and seniors who complete this course will receive only half credit. Students who expect to take course 2 the second semester should register for the section which meets at 10.

First semester, ten sections.

Second semester, seven sections.

2. ANALYTICAL GEOMETRY. *Second semester. Four hours.* For students in the College of Arts and Sciences. Cartesian co-ordinates. Polar co-ordinates. The straight line. The conic sections. The general equation of the second degree. Higher plane curves. The elements of solid analytical geometry. Fine and Thompson's Co-ordinate Geometry. This course satisfies the mathematics requirements for students in the College of Arts and Sciences who have offered trigonometry for admission.

One section.

LOVITT.

✓ 1a. PLANE TRIGONOMETRY AND ALGEBRA. *Each semester. Four hours.* Primarily for students in the Colleges of Engineering, Forestry and Mines. The trigonometric functions. Solution of right and oblique triangles. The use of S and T tables. The general angle and its measures. Functions of two angles. Trigonometric equations and the adaptation of formulas to logarithmic computation. Trigonometric graphs and their applications to problems in physics and engineering. Computation of natural and logarithmic functions tables by means of series. Supplementary work in algebra equivalent to one hour per week throughout the semester. Moritz's Plane Trigonometry, Hawkes' College Algebra.

First semester, nine sections.

Second semester, three sections.

✓ 2a. ANALYTICAL GEOMETRY AND ALGEBRA. *Each semester. Four hours.* Primarily for students in the Colleges of Engineering, Forestry and Mines. Systems of co-ordinates. Loci and their

equations. The straight line. Standard equation of the second degree. Parametric equations. Slopes and derivatives. Maxima and minima. Conic sections. The plane and straight lines in space. The quadric surfaces. Space curves. Tangent lines and planes. Supplementary work in algebra equivalent to one hour per week throughout the semester. Nichol's Analytic Geometry, Hawkes' College Algebra.

First semester, two sections.

Section semester, eight sections.

1b, 2b. COLLEGE MATHEMATICS. *Four hours throughout the year.* Primarily for students in history, literature and philosophy who can devote but one year to the study of mathematics. This course covers the elements of trigonometry, college algebra, analytical geometry and the infinitesimal calculus. In this course the emphasis is put on the concepts of the college mathematics rather than on the details of the science. Moritz's Plane Trigonometry, Smith and Granville's Elementary Analysis.

GAVETT.

3, 4. CALCULUS. *Four hours throughout the year.* For students in the College of Arts and Sciences. An elementary course covering the fundamental principles and their applications both of the differential and integral calculus. Osgood's Differential and Integral Calculus.

CARPENTER.

3a, 4a. CALCULUS FOR ENGINEERS. *Four hours throughout the year.* May be begun either semester. A first course in calculus with special reference to the needs of engineering students. Osborn's Differential and Integral Calculus.

Beginning the first semester, four sections.

Beginning the second semester, two sections.

4a. CALCULUS FOR ENGINEERS. *First semester. Four hours.* Second half of courses 3a, 4a.

II. FOR UPPER CLASSMEN AND GRADUATES

5. ADVANCED CALCULUS. *First semester. Four hours.* Functions of the complex variable. Definite Integrals. Gamma and beta functions. Line, surface and space integrals. Mean value and probability. Elliptic integrals. Introduction to the theory of functions. Smith's Infinitesimal Analysis.

MORITZ.

6. COLLEGE ALGEBRA. *Second semester. Four hours.* Permutations and combinations. Probabilities. The binomial theorem Series. Partial fractions. Continued fractions. Systems of numeration. Introduction to the theory of numbers. Determinants. Introduction to the theory of equations. Smith's (C. S.) Treatise on Algebra. MORITZ.

7, 8. ANALYTIC MECHANICS. *Two hours throughout the year.* Mathematical treatment of the laws of force and motion.

GOULD.

9, 10. VECTOR ANALYSIS. *Two hours throughout the year.* An introduction to vector methods and their applications to physics and mathematics. Vector analysis deals with vectors directly, combining the advantages of Quaternions and Cartesian Analysis. Elementary operations, vector and scalar products, differentiation of vectors, and applications to electrical theory, dynamics, mechanics and hydrodynamics are included. GAVETT.

11. ORDINARY DIFFERENTIAL EQUATIONS. *First semester. Two hours.* A first course. Special attention is given to the solutions of equations of the first and second order. Determination of constants of integration from initial conditions. Applications to physics, chemistry and astronomy. LOVITT.

12. PARTIAL DIFFERENTIAL EQUATIONS. *Second semester. Two hours.* Special attention is given to the solutions of equations of the first and second order. Derivation of the equations of the flow of heat in a plate, ring and various solids and solutions of same with given boundary conditions. Must be preceded by 11.

LOVITT.

13, 14. PROJECTIVE GEOMETRY. *Two hours throughout the year.* Principle of duality. Elementary configurations. Projectivities of the primitive geometric forms. Harmonic constructions and the theory of conics. CARPENTER.

15. FUNCTIONS OF THE COMPLEX VARIABLE. *First semester. Four hours.* The theories of Cauchy, Weierstrass and Riemann. Conformal representation, integrability, etc. MORRISON.

(Not given in 1911-12).

16. ELLIPTIC FUNCTIONS. *Second semester. Four hours.* Elliptic functions in the Weierstrass notation, with applications to geometry and physics. MORRISON.

(Not given in 1911-12).

17. **DIFFERENTIAL GEOMETRY.** *First semester. Four hours.* The calculus applied to geometry. Tangent and normal planes. Osculating circles, planes and spheres. First and second curvatures. Surfaces and curves on surfaces. Functional and differential equations of families of surfaces. Curvature of surfaces. Meunier's theorem. Theory of ruled surfaces. Theory of geodesic lines on surfaces. MORITZ.

18. **MODERN ANALYTICAL GEOMETRY.** *Second semester. Four hours.* Trilinear and tangential co-ordinates. Method of abridged notation. The principle of duality. Descriptive properties of curves. Metric properties of curves. The line infinity. The circular points. Cross-ratio, homography and involution. Theory of correspondence. Reciprocal polars. Invariants and covariants of conics. MORITZ.

19. **HIGHER ALGEBRA.** *First semester. Four hours.* Based on Chrystal's Algebra, Vol. II, with reference readings.
(Not given in 1911-12). MORITZ.

20. **UNIVERSAL ALGEBRA.** *Second semester. Four hours.* Based on Whitehead's Universal Algebra. MORITZ.
(Not given in 1911-12).

21, 22. **TEACHERS' COURSE.** *Two hours throughout the year.* Required of major students who become applicants for the teacher's certificate. First semester: History of Mathematics. Second semester: Pedagogy of Mathematics, Cajori's History of Mathematics, Young's Pedagogy of Mathematics.

CARPENTER.

23. **MATHEMATICS JOURNAL AND RESEARCH CLUB.** Meets on the second and fourth Tuesdays of each month in Science building, room 2, at 7:30 p. m. The club consists of advanced students and teachers of the department of mathematics. The purpose of the club is to review current mathematical literature and to discuss the research work carried on by members of the club.

24. **JUNIOR MATHEMATICS CLUB.** Meets bi-weekly on alternate Friday afternoons. The club is open to every student in the University who is sufficiently interested in mathematics to contribute something toward the program at least once during the year.

MILITARY SCIENCE AND TACTICS

W. T. PATTEN, *Captain 18th Infantry, U. S. A., Commandant.*

A course of two years in military training is required by law. 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.

A student who has received, prior to entering the University of Washington, military training equivalent to that required in this University may, at the discretion of the Commandant of Cadets, be given credit for such training, provided that he furnish the Commandant proper credentials from an accredited military school, the organized militia, the army, the navy, or the marine corps.

No student will be excused from military training except by written authority of the Commandant of Cadets, nor will a student be excused from any drill or instruction without such authority.

All male students of the freshman and sophomore classes and first and second year specials will report to the Commandant of Cadets as soon as they have registered.

The organization is designated the University of Washington Cadets.

The uniform consists of gray blouse, trousers and cap, with white gloves. Each cadet is required to provide himself with a uniform of the prescribed pattern. This uniform will cost about \$16.00. A deposit to cover the price of the uniform must be made with the Bursar at the time of registration.

Three hours a week are devoted to military training, for which two credits are given each semester. The course will include theoretical and practical instruction in the following subjects:

- a. Infantry drill regulations,
- b. Small arms firing regulations,
- c. Field service regulations.
- d. Manual of guard duty.
- e. Administration.
- f. Military hygiene.

An elective course is prescribed for students (recommended by the Commandant) who have completed the required two years' course.

MUSIC

CHARLES OSCAR KIMBALL, *Director of Department,
History of Music, Chorus, Orchestra, Coaching;*
FREDERIC FLEMING BEALE, *Assistant to the Director,
Piano, Pipe Organ, Musical Theory;*
MORITZ ROSEN, *Assistant in Orchestra,
Violin Department;*
CHARLES A. CASE, *Vocal Department;*
KATHERINE M. HALL, *Teacher of Voice;*
GRACE BLANCHE ZIMMERMAN, *Teacher of Piano;*
ADA DEIGHTON HILLING, *Teacher of Harmony;*
H. C. LAGOURGUE, *Teacher of Clarinet;*
ALBERT L. CLEVELAND, *Teacher of Cornet.*

TUITION FEES

The rates of tuition are as low as is consistent with instruction of the highest kind, and are in most instances a reduction from the terms made to students outside the University. They are given by the semester (16 weeks) and are payable in advance, either all at the beginning of the semester, or one-half then and the balance in the middle of the semester. There are no fees charged for courses 1, 4, 5, 6, 7, 8, 9.

PRACTICAL PERFORMANCE

Piano:

Mr. Beale	\$24.00
Miss Zimmerman	16.00

The courses in music, except 1, are open as electives to students in the College of Liberal Arts who show sufficient ability to pursue them with profit, and receive credit as stated below. A major in music is not offered.

The main thought in the courses offered is to train and develop the student to a better understanding, knowledge, and appreciation of the art, and especially of the great masterworks, as a part of his liberal education. While exceptional opportunities and advantages are offered to the student of musical ability in practical performance, the mental development and appreciation of the art is emphasized and insisted upon.

In music a maximum of 12 credits may be earned towards the A. B. degree; any credits earned in the other electives, namely, law, pharmacy, or engineering, will be deducted from those earned in music.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Musical Theory	1, 2	None	All.....	None
2	Elementary Harmony	1, 2	1 or 2	All.....	None
3	Advanced Harmony	1, 2	1 or 2	All.....	1 and 2
4	Musical Form and Analysis	1, 2	2	All.....	1 and 2
5	History of Music.....	1, 2	2	All.....	None
6	Musical Appreciation	1	1	All.....	None
7	Masterpieces and Their Influence	2	1	All.....	None
8	Choral Practice	1, 2	see bl'w	All.....	See below
9	Orchestral Practice	1, 2	see bl'w	All.....	See below
10	Practical Performance* ..	1, 2	1	All.....	See below

* Advanced work in piano, voice, violin, orchestral instruments.

EXPLANATORY REMARKS

Course 1 continues throughout the year, twice a week, is concerned with the general theory of music in all its branches, includes ear training, and is designed as a foundation for future work of any kind in music, instrumental or vocal. No previous knowledge of music is required to enter this course, and it is open to all students.

Courses 2 and 3 are given either in classes or private lessons.

Courses 1 and 2 or their equivalent are required as a preparation for course 4.

The value of a knowledge of musical history lies in a general broadening of understanding concerning the art, in tracing the development of music, in exhibiting the personality and genius of great composers and leaders, in providing a rational ground for appreciation, criticism and practical procedure, and in showing how music is connected with literature and the other fine arts, and with the advance of social life in general. For these reasons it appeals not only to the musician but to all cultivated persons alike. A knowledge of this subject is an important part of a liberal education. The course will consist of lectures, collateral reading, papers and tests.

Course 7 is a continuation of course 6 and the two are devoted to the study of how and what to listen to in music, and an

analytical study of great compositions from the view point of the listener. A course for students who wish to learn to understand music without necessarily being performers, and who have sufficient musical knowledge to profit by the course. The lectures are musically illustrated throughout.

In choral practice the student has an opportunity offered to become acquainted through study and performance with the larger works for chorus, such as oratorios, cantatas, etc. The chorus meets in the evenings once each week, and at least two public performances are given each year. Members of the chorus are required to take entrance tests on the quality and range of voice, reading ability and correctness of ear. Credit subject to recommendation of director.

The orchestra meets one evening each week for the study of standard works, including works for the chorus and orchestra. This course is an advanced training for students who play orchestral instruments sufficiently well to intelligently study and perform the music taken up at rehearsals and in public performance. Candidates for the orchestra are required to take an examination as to their ability. Credit subject to recommendation of director.

Students taking course 10, the study of piano, voice, violin, etc., if lacking proper preparation in musical theory, will be required to take course 1 in addition during the first year of study. Credit for practical performance may be had only for advanced work and on the recommendation of the director.

Violin:

Mr. Rosen \$24.00

Voice:

Mr. Case 24.00

Mrs. Hall 16.00

Clarinet:

Mr. Lagourgue 24.00

Orchestral instruments as arranged for.

Harmony:

Mrs. Hilling 12.00

Two lessons per week 20.00

Class lessons, two per week 6.00

Pianos for practice purposes may be rented at the Music building at the following rates:

One hour daily	\$4.00
Two hours daily	7.50
Additional hours	2.50

Practice hours once assigned cannot be changed during the semester, and fees must be paid promptly in advance.

No lessons excused or made up except for sickness, vacation, or examinations. In case of enforced absence from lessons due notice must be given the teacher.

UNIVERSITY ORCHESTRA. Two hours each week for the study of standard works, including compositions for chorus and orchestra. Two credits for each year's work. This course is an advanced training for students who play orchestral instruments sufficiently well to intelligently study and perform the music taken at rehearsals and in public performance. The members of the orchestra are selected by examination.

Any credits earned in the other electives, namely, Law, Pharmacy, or Engineering, will be deducted from a total of twelve in music, as counting towards the A. B. degree.

ORIENTAL HISTORY, LITERATURE AND INSTITUTIONS

REV. HERBERT H. GOWEN, *Professorial Lecturer*

SUBJECTS

1. The classical literature of Japan. Sources, development and ideals. From the Kojiki and Nihongi to the present day. *Three hours. First semester.*

2. Buddhism as a philosophy and a religion. History and historical modifications in India, Tibet, Ceylon, China, Japan, Burmah, and Siam. The literature of Buddhism. *Second semester. Three hours.*

3. The classical literature of India from the Vedas to the Mongol conquest. Religious and philosophical literature. The great epics, the dramas. *First semester. Three hours.*

4. A history of semitic archaeology. Explorations and discoveries in Bible lands. *Second semester. Three hours.*

5. Special course in elementary Sanskrit. Whitney's grammar, Perry's primer, Lanman's reader.

6. Special course. Hebrew. Dairdson's grammar, selected readings. These courses will be found useful with 3 and 4.

PHILOSOPHY

WILLIAM SAVERY, *Professor*;

HERMAN CAMPBELL STEVENS, *Assistant Professor*;

LUCAS C. KELLS, *Instructor*.

The aims of this department are five:

First. To aid students to think clearly and cogently. (Courses 1, 7, 8.)

Second. To help those students who desire to think independently on the ultimate problems of reality. (Courses 4, 7, 8, 13, 14.)

Third. To furnish a part of the general culture of some students. (Courses 5, 6, 9, 10, 11, 12.)

Fourth. To teach worthy moral ideas and to establish a proper basis for conduct. (Courses 2, 9, 10.)

Fifth. To teach the facts of psychology to those interested in the study of the mind or in the allied studies of biology, sociology or pedagogy. (Courses 15, 17, 18, 20, 22, 23, 24.)

Courses 1, 2, and 15 are adapted to those intending to study law.

Course 15 is a prerequisite to the study of education, unless the student has taken elsewhere elementary psychology.

Majors in philosophy should take 15 and 2 in their sophomore year.

The requirements in philosophy may be satisfied by 8 hours in the following courses: 1, 2, 3, 15, 17, 18, 20; or by 5 and 6.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Introd. to Philosophy.....	1	4	Soph., Jr. ...	None
2	Ethics	2	4	Soph., Jr. ...	None
3	Logic	1 or 2	4	Soph., Jr. ...	None
5, 6	Hist. of Philosophy.....	1, 2	4	Jr., Sr.	None
7, 8	Philos. of Science.....	1, 2	4	Sr., Gr.	8 credits
9, 10†	Philos. of Morality.....	1, 2	2	Jr., Sr., Gr.	4 credits
11, 12†	Philos. in English Poetry of Nineteenth Century..	1, 2	2	Jr., Sr., Gr.	4 credits
13, 14*	Seminary	1, 2	3	Sr., Gr.	
15	Elements of Psychology..	1	4	Soph., Jr. ...	None
17, 18	Principles of Psychology..	1, 2	3	Jr., Sr., Gr.	15
20	Physiol. Psychology	2	4	Jr., Sr., Gr.	15
22	Abnormal Psychology	2	4	Jr., Sr., Gr.	15
23, 24*	Research in Psychology....	1, 2	2	Sr., Gr.	15 and 18 or 20
25	The Examination of Mental Defectives	1	4	.....	15 and 20

* Open to students only upon approval of department.

† Both semesters must be completed before credit is given for the first semester.

SUBJECTS

1. INTRODUCTION TO PHILOSOPHY. *First semester. Four hours.* An elementary study of the main problems of philosophy—including ethics—and their typical solutions in the history of philosophy. Texts: Perry's Approach to Philosophy and Paulsen's Introduction to Philosophy. Lectures and recitations.

Professor SAVERY.

2. ELEMENTS OF ETHICS. *Second semester. Four hours.* One discussion hour afternoons. A study of the meaning of value, the nature of the good, duty, the moral virtues, and institutions. Some account of progress, and the problem of pessimism. Text: Paulsen's System of Ethics. Lectures and discussions.

Professor SAVERY and Dr. KELLS.

3. ELEMENTS OF LOGIC. *Each semester. Four hours.* A study of the nature of clear ideas and valid reasoning, deductive and inductive. Analysis of fallacies. Some account of the aims of the natural sciences. Text: Jevons' Logic. Lectures and recitations.

Dr. KELLS.

FOR UPPERCLASSMEN AND GRADUATES

5, 6. HISTORY OF PHILOSOPHY. *Four hours.* The aim in this course is both historical and constructive. Text: Weber's His-

tory of Philosophy. Readings in the philosophies studied. Lectures and recitations. No prerequisites in Philosophy.

Dr. KELLS.

7, 8. PHILOSOPHY OF SCIENCE. *Four hours.* A study of the meaning and validity of the fundamental concepts and laws of the natural sciences. Discussion of the following: The group, order, number, quantity, continuity, infinity, space, time, mass, energy, matter the ethic, life, evolution, selection, consciousness, parallelism of mind and matter, society. A study will be made of the scientific view of the world, the limits of science, and its place in the human economy. The student will be introduced to the literature of the subject and such writers as Poincaré, K. Pearson, Mach, Ward, and Ostwald will be studied. This course is primarily for such students of science as desire to analyze the fundamental concepts of their subject. Professor SAVERY.

9, 10. PHILOSOPHY OF MORALITY. *Two hours.* This course falls into two parts:

First: An account of the beginnings of morality and the development of the various moral ideals of China, India, Persia, Greece and Modern Europe.

Second: A study of the basis and sanction of these ideals in the ultimate nature of the Universe, and of their connection with the problem of optimism and pessimism and the origin and destiny of Man. An attempt will be made to reach a tenable view of Moral Endeavor and its place in the system of things.

Professor SAVERY.

11, 12. PHILOSOPHY IN THE NINETEENTH CENTURY ENGLISH POETS. *Two hours.* The following poets will be discussed: Wordsworth, Shelley, Emerson, Browning, Tennyson, Fitzgerald's Omar Khayyam, James Thomson, Matthew Arnold, Swinburne and Whitman. Some attention will also be given to Carlyle and Ruskin. A study will be made of their philosophical and ethical ideas and attitudes, including among the former their conceptions of the Universe, Evolution, the nature and destiny of Man and the highest human Good. Lectures, with reading and discussion of selected writings.

Professor SAVERY.

(Not offered 1911-12).

13, 14. SEMINARY. CONTEMPORARY MOVEMENTS IN PHILOSOPHY. *Three hours.* The time of meeting will be arranged with the

class. The seminary for 1911-12 will be a study of some of the recent and contemporary movements in philosophy, and especially its empirical and naturalistic tendencies. Treatment of the positivism of Comte, Mill and Lange; the agnosticism of Spencer, the phenomenalism of Pearson and Mach; and the pragmatism of James and Dewey. Some account, also, of the influences of the voluntarism of Schopenhauer and a study of the neo-realism in America today.

Professor SAVERY.

15. **ELEMENTS OF PSYCHOLOGY.** *First semester.* The course treats of the phenomena and principles of consciousness in their dependence upon the structure and functions of the nervous system. Three lectures are given weekly at some hour in the morning with one two-hour laboratory period and one one-hour recitation at certain hours in the afternoon. Text-book: Thorndike's *Elements of Psychology*.

Assistant Professor STEVENS and Dr. KELLS.

17, 18. **PRINCIPLES OF PSYCHOLOGY.** *Three hours.* A systematic study of the principles of psychology. James' *Principles of Psychology* will be read. Students are strongly urged to take the course in physiological psychology before undertaking this course.

Assistant Professor STEVENS.

20. **PHYSIOLOGICAL PSYCHOLOGY.** *Second semester.* This course consists of one lecture, one recitation and two two-hour laboratory periods. The laboratory work consists of the study of the gross and microscopoc features of the human brain and spinal cord with special reference to cell groups and fiber tracts, the demonstration of the motor region of the cortex cerebri, the summation of stimuli, inhibition, the rate of transmission of the nerve impulse. Weber's law and space perception. Text-book: Wundt's *Physiological Psychology*, Vol. 1.

Assistant Professor STEVENS.

22. **ABNORMAL PSYCHOLOGY.** *Second semester.* Such abnormal mental states as sleep, dreams, hypnotism, mediumships, possessions, hallucinations, motor automatisms, double personality and the subconscious will form the subject matter of the course. There will be two lectures, one recitation and one laboratory period.

Assistant Professor STEVENS.

23, 24. RESEARCH IN PSYCHOLOGY. Original research in psychology may be undertaken by students who are fitted for it. Credits will be determined by the amount of work done.

Assistant Professor STEVENS.

25. THE EXAMINATION OF MENTAL DEFECTIVES. *First semester.* The methods used in the examination of mental defects will be explained and practically demonstrated. Such causes of retardation as defective vision and defective hearing, adenoids, malnutrition, infantile paralysis, impacted teeth and deformities will be explained.

Assistant Professor STEVENS.

A laboratory fee of two dollars will be charged for each semester's work in psychology.

PHYSICAL TRAINING

DAVID CONNOLLY HALL, *Director;*

JESSIE B. MERRICK, *Director for Women;*

HELEN MARIE FITCH, *Instructor;*

JAMES E. SIPPRELL, *Student Assistant.*

The department of physical training aims to meet the needs of the student in three ways: First, to offer a means of systematic exercise and body training; second, to give each student a medical examination and to advise in matters of physical well-being; third, to offer instruction suitable for teachers who may desire to carry on the work in the graded schools, in high schools, or on public playgrounds.

REQUIREMENTS FOR GRADUATION

The requirements in physical training for the several schools are as follows:

College of Liberal Arts, courses 1-4 inclusive.

College of Engineering, courses 1-4 inclusive.

School of Forestry, courses 1-4 inclusive.

School of Pharmacy B. S., courses 1-4 inclusive.

School of Pharmacy Ph. G., courses 1-2 inclusive.

The requirements in physical training for all able bodied men are satisfied by an equal number of credits in the Department of Military Science and Tactics.

REQUIREMENTS FOR A MAJOR

The completion of twenty-four hours exclusive of the eight hours of practice required in the sophomore and freshman years.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Introductory	1	2	Fr.	None
2	Introductory Advanced ...	2	2	Fr.	None
3	Advanced	1	2	Soph.	1
4	Advanced	2	2	Soph.	2
5	Methods	1	2	Jr.	4
6	Methods	2	2	Jr.	5
7	Organization and Practice	1	2	Sr.	6
8	Organization and Practice	2	2	Sr.	7
9	Hygiene	1	2	All.	None
9a	Hygiene	1	2	Fr.	
10	Physical Examinations ...	1	2	Sr.	6
11	Anthropometry	1	2	Jr.	4
12	Corrective Gymnastics ...	2	2	Sr.	6
13	Hist. of Physical Training	2	2	Jr.	4
14	Playgrounds	1	2	Sr.	6
15	Hygiene Emergencies	2	2	All.	None
16	Phys. of Bodily Exercise.	1	2	Jr.	4
17	Practice	1	2	Sr.	4
18	Practice	2	2	Sr.	4
19	Advanced Special	1, 2	.....	Jr., Sr.	4

COURSES PRESCRIBED FOR FRESHMEN

MEN

1, 2. *Three hours. Two credits.* Introductory course with light apparatus, including dumb-bells, Indian clubs, wands and tactics. Designed especially for students who may be found physically unfit for military training.

Director HALL and Assistant.

WOMEN

9a or 1, 2. *Three hours. Two credits.* Introductory course, including free-hand work and light gymnastics, fancy steps, folk dancing and games.

Miss MERRICK and Miss FITCH.

COURSES PRESCRIBED FOR SOPHOMORES

MEN

3, 4. *Three hours. Two credits.* Gymnastics, beginners' course with heavy apparatus, including horse, parallel bars, horizontal bars, tumbling, fencing, and wrestling.

WOMEN

3, 4. *Three hours. Two credits.* Advanced work with light apparatus and æsthetic dancing.

ADVANCED COURSES OPEN TO JUNIORS AND SENIORS

5, 6. *Two hours.* A study of the various methods and systems of physical training; their application and adaptability to different ages and conditions. Prerequisites: 1, 2, 3, 4; zoology 7, 8. Director HALL, Miss MERRICK, and Assistants.

7, 8. *Two hours.* A continuation of courses 5 and 6. Especial emphasis is laid on the organization of the gymnasium and practice in conducting classes. Prerequisites: 5 and 6, zoology 3 and 4. Director HALL, Miss MERRICK, and Assistants.

9. HYGIENE. *First semester. Two hours.* A study of the forces that make for or against the perfect health of the individual, embodying care of the various organs and their functions; food, shelter and clothing in relation to health. Preventable and demoralizing diseases. Director HALL.

9a. HYGIENE. *First semester. Two hours* when taken as part of required work of the department.

10. PHYSICAL EXAMINATIONS. *First semester. Two hours.* Detection of physical abnormalities, especially of the thoracic organs. Prerequisites, courses 1-4 inclusive.

Director HALL.

11. ANTHROPOMETRY. *First semester. Two hours.* Methods of charting the body, the diagnostic value of measurements, laws of human proportions, determination of the average and most common dimensions. Prerequisites: Courses 1-4 inclusive.

Miss MERRICK.

12. CORRECTIVE GYMNASTICS AND PRESCRIPTION OF EXERCISE. *Second semester. Two hours.* Cause of asymmetrical development and its correction by gymnastic methods. Therapeutic application of active and passive movement. The technique and scope of massage. Prerequisites, zoology 3, 4, 7, 8.

Director HALL.

***13. HISTORY OF PHYSICAL TRAINING.** *Second semester. Two hours.* Its importance in Greek and Roman life. Modern development; scope and influence on present-day life. Prerequisites, 1-4 inclusive. Miss MERRICK.

***14. PUBLIC PARKS AND PLAYGROUNDS.** *First semester. Two hours.* Their equipment, management, and organization. Instruction and entertainment of children. Games and folk dances. Prerequisites, 1-4 inclusive. Miss MERRICK.

15. HYGIENE; EMERGENCIES. *Second semester. Two hours.* First aid to the injured, especially accidents that may arise on athletic fields, on public playgrounds, or in the gymnasium. A practical course covering the treatment of many common minor ailments. Prerequisites, 1-4 inclusive. Director HALL.

***16. PHYSIOLOGY OF BODILY EXERCISE.** *First semester. Two hours.* A study of the physiological problems of breathlessness, fatigue, recuperation, etc. Bodily training for special activities. Prerequisites, 1-4 inclusive. Director HALL.

17, 18. Two hours. A course designed especially for teachers who may wish to conduct classes in physical training in conjunction with other school courses. Prerequisites, 1-4 inclusive. Director HALL, Miss MERRICK, and Assistants.

19. ADVANCED GYMNASTIC EXERCISES. Including fancy exercises with balls, hoops and singlesticks; fancy club swinging; æsthetic and folk dancing. No credit. Prerequisites, 1, 2, 3, 4. Miss MERRICK.

Courses 9, 13, 15, and 16 may be elected by students in the College of Arts and Sciences for which credit is given above the required eight hours.

Courses 1 and 3 for both men and women are divided into two periods by the Thanksgiving recess. During the first period the work is carried on out-of-doors and consists of gymnastic games and athletic sports. The second period is devoted to indoor training.

Courses 2 and 4 are similarly divided by March 15th. The second period is devoted to out-of-door work.

Upon approval by the director training in football may be substituted by a limited number for courses 1 and 3.

Training for the track and baseball teams may similarly be substituted for courses 2 and 4.

Training for the crews may be substituted in like manner for courses 2 and 4.

Courses 1, 2, 3, 4, for both men and women must be taken during the freshman and sophomore years unless deferred by the director and class adviser.

To be eligible to compete in the various athletic contests every student must pass a satisfactory physical examination and have practiced at least thirty days.

Gymnasium suits for both men and women may be obtained from the University co-operative book store for a reasonable price.

PHYSICS

FREDERICK A. OSBORN, *Professor.*

HENRY LOUIS BRAKEL, *Instructor.*

LARS OLAI GRONDAHL, *Instructor.*

HORACE H. LESTER, *Instructor.*

DAVID SOLTAU, *Graduate Assistant.*

COURSES.

(a) COLLEGE OF ARTS AND SCIENCES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Mechanics and Sound.....	1	4	Fr., Soph.....	H. S. Physics
2	Light, Heat, Electricity..	2	4	Fr., Soph.....	1
3	Electricity	1	4	Jr., Sr.	1, 2
4	Electricity	2	4	Jr., Sr.	3
5	Heat	1	4	Jr., Sr.	2
6	Vibratory Motion	1	4	Jr., Sr.	2 and Calculus
7	Light	1	4	Jr., Sr.	2 and Calculus
8	History of Physics.....	1	2	Sr.	16 hrs. Physics
9	Teacher's Physics	2	2	Sr.	16 hrs. Physics
10	Mechanics	1	4	Sr.	20 hrs. Physics and Calculus
12	Electro-Chemistry	1	4	Sr., Gr.....	3, 4 and 8 hrs. of Chemistry
13	Thermo-Dynamics	2	2	Sr., Gr.....	20 hrs. Physics and Calculus
14	High Temperatures	2	1	Gr.	5.
15	Light	1	2 or 4	Gr.	7
16	Colloquium..	1, 2	1	Sr., Gr.....	Special permission

(b) FOR STUDENTS IN APPLIED SCIENCE.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1a	Mechanics, Wave Motion..	1 or 2	4	Soph.	H. S. Physics and Trigon.
1b	Physics Measurements	1 or 2	2	Soph.	Taking 1a
2a	Light, Heat, Electricity..	2 or 1	4	Soph.	1a
2b	Physics Measurements	2 or 1	1	Soph.	Taking 2a
1c	Mechanics and Sound.....	1	4	*.....	H. S. Physics and Trigon.
2c	Light, Heat, Electricity..	2	4	*.....	1c
3a	Electrical Measurements ..	1	4	Elec. Eng.	2a
4a	Physics of Home.....	2	4	Dom. Science.	H. S. Physics

* Pharmacy, Forestry and Medicine.

SUBJECTS

(a) FOR STUDENTS IN COLLEGE OF ARTS AND SCIENCES

PRIMARILY FOR FRESHMEN AND SOPHOMORES

1. MECHANICS AND SOUND. *First semester. Four hours.* Three class periods and one three-hour laboratory period. Five dollars deposit per year. Professor OSBORN.

2. LIGHT, HEAT AND ELECTRICITY. *Second semester. Four hours.* Three class periods and one three-hour laboratory period. Professor OSBORN.

PRIMARILY FOR JUNIORS AND SENIORS

3. ELECTRICITY. *First semester. Four hours.* For 1911-12, see Physics 3a. Five dollars deposit per year. Mr. BRAKEL.

4. ELECTRICITY. *Second semester. Four hours.* For 1911-12, see Physics 3a. Mr. BRAKEL.

5. HEAT. *First semester. Four hours.* The course consists of three lectures and recitations and one three-hour laboratory period. The lectures and assigned reading are planned with a view to familiarizing the student with the more important aspects of the subject, both experimental and theoretical. The laboratory work lays stress on the calibration, use, and practical handling of temperature measuring instruments, the use of calorimetric methods, the determination of the coefficients of expansion and the mechanical equivalent of heat. Prerequisite, 2. Five dollars deposit per semester. Dr. GRONDAHL.

6. **VIBRATORY PHENOMENA AND SOUND.** *First semester. Four hours.* This course consists of three lectures and one laboratory period. The lectures develop and discuss the mathematical expressions for simple harmonic motion, wave form, vibrating systems with one degree of freedom, damped vibrations, forced vibrations, propagation of sound in an elastic medium, etc. The equations so developed are applied to the explanation of the phenomena of sound, light, and electrical oscillations. The laboratory work is a study of certain problems in sound, such as rating of a spring by the stroboscopic method, absolute rate of a string, etc.; and in electricity of the determination of the wave length, damping, etc., of electric oscillations. Not given in 1911-12. Five dollars deposit per semester.

Professor OSBORN.

7. **LIGHT.** *Second semester. Four hours.* This course consists of three lectures, and one laboratory period. The lecture work aims to present and discuss the most important optical researches from the early beginnings up to the present time; the mathematical theories in elementary form and the experiments upon which they are founded are given and in addition a study is made of the more important experiments and measurements, such as the velocity of light, wave lengths, indices of refraction, interference phenomena, etc. The laboratory work gives the student an acquaintance with and a training in the use of the more important optical instruments used in investigation, such as the spectrometer, the refractometer, the polarimeter, gratings, plane and concave, and the interferometer. Prerequisites, 2 and calculus. Five dollars deposit per semester.

Professor OSBORN.

8. **HISTORY OF PHYSICS.** *First semester. Two hours.* Prerequisites: Sixteen hours of physics and special permission.

Professor OSBORN.

9. **TEACHERS' PHYSICS.** *Second semester. Two hours.* Pre- is a lecture course and seminar combined. Prerequisite: Sixteen hours of physics.

Professor OSBORN.

10. **THEORETICAL MECHANICS.** This course aims to treat those topics that are essential to the understanding of physics phenomena, leaving out what is chiefly of mathematical interest.

Dr. GRONDAHL.

NOTE.—By special permission students may elect direct and alternating current courses in the department of electrical engineering.

PRIMARILY FOR GRADUATE STUDENTS

12. **ELECTRO-CHEMISTRY AND THEORIES OF E. M. F. OF CELLS.** *First semester. Four hours.* Two class periods and one four-hour laboratory period. The class work discusses the general electrochemical phenomena, the theories of electrolysis and the theories of E. M. F. of cells. The laboratory work consists of conductivity measurements, migration velocity of ions, use of coulometers, study of concentration cells, single electrode potential, preparation of material, construction, and testing of standard cells. Prerequisite: 3, 4, and eight hours of chemistry. Not given in 1911-12. Five dollars deposit per semester. Mr. BRAKEL.

13. **KINETIC THEORY OF GASES AND THERMO-DYNAMICS.** *Second semester. Two hours.* An introduction to the mathematical discussion of these subjects with applications. Lectures, assigned reading, and recitations. Prerequisite: Twenty hours of physics, including 5 and calculus. Dr. GRONDAHL.

14. **HIGH-TEMPERATURE THERMOMETRY.** *Second semester. One hour.* A continuation of the laboratory work of 5, special stress being laid on the calibration and use of thermo-elements, resistance thermometers and other pyrometers. Not given in 1911-12. Prerequisite, 5. Five dollars deposit per semester. Dr. GRONDAHL.

15. **LIGHT.** *First semester.* This course offers advanced laboratory work in light. A more extended use and application of the instruments of course 7. To students who show special fitness opportunity is given to do some research. The amount of credit is arranged with the individual student. Prerequisite, 7. Five dollars deposit per semester. Professor OSBORN.

16. **PHYSICS COLLOQUIUM.** *Both semesters. One hour.* Open only to graduate students, and major students on special permission.

Professor OSBORN, Mr. BRAKEL, Dr. GRONDAHL, and Mr. LESTER.

(b) FOR STUDENTS IN APPLIED SCIENCE

1a. **MECHANICS AND WAVE MOTION.** *First semester. Four hours.* This course must be accompanied by 1b.

Professor OSBORN, and Dr. GRONDAHL.

1b. PHYSICS MEASUREMENT. *First semester. Two hours. One four-hour laboratory period. Six dollars deposit per year.*

Dr. GRONDAHL and Mr. LESTER.

2a. LIGHT, HEAT, ELECTRICITY *Second semester. Four hours. This course must be accompanied by 2b.*

Professor OSBORN and Dr. GRONDAHL.

2b. PHYSICS MEASUREMENTS. *Second semester. One hour. One three-hour laboratory period.*

Dr. GRONDAHL, Mr. LESTER and Assistants.

1c. MECHANICS, SOUND. *First semester. Four hours. An abridgment of 1a, designed for students in pharmacy, forestry and medicine. Three class periods and one three-hour laboratory period. Five dollars deposit per year.*

Mr. LESTER.

2c. LIGHT, HEAT, ELECTRICITY. *Second semester. Four hours. An abridgment of 2a, designed for students in pharmacy, forestry and medicine. Three class periods and one three-hour laboratory period.*

Mr. LESTER.

3a. ELECTRICAL MEASUREMENTS. *First semester. Four hours. Two class periods and two three-hour laboratory periods. This course treats of the theories of the methods used in the accurate determination of electrical quantities, and the theory and description of standard instruments for measuring these quantities. The laboratory work consists of precision methods for measuring resistance, current strength, electro motive force, wattage, and the calibration of electrical instruments. Five dollars deposit per semester.*

Dr. GRONDAHL.

4a. PHYSICS OF THE HOME. *Second semester. Four hours. Two class periods and two three-hour laboratory periods. A course for students in domestic science. Five dollars deposit per semester.*

Professor OSBORN.

POLITICAL AND SOCIAL SCIENCE

J. ALLEN SMITH, *Professor*;
 WALTER G. BEACH, *Professor*;
 VANDERVEER CUSTIS, *Assistant Professor*;
 H. BURTIS BENNETT, *Instructor*;
 _____, *Instructor*.

The work of the department is divided into three groups: Economics, Sociology, and Government. Eight hours credit in one of these groups is prescribed for all students in the College of Arts and Sciences. This prescription may be satisfied by Economics 1 and four hours credit in courses for which Economics 1 is prerequisite; by Sociology 3 and 4; or by Government 19 and 20. It is recommended that the prescribed work be taken in the sophomore year; and only in exceptional cases should it be postponed beyond the junior year. Freshmen will not be admitted except by special consent of the instructor.

A number of courses are especially designed for students who expect to engage in business. The attention of those who expect to enter the School of Law is called to courses 3, 19, and 20. Prospective high school teachers of Civics and Economics should give special attention to courses 3, 19, 20, and 35, 36.

COURSES.

No.	Title	Semes- ter	Credits per Se- mester	Offered to	Prerequisites
	Economics—				
1	Elements of Economics...	1 or 2	4	Soph., Jr., Sr.	None
2	Economic Problems	2	4	Soph., Jr., Sr.	1
5	Natural Resources	1	2	Soph., Jr., Sr.	1
6	Trade and Transp. Routes	2	2	Soph., Jr., Sr.	1
8	Industrial Organization...	2	4	Soph., Jr., Sr.	1
10	Pub. Finance and Taxat'n	2	4	Jr., Sr., Gr.	8 hrs. in Econ.
11	Transportation	1	4	Soph., Jr., Sr.	1
12	History of Commerce and Commercial Policies	2	4	Soph., Jr., Sr.	1
13*	Economics of Insurance...	1	2	Soph., Jr., Sr.	1
14	Modern Tariff Systems....	2	2	Soph., Jr., Sr.	1
15	Money and Banking.....	1	4	Jr., Sr., Gr.	8 hrs. in Econ.
17	Labor	1	2	Soph., Jr., Sr.	1
25	The Growth of Cities....	1	2	Soph., Jr., Sr.	1
26*	The Trade of the Pacific..	2	2	Soph., Jr., Sr.	1
27	The Domestic Market.....	1	2	Soph., Jr., Sr.	1
28	The Foreign Market.....	2	2	Soph., Jr., Sr.	1
31	The Development of In- dustrial Society	1	4	Soph., Jr., Sr.	None

COURSES—CONTINUED

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
32*	The Economic History of the United States.....	2	4	Soph., Jr., Sr.	None
35, 36	Principles of Economics... Sociology—	1, 2	2	Jr., Sr., Gr.	1
3	Principles of Sociology....	1	4	Soph., Jr., Sr.	None
4	Social Problems	2	4	Soph., Jr., Sr.	3
29	Social Amelioration	1	4	Jr., Sr., Gr.	3 and 4
30	Social Psychology	2	4	Jr., Sr., Gr.	3 and 4
37, 38	Social Investigation	1, 2	2	Jr., Sr., Gr.	1 or 3
	Government—				
18	Municipal Government ...	2	2	Jr., Sr.	1, 3 or 19
19	American Government (national)	1	4	Soph., Jr., Sr.	None
20	American Government (state and local)	2	4	Soph., Jr., Sr.	19
21, 22	Political Theories	1, 2	2	Jr., Sr., Gr.	20
24	Public International Law.	2	2	Soph., Jr., Sr.	None
33, 34	Joint Seminar	1, 2	2	Gr.	20

* Not given 1911-1912.

1. **ELEMENTS OF ECONOMICS.** *Both semesters. Four hours.* An introductory study of the economic laws governing the production, distribution, and exchange of wealth; and some of their more important applications, such as the tariff, labor unions, trusts, etc.

Assistant Professor CUSTIS, Mr. BENNETT, and ———.

2. **ECONOMIC PROBLEMS.** *Second semester. Four hours.* This course is a discussion of the present day economic problems, such as the regulation of railways and trusts, the control of public utility corporations in cities, the labor question, etc. It is designed primarily for students who expect to take but eight hours in economics and is not open to those who intend to major in the department. Prerequisite, 1.

Professor BEACH and Mr. BENNETT.

3. **PRINCIPLES OF SOCIOLOGY.** *First semester. Four hours.* A study of the nature and causes of social development. Special attention will be given to an examination of the origin and function of some of the more important social institutions, such as the family, religion, and the state. The course may with special advantage be preceded by or taken in connection with philosophy 1.

Professor BEACH and ———.

4. **SOCIAL PROBLEMS.** *Second semester. Four hours.* A study of some of the more important problems of contemporary American society, such as immigration, the relation of city and country, the negro, pauperism, crime, and intemperance. Prerequisite, 3. Professor BEACH and ———.

5. **NATURAL RESOURCES—DEVELOPMENT AND CONSERVATION.** *First semester. Two hours.* Use and abuse of national assets. Materials of industry are studied in connection with the collections in the University Museum. Materials in the raw state and in successive stages of manufacture. Economic significance of great national projects. Desert reclamation. Forest and mineral conservation. Water power regulation. River and harbor improvement. Inter-oceanic and inter-lake canals. To be preceded or accompanied by economics 1. Mr. BENNETT.

6. **TRADE AND TRANSPORTATION ROUTES.** *Second semester. Two hours.* Survey of the great channels of trade, domestic and international. Industrial conditions that give rise to the principal traffic movements. Character of trade as affected by a nation's wealth and its distribution, social customs, density of population, etc. Trade relations of the principal commercial nations. Trade with tropics. Water vs. land routes. Shifting routes; the grain trade. Distribution of specific wares. Prerequisite, 1. Mr. BENNETT.

8. **INDUSTRIAL ORGANIZATION.** *Second semester. Four hours.* A study of modern industry, with special reference to the higher forms of organization, such as the trust. Among the subjects taken up will be: the development of the modern business corporation; the causes of combination and the forms which it assumes; the promotion and financing of trusts; the advantages and disadvantages of such organizations; and their relation to the state. Prerequisite, 1. Assistant Professor CUSTIS.

10. **PUBLIC FINANCE AND TAXATION.** *Second semester. Four hours.* A study of governmental expenditures and revenue, with special reference to the problems now before the United States and the several states. Special attention will be given to conditions in the State of Washington. Prerequisite, eight hours in economics. Assistant Professor CUSTIS.

11. **TRANSPORTATION.** *First semester. Four hours.* Primarily a study of railway transportation in the United States. Special attention will be given to the development of the railway system, the character of railway competition, the principles and practice of rate making, and the relation of the railways to the government. Prerequisite, 1. Assistant Professor CUSTIS.

12. **HISTORY OF COMMERCE AND COMMERCIAL POLICIES.** *Second semester. Four hours.* A survey of ancient, medieval, and modern commerce, the tariff history of the principal commercial nations, and the effects of commercial treaties. Special attention will be given to the tariff policy of the United States, and the history of its merchant marine. Prerequisite, 1. Mr. BENNETT.

13. **ECONOMICS OF INSURANCE.** *First semester. Two hours.* Principles and social importance of insurance. Fire, marine and life insurance. Taxation and legal regulation of insurance companies. Examination of sample contracts of the various kinds of insurance. Prerequisite, 1. (Not given in 1911-12.)

14. **MODERN TARIFF SYSTEMS.** *Second semester. Two hours.* Conventional tariffs of Europe. Preferential tariffs of the British Empire. Reciprocity. Maximum and minimum systems. Revenue tariffs. Agrarian protection. Industrial protection. Commercial treaties. Surtaxes. Import duties and excise taxes. Tariff and trusts. Colonial tariffs. Bounties and subsidies. Tariff reform in England. Tariff revision in the United States. Prerequisite, 1. Mr. BENNETT.

15. **MONEY AND BANKING.** *First semester. Four hours.* A discussion of the principles relating to this branch of economics, followed by a review of the more important monetary and banking legislation of the last century. Prerequisite, eight hours in economics. Professor SMITH.

17. **LABOR.** *First semester. Two hours.* The effect of modern industrial changes upon the wage-earning class; the growth of labor organizations and their objects and methods; employers' associations; labor legislation. Prerequisite, 1. _____.

18. **MUNICIPAL GOVERNMENT.** *Second semester. Two hours.* The development of municipal government in the United States and its relation to the state government; present tendencies in municipal organization; municipal problems. Prerequisite, 1, 3 or 19. Professor SMITH.

19. **AMERICAN GOVERNMENT.** *First semester. Four hours.* This course is a study of the theory and practical working of the national government. The constitutional system of the United States will be viewed historically and its development compared with that of England. Professor SMITH and——.

20. **AMERICAN GOVERNMENT.** *Second semester. Four hours.* A study of the development of state and local government. Special attention will be given in this course to the early state governments, the influence of the federal constitution on the state governments, the extension of the suffrage and its effect on state and local governmental organization, and recent changes in state constitutions. Professor SMITH and ——.

21, 22. **POLITICAL THEORIES.** *Two hours.* A study of the political ideas that have influenced constitutional development and legislation in England and the United States. Prerequisite, 20. Professor SMITH.

24. **PUBLIC INTERNATIONAL LAW.** *Second semester. Two hours.* The history and development of public international law with special reference to American diplomacy. Mr. BELL.

25. **THE GROWTH OF CITIES.** *First semester. Two hours.* Economic basis of the location and growth of the modern city. Commercial centers. Land and water transportation facilities. Manufacturing centers. Proximity to sources of power. Accessibility of raw materials of industry. Wealth of tributary regions. Effect of topography. Supply of capital and labor. Real estate values. Booms and panics. Transportation rates and city growth; differentials and terminal rates. City rivalries and inter-dependence. Municipal activities, improvement, ownership and operation. Prerequisite, 1. Mr. BENNETT.

26. **THE TRADE OF THE PACIFIC.** *Second semester. Two hours.* Detailed study of trade and trade possibilities of regions bordering on the Pacific ocean. Commercial opportunities in the Orient. Chinese "Open-Door" problem. Manchurian situation. Commercial policy of Japan. The Alaska trade. Market openings in Latin America. America's competitors for the Pacific trade. New transcontinental railway routes and the Panama canal. Prerequisite, 1. (Not given in 1911-12.)

27. **THE DOMESTIC MARKET.** *First semester. Two hours.* Organization of business for the marketing of goods. Wholesale

and retail trade. Commission houses. Agencies. Department stores. Mail-order business. Public markets. Co-operative marketing. Stock and produce exchanges. Mercantile agencies. Advertising. Trade associations. Prerequisite, 1. Mr. BENNETT.

28. THE FOREIGN MARKET. *Second semester. Two hours.* Methods of developing foreign markets and of marketing wares in foreign countries. Commercial policies. Chamber of commerce. Consular service. Sample houses. Commercial museums. Expositions. Ships and subsidies. Trade colonies. Export prices. Adaptation to foreign markets. Marketing in specific countries. Prerequisite, 1. Mr. BENNETT.

29. SOCIAL AMELIORATION. *First semester. Four hours.* A study of the attempt of society, under the present industrial system, to effect improvement in the life of the less fortunate classes. The position of these groups and the possibility of betterment through legislation or private effort forms the subject of the course. Some description of present conditions is given, but the student's attention is directed mainly to the discovery of causes and remedies. Prerequisite, 3 and 4. Professor BEACH.

30. SOCIAL PSYCHOLOGY. *Second semester. Four hours.* A study of the mental organization of society, and its reaction upon the mind of the individual. The growth and nature of custom and convention, and the formation of public opinion, are the more important topics discussed. Prerequisites, 3 and 4. It is also desirable that the student should have had philosophy 1. Professor BEACH.

31. THE DEVELOPMENT OF INDUSTRIAL SOCIETY. *First semester. Four hours.* This course traces the economic life of Europe as seen particularly in the history of England since the eleventh century. The more important stages of industry are described, with especial emphasis upon the industrial revolution and its consequences for the laboring classes. A knowledge of the main facts of English history is assumed. Professor BEACH.

32. THE ECONOMIC HISTORY OF THE UNITED STATES. *First semester. Four hours.* A study of the social and industrial development of the United States, together with its financial

history. Among the subjects taken up will be the economic effects of slavery, the civil war, the protective tariff, and immigration. (Not given in 1911-12.)

33, 34. JOINT SEMINAR. *Two hours.* Designed for study and reports upon the problems in the historical, political, and legal development of the State of Washington and the Pacific Northwest. Professors SMITH, CONDON and MEANY.

35, 36. PRINCIPLES OF ECONOMICS. *Two hours.* A study of the economic laws underlying some of the chief problems of today. While designed primarily for graduates, the course is open to all students whose maturity of thought and previous training are sufficient, in the opinion of the instructor, to enable them to do the work satisfactorily. The time of meeting will be arranged to suit, as far as may be, the convenience of those taking the course. Assistant Professor CUSTIS.

37, 38. SOCIAL INVESTIGATION. *Two hours.* A practical course designed for social workers. Prerequisite, 1 or 3. ———.

PUBLIC SPEAKING AND DEBATE

JULIUS C. HERBSMAN, *Instructor in Charge;*

LLOYD BLACK, *Graduate Assistant;*

FRED ANGEVINE, *Student Assistant.*

5. ESSAY AND ORATION. *First semester. Two hours.* This course comprises a study of the essay and the oration as types of advanced composition. Weekly themes with conferences. Prerequisite.

6. FORMS OF PUBLIC DISCOURSE. *Second semester. Two hours.* In this course an analytical study of oratorical masterpieces is made, with constant practice in the composition of the commemoration address, the eulogy, and other forms of public discourse. Prerequisite, 5.

9a. ADVANCED ARGUMENTATION. *First semester. Three hours.* Practice in briefing selected masterpieces of argumentation. Each student will also present original briefs. Practice in argumentative composition. Text: Pattee's Practical Argumentation. Prerequisite. MR. HERBSMAN.

10a. DEBATING. *Second semester. Three hours.* Practice in preparation and delivery of debates. Prerequisite.

Mr. HERBSMAN.

9b. ADVANCED ARGUMENTATION. *Three hours.* For women. Work and requirements same as 9a.

10b. DEBATING. *Second semester. Three hours.* For women. Work and requirements same as 10a.

13. ORAL EXPRESSION. *Both semesters. Four hours.* The purpose of this course is to cultivate a direct and natural delivery; to stimulate correct thinking; and to develop the imagination. Vocal technique, including breathing, poise, action and correct vocalization, is given much attention. Daily practice in reading and speaking is required of all students.

14a. PRACTICAL PUBLIC SPEAKING FOR WOMEN. *Each semester. Two hours.* A practical study of the principles of public speaking and literary interpretation.

14b. PRACTICAL PUBLIC SPEAKING FOR MEN. *Two hours.* A practical study of the principles of public speaking. Practical subjects taken from practical life will be discussed by members of the class.

15. DRAMATIC READING. *First semester. Two hours.* A study of the classic drama from the point of view of vocal expression. Representative plays, such as Merchant of Venice, Hamlet, and As You Like It, are read; and selected scenes are acted by members of the class. Prerequisite, 13.

Mr. HERBSMAN.

16. DRAMATIC READING. *Second semester. Two hours.* A continuation of course 15. The contemporary dramas are read, and selected scenes are presented by members of the class. Prerequisite, 15.

Mr. HERBSMAN.

17. ENGLISH ORATORY. *First semester. Four hours.* A study of the relation of representative orators to the development of the political and social institutions of England from the sixteenth century to the present day. The principal orations of Eliot, Wentworth, Walpole, Chatham, Burke, Mansfield, Fox, Pitt, Cobden, Bright, and Gladstone are read and analyzed.

Mr. HERBSMAN.

18. **AMERICAN ORATORY.** *Second semester. Four hours.* A critical study of the orations of Otis, Henry, Hamilton, Webster, Calhoun, Phillips, Beecher, Lincoln, and other representative orators.
Mr. HERBSMAN.

14b. **PRACTICAL PUBLIC SPEAKING FOR MEN.** *Two hours.* Practical study of the principles of public speaking. Practical subjects taken from practical life will be discussed by members of the class.

SCANDINAVIAN LANGUAGE AND LITERATURE

DAVID NYVALL, *Professor.*

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Swedish Language	1, 2	4	All.....	None
3, 4	Norwegian-Danish Lang...	1, 2	4	All.....	None
5, 6	History of Norwegian-Danish Literature	1, 2	2	All.....	4
7, 8	History of Swedish Lit...	1, 2	2	All.....	2
9, 10	Elementary Old Norse....	1, 2	2	All.....	2 or 4
11, 12	Adv. Swedish Grammar...	1, 2	2	All.....	2
13, 14	Northern Mythology and Saga Literature	1, 2	2	All.....	2 or 4
15, 16	Scandinavian Literature by Periods and Authors (Ibsen and Lagerlof)	1, 2	2	All.....	6 or 8

Note.—For a major, 24 credits.

Courses 9, 10 and 13, 14 not given 1911-12.

Courses 1, 2 and 3, 4 only half credits, if taken later than in the Sophomore year; no credits in the mentioned courses for the first semester only.

1, 2. **SWEDISH LANGUAGE.** *Four hours. Both semesters.* Eight credits. Including orthography, etymology, and syntax. Composition. Text-book and reader: Henri Fort's *Elementary Swedish Grammar*. Reading: Runeberg's "*Fänrik Staals sägner*," Verner von Heldenstam's "*Svenskarne och deras hövdingar*."

3, 4. **NORWEGIAN-DANISH LANGUAGE.** *Four hours. Both semesters.* Eight credits. Including orthography, etymology, and syntax. Composition. Text-book and reader: J. A. Holviks' "*Beginners' Book in Norwegian*," Reading: Bjørnstjerne Bjørnson's "*En glad gut*," Oehlenschläger's "*Helge*."

5, 6. **HISTORY OF NORWEGIAN-DANISH LITERATURE.** *Two hours. Both semesters.* Four credits. Text-book: Horn's "*Scandinavian*"

Literature." Reference books: Jaeger's "Den norske litteraturens historie" and Hansen's "Danske litteraturens historie." Select works of Björnson, Ibsen, Oehlenschläger read in the class room. Other authors appointed for home study. Prerequisite, 4.

7, 8. HISTORY OF SWEDISH LITERATURE. *Two hours. Both semesters.* Four credits. Text-books: Warburg's "Svenska litteraturhistorien," A. Eckermann's "Läsebok till svenska litteraturhistorien," I, II Reference books; Hildebrand's "Sveriges historia," J. Mortensen's Fraan Aftonbladet till Röda Rummet." Reading: Tegner's "Fritjofs saga," Selma Lagerlöf's "Osynliga länkar." Prerequisite, 2.

9, 10. ELEMENTARY OLD NORSE. *Two hours. Both semesters.* Four credits. Text-book and reader: Henry Sweet's "Icelandic Primer." Alternating with courses 11, 12. Not given in 1911-12. Prerequisite, 2 or 4.

11, 12. ADVANCED SWEDISH GRAMMAR. *Two hours. Both semesters.* Four credits. Etymology, composition, and rhetoric, including metre, poetry and oratory. Readers: Robert Geete's "Ordklyverier," J. Almen's "Svensk vältalighet." Alternating with courses 9, 10. Prerequisite, 2.

13, 14. NORTHERN MYTHOLOGY AND SAGA LITERATURE. *Two hours. Both semesters.* Four credits. Readers: H. A. Guerber's "Myths of Northern Lands," Horn's "Scandinavian Literature," "Norroena," etc. Alternating with courses 15, 16. Not given in 1911-12. Prerequisite, 2 or 4.

15, 16.. SCANDINAVIAN LITERATURE BY PERIODS AND AUTHORS. *Two hours. Both semesters.* Four credits. Henrik Ibsen, a comprehensive study of his drama. English and Norwegian texts. Second semester: Selma Lagerlöf, a comprehensive study of her stories. English and Swedish texts. Alternating with courses 13, 14.

SPANISH

CAROLINE HAVEN OBER, *Professor*;CHARLES MUNBO STRONG, and HOWARD M. COLVIN, *Instructors*.

In this department considerable time is given to colloquial Spanish. The close relations of the United States with Central and South America, and the various lands where Spanish alone is spoken have increased the value of a speaking knowledge of this language.

REQUIREMENTS OF THE DEPARTMENT

For a major, 24 hours.

For a teacher's certificate, 30 hours in addition to course No. 17-18.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Beginning	1, 2	4	All.....	None
1a, 2a	Beginning	2, 1	4	All.....	None
3	Practical, Second Year....	1	4	.....	2 or 2a
4	Corresp., Com. Terms....	2	4	All.....	2 or 2a
5, 6	Literary, Second Year....	1, 2	4	All.....	2 or 2a
7, 8	Golden Age, Pope de Vega and Caldrón.....	1, 2	3	All.....	4 or 6
9, 10	Spanish Novel	1, 2	2	All.....	4 or 6
11, 12	Hist. of Spanish Lit.....	1, 2	2	All.....	4 or 6
13, 14	Don Quijote	1, 2	2	All.....	7, 8
15, 16	Prose Composition	1, 2	1	All.....	2 or 2a
17, 18	Teacher's Course	1, 2	2	For majors ..	
19, 20	Spanish Readings	1, 2	2	All.....	18 hrs.
21, 22	Old Spanish	1, 2	2	Graduates....	8 and 14

SUBJECTS

1, 2. **ELEMENTARY.** *Four hours.* Lessons in Spanish on every-day topics, training of the ear and tongue. Essentials of Spanish grammar; readings from modern Spanish authors.

Mr. STRONG and Mr. COLVIN.

1a. **ELEMENTARY.** *Second semester. Four hours.* The same work as in course 1, offered for the benefit of students entering the University at this time.

Mr. STRONG and Mr. COLVIN.

2a. **ELEMENTARY.** *First semester. Four hours.* Continuation of course 1a.

Mr. STRONG and Mr. COLVIN.

3, 4. PRACTICAL. *Four hours.* Business correspondence, commercial terms and conversation, readings selected chiefly from Spanish newspapers and magazine articles of the day. Prerequisite, 2 or 2a. Professor OBER and Mr. COLVIN.

5, 6. LITERARY. *Four hours.* Spanish Readings. Spanish poetry. Ford's Spanish Anthology. Essays written on literary subjects. Prerequisite, 2 or 2a. Mr. STRONG.

7, 8. ADVANCED. *Three hours.* Literature of the sixteenth and seventeenth centuries. Lope de Vega; Calderon; the Auto Sacramental; Prerequisite, 5 or 6. Professor OBER.

9, 10. SPANISH NOVEL. *Two hours.* Study of the Spanish novel beginning with the "Novela Picaresca," having its origin in Spain, and including the "Novela de Costumbres," the historical novel, and the religious novel. Works read partly in class and partly outside: Gil Blas, Dona Perfecta, Pepita Jiménez, and selections from Pérez Galdós and Pérez Escrich. Prerequisite, 4 or 6. Professor STRONG.

11, 12. HISTORY OF SPANISH LITERATURE. *Two hours.* Prerequisite, 4 or 6. Professor OBER.

13, 14. DON QUIJOTE. *Two hours.* Open only to advanced students. Professor OBER.

15, 16. ADVANCED PROSE COMPOSITION. *One hour.* Prerequisite, 4 or 6. Professor OBER.

17, 18. TEACHERS' COURSE. *Two hours.* Discussion of methods of teaching Spanish. Outlines of practical lessons. Practice work. Conversation. (This course may be given in place of Spanish 11, 12, or Spanish 13, 14, the choice depending on the preparation of the students applying). Professor OBER.

19, 20. SPANISH READINGS. Advanced reading course. Individual work in the library with frequent written reports. Designed to give greater familiarity with Spanish literature and ease in reading Spanish works. Open only to advanced students. Professor OBER.

FOR GRADUATES

21, 22. OLD SPANISH. *Two hours.* Poema del Cid. Professor OBER.

ZOOLOGY

TREVOR KINCAID, *Professor*;ARTHUR HOWARD DAY, *Assistant Professor*;O. B. JOHNSON, *Professor Emeritus*;_____, *Instructor*.

COURSES.

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Elements of Zoology.....	1, 2	4	All.....	None
1a	Elementary Zoology	2	4	Fr., Soph....	None
3, 4	Vertebrate Anatomy	1, 2	4	Soph., Jr., Sr.	2 or 7
5	Histology	1	4	Soph., Jr., Sr.	2 or 7
5a	Neurology	2	2	Soph., Jr., Sr.	5
5b	Neurology	2	2	Soph., Jr., Sr.	5
6	Embryology	2	4	Soph., Jr., Sr.	5
7	Elementary Physiology ..	1	4	All.....	None
8	Elementary Physiology ..	1	4	Pharmacy....	None
9	Experimental Physiology..	2	4	All.....	7 or 8
10	Forest Zoology	1	2	All.....	None
11	Forest Entomology	2	4	All.....	None
12	Ethnology	1	2	Soph., Jr., Sr.	None
13	Evolution	2	2	All.....	Zool. 1 or Bot. 1 *
14, 15	General Entomology	1, 2	4	Soph., Jr., Sr., Gr.....	2
16, 17	Museum and Field Work..	1, 2	.....	Jr., Sr., Gr.	4 or 6
18, 19	Research	1, 2	.....	Sr., Gr.....	4 and 6

* Senior standing.

In this department the more elementary courses are designed with special reference to the place of zoology in the general scheme of a liberal education. By means of the laboratory method the student is brought in direct contact with the facts of nature, and taught to interpret the phenomena of life at first hand. An effort is also made to pave the way for a more thorough understanding of the related sciences in which biological principles play an important role.

The advanced courses are more technical in character, and are planned to meet the needs of those wishing to specialize in biology, and for students intending to enter the medical profession.

The environment of the University offers a most favorable opportunity for the study of natural history. The shores of Puget sound are near at hand, and make possible the study of marine animals in the living condition, while the lakes whose

shores form portions of the boundaries of the campus swarm with fresh water organisms.

SUBJECTS

1, 2. **ELEMENTS OF ZOOLOGY.** *Four hours.* A general review of zoological science, involving a study of the structure, classification and habits of the principal types included in the great branches of the animal kingdom. This course includes a series of lectures upon the more important theories of biology, in order that the student may pursue the work from an interpretative standpoint. Field work is regarded as an essential feature, and parties are frequently taken to the sea shore and to other points of zoological interest during the season. Deposit, five dollars per semester.

Professor KINCAID and Mr. ———.

1a. **ELEMENTARY ZOOLOGY.** *Second semester. Four hours.* Designed to meet the needs of students entering the University at the beginning of the second semester. An introduction to the principles of zoology based upon the study of a limited number of types. Deposit, two dollars per semester. Mr. ———.

3, 4. **VERTEBRATE ANATOMY.** *Four hours.* The comparative structure of the backboneed animals based upon the dissection of a series of typical vertebrates, accompanied by lectures upon the morphology and evolution of the higher animals. Deposit, two dollars per semester. Assistant Professor ———.

5. **HISTOLOGY.** *First semester. Four hours.* The investigation of the microscopic structure of animal tissue from the derivative standpoint, including the study of the fundamental types of cell, and the methods used in the preparation of microscopic slides. Prerequisite, 1 and 2 or their equivalent. Deposit, two dollars per semester. Mr. ———.

6. **VERTEBRATE EMBRYOLOGY.** *Second semester. Four hours.* A study of the comparative developmental history of the vertebrates, based upon the embryonic development of the chick, with supplementary work upon the embryos of other vertebrate forms. Deposit, two dollars per semester. Mr. ———.

5a. **NEUROLOGY.** *Second semester. Two hours.* The nervous system of animals with particular reference to the comparative structure and genesis of the sense organs. To be given on alternate years with 5b. Deposit, one dollar per semester.

Professor KINCAID.

5b. **NEUROLOGY.** *Second semester. Two hours.* The nervous system of animals with particular reference to the structure and genesis of the central nervous organs To be given on alternate years with 5a.
Professor KINCAID.

7. **ELEMENTARY PHYSIOLOGY.** *First semester. Four hours.* The human body, its tissues and organs, and their functions with especial reference to hygiene. In the laboratory experimental work is given together with dissection and microscopic examination of illustrative material. Deposit, two dollars per semester.
Assistant Professor ———.

8. **ELEMENTARY PHYSIOLOGY.** *First semester. Four hours.* A course very similar to 7 but more elementary and planned to meet the needs of students registered in the department of pharmacy. Deposit, two dollars per semester.
Assistant Professor ———.

9. **EXPERIMENTAL PHYSIOLOGY.** *Second semester. Four hours.* The physiology of muscle and nerve, of the circulatory and respiratory organs. Prerequisite, 7 or 7a. Deposit, two dollars per semester.
Assistant Professor ———.

10. **FOREST ZOOLOGY.** *First semester. Two hours.* A discussion of the animal life characteristic of forest, including the classification, habits, economic relations, propagation, and protection of forest animals.
Professor KINCAID.

11. **FOREST ENTOMOLOGY.** *Second semester. Four hours.* A course dealing with the relation of insects to the forest, including the classification and habits of forest insects, and the practical handling of insects injurious to forest welfare. Deposit, two dollars per semester.
Professor KINCAID.

12. **ETHNOLOGY.** *First semester. Two hours.* The study of the human species from the zoological standpoint, including a discussion of the races of mankind, their origin, migrations, distribution, and customs. Illustrated by means of lantern slides. No prerequisite.
Professor KINCAID.

13. **EVOLUTION.** *Second semester. Two hours.* A series of lectures upon the more important biological problems related to the general theory of organic evolution, including variation, selection, mutation and heredity. Illustrated by stereopticon views. Prerequisite. Zoology 1, botany 1, or their equivalent.
Professor KINCAID.

14, 15. **GENERAL ENTOMOLOGY.** *Four hours.* An introduction to the study of insects, including their structure, classification, ecology and economic relations. Lectures, laboratory and field work. This course should be preceded by course 1 or 1a. Deposit two dollars per semester. Professor KINCAID.

16, 17. **MUSEUM AND FIELD WORK.** The collection and identification of the animal forms in the local fauna, including field work and systematic investigations upon the collections contained in the State Museum. Prerequisite, 4. Deposit to be arranged. Professor KINCAID.

18, 19. **RESEARCH.** Students who are capable of carrying on independent research will be allowed to do so under the direction of the instructors in charge. Hours and credits to be arranged. Deposit to be arranged.

Professor KINCAID and Assistant Professor ———.

COLLEGE OF ENGINEERING

FACULTY

THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, *President*.

ALMON HOMER FULLER, M. S. C. E., Lafayette, Professor of Civil Engineering, *Dean*.

HORACE G. BYERS, A. B., Johns Hopkins, Professor of Chemistry.

MILNOR ROBERTS, A. B., Stanford, Professor of Mining Engineering and Metallurgy.

FREDERICK ARTHUR OSBORN, Ph. D., Michigan, Professor of Physics and Director of the Physics Laboratories.

ROBERT EDOUARD MORITZ, Ph. D., Ph. N. D., Strassburg, Professor of Mathematics and Astronomy.

CARL EDWARD MAGNUSSON, Ph. D., E. E., Wisconsin, Professor of Electrical Engineering.

EVERETT OWEN EASTWOOD, B. S., C. E., M. A., Virginia, Professor of Mechanical Engineering.

ELMER JAMES MCCAUSTLAND, C. E., M. C. E., Cornell, Professor of Civil Engineering.

CHARLES CHURCH MOORE, M. S. C. E., Lafayette, Associate Professor of Civil Engineering.

HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.

GEORGE SAMUEL WILSON, B. S., Nebraska, Assistant Professor of Mechanical Engineering.

CHARLES W. HARRIS, C. E. Cornell, Assistant Professor of Civil Engineering.

FRANK EDWARD JOHNSON, E. E. Minnesota, Instructor in Electrical Engineering.

SAMUEL THOMAS BEATTIE, Instructor in Woodwork.

SANDY MORROW KANE, Instructor in Metalwork.

CLARENCE RAYMOND COREY, E. M., Montana, Instructor in Mining and Metallurgy.

EDGAR ALLEN LOEW, B. S., E. E., Wisconsin, Instructor in Electrical Engineering.

JOHN WILLIAM MILLER, B. S., C. E., Nebraska, Instructor in Civil Engineering.

JULIUS ADLER, B. S., C. E., Pennsylvania, Instructor in Civil Engineering.

WALTER AUSTIN GLEASON, S. B., Massachusetts Institution of Technology, Instructor in Civil Engineering.

CHARLES EARL MALLOBY, B. S., Washington, Instructor in Electrical Engineering.

WILLIAM CHARLES MUEHLSTEIN, B. S., Wisconsin, Instructor in Civil Engineering.

_____, Instructor in Mechanical Engineering.

_____, Instructor in Civil Engineering.

_____, Instructor in Civil Engineering.

CHARLES EVAN FOWLER, M. Am. Soc. C. E., Lecturer on Engineering, Contracts and Specifications.

JAMES DELMAGE ROSS, Lecturer on Central Stations.

JOHN HARISBERGER, Lecturer on Power Transmission.

ELBERT G. ALLEN, B. S., Lecturer on Electric Railways.

SHERWOOD C. LINDSAY, Lecturer on Station Practice.

CAESAR RODNEY ROBERTS, Assistant in Surveying.

WALTER JOHNSON WILLIAMS, Assistant in Surveying.

GERARD ROLAND WALSH, Assistant in Surveying.

DUTTON KNAPP, Assistant in Stock Room (Surveying).

COURSES OF STUDY

The College of Engineering offers two four-year courses in each of the departments of chemical, civil, electrical, and mechanical engineering. One of these courses in each department is essentially the same as has been offered in the past and leads to the degree of bachelor of science in the respective branches of engineering, as B. S. in civil engineering. The other course has been added to meet the need, which has been recognized alike by the engineering public, the faculty, and many of the students, for a broader foundation of general training than is possible in the regular four-year technical courses. This course in any 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 in the respective lines, as M. S. in civil engineering.

Thus in five years it will be possible to cover all of the subjects in a regular engineering course and, in addition, include nearly a year's work in general training, and a certain amount of advanced engineering work, which should insure greater efficiency in all of the work as well as to broaden the general education.

LOCAL OPPORTUNITIES

The required work is supplemented in all departments by lectures by prominent engineers, and occasional inspection tours among the varied engineering interests in and around the city of Seattle. Students are strongly advised to devote their vacations to surveying, draughting, work in factories, repair shops, electric light and railway stations, and similar work, in order to obtain commercial experience and a better appreciation of the relation of technical training to practical work. The Pacific Northwest in its present state of rapid development offers exceptional opportunities for engineers and engineering students. The large amount of work under construction and in operation furnishes splendid object lessons for illustrating and supplementing the University work. The engineers of the vicinity have been very generous in extending courtesies to the classes on their various trips of inspection, and thoughtful in considering them when in need of assistance. All of the graduates of the college have been immediately placed in desirable positions, and a large

percentage of the undergraduates have been able to secure vacation work with surveying parties, in draughting rooms, and in power plants and factories.

WATER POWER

The state of Washington is exceedingly well supplied with water power, a considerable portion of which is still in its undeveloped state. This offers a splendid opportunity for hydraulic and electrical engineers to develop this power and to distribute it by the agency of electricity.

The Snoqualmie falls station, the Puget Sound Power company's plant at Electron on the Puyallup river, and the Seattle municipal plant on Cedar river, having a combined output of fifty thousand horsepower, are all within forty miles of the University, and delivering power into the city. They are splendid examples of hydraulic and electrical development and of high tension and power transmission work.

Numerous other plants are in successful operation throughout the state. As the country continues to develop, the increased demand for power will call for development of many of the still unused water powers, and demand the services of men especially trained to do that kind of work and do it economically. Especial attention is being given to this phase of the hydraulic and electrical courses.

The course in chemical engineering is designed for those who wish a thorough training in the fundamental branches of engineering as a means of strengthening their work in the applied lines of chemistry, and in the belief that such a system of training will increase the present tendency for the chemists of the large industries to develop into superintendents and managers.

HIGHWAYS.

The necessity for engineers trained in road construction and the application of more scientific methods to all highway work is evident from the experience of many years which has demonstrated that permanent results have not been secured from the large sums of money expended upon our public roads, from the awakening to the economic and social value of improved roads (with the consequent increase in the annual appropriations for road purposes all over the country), and from the recent introduction of a number of new types of road surface due to changes

in the character of traffic. In recognition of these conditions, the University offers an opportunity for civil engineering students to specialize in highway work during the senior and graduate years. Both road and pavement work are now commanding special attention throughout the Pacific Northwest. Hence an effort is made to give full consideration to local problems, though it is aimed to make the work sufficiently broad to call the students' attention to the wide variety of problems to be solved owing to differences in climate, soil, economic conditions, etc., in the various parts of the United States.

GOVERNMENT TIMBER TESTING SERVICE.

The United States government through its forest service has located at the University of Washington a government timber testing station. Two timber testing engineers of the forest service are stationed here, and actual work in the investigation of the mechanical properties of Northwestern timber is regularly carried on. Engineering students find much of interest and value in this work. The structural materials testing laboratory is used jointly for this work and for University instruction and investigation.

LABORATORIES

For a description of the laboratories of the College of Engineering, as well as the other University laboratories used by engineering students, see page 72.

ADMISSION

The requirements for admission to the freshman class of the courses leading to the degree of bachelor of science are:

English	4
Algebra	1½
Plane geometry	1
Solid geometry	½
Physics	1
A foreign language.....	2
History (American history preferred) or U. S. History and civics	1
Elective	4
Total.....	15

The requirements for admission to the freshman class of the courses leading to the degree B. S. in chemical engineering, B. S. in civil engineering, B. S. in electrical engineering, and B. S. in mechanical engineering are:

English	4
Algebra	1½
Plane geometry	1
Solid geometry	½
Physics	1
Chemistry	1
A foreign language.....	2
History (American history preferred) or U. S. History and civics	1
Elective	3
Total.....	15

For more specific information concerning the preparation necessary to meet the above requirements and list of electives, see page 86 and following.

It is desirable for the student to review his preparatory mathematics just before entering the College of Engineering. By such a step much time will be saved and the work of the college will be rendered far more valuable to him.

The freshman work in the several courses is identical, thus making it possible for a student to delay the definite choice of a course until the beginning of the sophomore year.

All freshman work, much of the sophomore and some of the junior will be repeated each semester. Additional courses will be repeated whenever practicable provided the demand is sufficient to warrant full sections. This makes it possible for freshmen to enter in February, as well as in September, with the assurance of working to good advantage for a couple of years. It also provides a possibility for taking some desirable elective courses, or to engage in practical work for a semester and a summer consecutively before completing the curriculum.

SEMINAR

The senior and junior students meet for an hour each week with their respective class adviser for the consideration and discussion of engineering questions, not specifically covered by the class room work. In connection with this each student does sys-

tematic reading in the engineering periodicals, and submits oral and written reports, which are discussed by the class.

THESIS

A graduating thesis is required of each candidate for an engineering degree. It is intended that this thesis shall represent original research or design in some branch of engineering, or the careful review of some existing construction. The subject must be approved by the professor in charge of the department under which it is classified, not later than the first of January in the senior year.

DEGREES

The courses of the College of Engineering lead to the degrees of bachelor of science (B.S.) and bachelor of science in civil engineering (B.S. in C.E.), bachelor of science in electrical engineering (B.S. in E.E.), bachelor of science in mechanical engineering (B.S. in M.E.), and bachelor of science in chemical engineering (B.S. in Ch.E.), respectively, as indicated on the following pages.

DEGREE WITH HONOR

A degree with honors in engineering may be conferred upon any student of the College of Engineering who is recommended by the engineering faculty.

ADVANCED DEGREES

The degree 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 those who complete the year of graduate work following the respective course leading to the degree of bachelor of science and maintain a grade of A or B (see p. 103), in all subjects, pass a formal examination open to all members of the faculty, and submit a satisfactory thesis.

The professional degrees, civil engineer (C.E.), electrical engineer (E.E.), and mechanical engineer (M.E.), will be conferred in two years on graduates of this institution holding the degree (M.S.) and in three years on those with (B.S.) in their respective lines, if they give evidence of having been engaged continuously in acceptable engineering work and if they present satisfactory theses.

COURSE IN CHEMICAL ENGINEERING

Leading to the degree of Bachelor of Science in Chemical Engineering.
FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Chemistry, 1a	4	Chemistry, 2a.....	4
Engineering drawing, 1, 3... 4		Engineering drawing, 2, 4....	4
English, 1a	4	Surveying, 20	4
Shop, 1a	2	Shop, 4a	2
Military drill	2	Military drill	2
	<hr/>		<hr/>
	16+4		16+4

SOPHOMORE YEAR

	Hours		Hours
Calculus, 3b	4	Calculus, 4b	4
Physics, 1a, 1b.....	6	Physics, 2a, 2b.....	5
Qualitative chemistry, 8....	2	Quantitative chemistry, 9....	4
Elements of steam engin., 6..	2	Machine design, 5a.....	3
Shop, 3a	2	Shop, 4a	2
Military drill	2	Military drill	2
	<hr/>		<hr/>
	16+4		16+4

JUNIOR YEAR

	Hours		Hours
Mechanics, 41	5	Hydraulics, 50	4
Calculus, 5a	2	Organic chemistry, 4.....	4
Organic chemistry, 3.....	4	Mineralogy, 5	4
Electrical engineering, 5....	4	Chemical technology, 14....	4
Experimental engineering, 13a	2		<hr/>
	<hr/>		16
	17		

SENIOR YEAR

	Hours		Hours
Metallurgy, 1	4	Gas and fuel analysis, 16... 4	
Physical chemistry, 22.....	4	Electro chemistry, 23.....	4
Water analysis, 15.....	4	Thesis	4
Elective	4	Elective	4
	<hr/>		<hr/>
	16		16

COURSE IN CHEMICAL ENGINEERING
 Leading to the degree of Bachelor of Science.

*First Semester—**Second Semester—***FRESHMAN YEAR**

Hours	Hours
Plane trigonometry and higher algebra, 1a..... 4	Analytic geometry, 2a..... 4
Modern language 4	Modern language 4
Chemistry, 1 4	Chemistry, 2 4
English, 1a 4	Surveying, 20 4
Engineering drawing, 1..... 1	Engineering drawing, 2..... 1
Drill 2	Drill 2
<hr/>	<hr/>
17+2	17+2

SOPHOMORE YEAR

Hours	Hours
Calculus, 3b 4	Calculus, 4b 4
Modern language 4	Modern language 4
Chemistry, 8b 4	Physics, 1a, 1b..... 6
Engineering drawing, 3..... 4	Engineering drawing, 4..... 2
Shop 2	Shop 2
Military drill 2	Military drill 2
<hr/>	<hr/>
16+4	16+4

JUNIOR YEAR

Hours	Hours
Physics, 2a, 2b..... 5	Mechanics, 41 5
Calculus, 5a 2	Mineralogy, 5 4
Organic chemistry, 3..... 4	Organic chemistry, 4..... 4
El. of steam engineering, 6.. 2	Machine design, 5a..... 3
Quantitative chemistry, 9.... 4	
<hr/>	<hr/>
17	16

SENIOR YEAR

Hours	Hours
Hvdraulics, 50 4	Chemical technology, 14 4
Water analysis, 15..... 4	Bacteriology, 8 4
Metallurgy, 1 4	Electrical engineering, 5..... 4
Bacteriology, 7 4	Gas and fuel, 16..... 4
<hr/>	<hr/>
16	16

GRADUATE YEAR

(Supplementary work to the above.)

Leading to the degree of Master of Science in Chemical Engineering.

Hours	Hours
Physical chemistry, 22..... 4	Electro chemistry, 23..... 4
Experimental engineering, 13a 2	Sanitary engineering 3
Thesis 4	Thesis 3
Elective 6	Elective 6
<hr/>	<hr/>
16	16

COURSE IN CIVIL ENGINEERING

Leading to the degree of Bachelor of Science in Civil Engineering.

*First Semester—**Second Semester—*

FRESHMAN YEAR

Hours		Hours	
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Chemistry, 1a	4	Chemistry, 2a	4
Engineering drawing, 1, 3...	4	Engineering drawing, 2, 4...	4
English, 1a	4	Surveying, 20	4
Shop, 1a	2	Shop, 1b	2
Military drill	2	Military drill	2
<hr/>		<hr/>	
16+4		16+4	

SOPHOMORE YEAR

Hours		Hours	
Calculus, 3b	4	Calculus, 4b	4
Physics, 1a	6	Physics, 2a	5
Surveying, 21	3	Surveying, 22	3
Industrial chemistry, 8.....	3	Geology, 1a	4
Engineering drawing, 7.....	1	Engineering drawing, 8.....	1
Military drill	2	Military drill	2
<hr/>		<hr/>	
17+2		17+2	

JUNIOR YEAR

Hours		Hours	
Calculus, 5a	2	Hydraulics, 50	4
Mechanics, 41	5	Mechanics, 42	4
Railroads, 31	4	Railroads, 32	4
Electrical engineering, 5.....	4	Masonry, 45	5
Highways, 70	2	<hr/>	
<hr/>		17	
17			

SENIOR YEAR

Hours		Hours	
Bridges, 61	4	Bridges, 62	3
Water supply and irrigation, 55	3	Sanitary engineering, 56.....	3
Hydraulic power, 51.....	3	Contracts and specifications, 80	2
Structural materials, 65.....	3	Thesis	3
Options	4	Options	6
<hr/>		<hr/>	
17		17	

Options will be chosen with the consent of the class adviser from the following groups:

GROUP 1.

	Hours		Hours
Astronomy, 3	2	Astronomy, 4	2
Least squares, 11.....	2	Geodesy, 26	2
		Elective (restricted)	2

GROUP 2.

	Hours		Hours
Highway location, 71.....	2	Highway construction, 74.....	1
Highway construction, 73.....	2	Highway economics, 76.....	2
Highway metals, 75.....	1	Parks and boulevards, 78.....	2
		Chemistry, 18 (road oils and tars)	1

GROUP 3.

	Hours		Hours
Mechanics, 43	2	Mechanics, 44	2
Bridges, 63	2	Bridges, 64	2
		Elective (restricted)	2

GROUP 4.

	Hours		Hours
Water supply and irrigation design, 57	2	Sanitary engineering design, 58	2
Chemistry of water.....	2	Bacteriology, 9a	2
		Elective (restricted)	2

GROUP 5.

	Hours		Hours
Yards and terminals, 33.....	2	Tunnelling and track	
Electric railways, 44.....	2	elevation, 34	2
		Railway electrification	2
		Elective (restricted)	2

COURSE IN CIVIL ENGINEERING

Leading to the degree of Bachelor of Science.

FRESHMAN YEAR

First Semester—

Second Semester—

	Hours		Hours
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Modern language	4	Modern language	4
Chemistry, 1	4	Chemistry, 2	4
English, 1a	4	Surveying, 20	4
Engineering drawing, 1.....	1	Engineering drawing, 2.....	1
Military drill	2	Military drill	2
	<hr/>		<hr/>
	17+2		17+2

SOPHOMORE YEAR

	Hours		Hours
Calculus, 3b	4	Calculus, 4b	4
Chemistry, 8b	4	Physics, 1a, 1b.....	6
Modern language	4	Modern language	4
Engineering drawing, 5.....	4	Engineering drawing, 6.....	2
Shop, 1a	2	Shop	2
Military drill	2	Military drill	2
	<hr/>		<hr/>
	16+4		16+4

JUNIOR YEAR

	Hours		Hours
Calculus, 5a	2	Mechanics, 41	5
Physics, 2a, 2b.....	5	Electrical engineering, 5.....	4
Surveying, 21	3	Surveying, 22	3
Industrial chemistry	3	Highways, 70	2
Machine design, 10.....	3	El. steam engineering, 21....	2
	<hr/>		<hr/>
	16		16

SENIOR YEAR

	Hours		Hours
Mechanics, 42	4	Hydraulics, 50	4
Railroads, 31	4	Railroads, 32	4
Political science, 1.....	4	Masonry, 45	5
Geology, 1a	4	Elective	4
	<hr/>		<hr/>
	16		17

GRADUATE YEAR

Leading to the degree of Master of Science in Civil Engineering.

	Hours		Hours
Bridges, 61	4	Bridges, 62	3
Water supply and irrigation, 55	3	Sanitary engineering, 56.....	3
Hydraulic power, 51.....	3	Contracts and specifications, 80	2
Structural materials, 65.....	3	Thesis	3
Optional	4	Optional	6
	<hr/>		<hr/>
	17		17

COURSE IN ELECTRICAL ENGINEERING

Leading to the degree of Bachelor of Science in Electrical Engineering.

FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Chemistry, 1a	4	Chemistry, 2a	4
Engineering drawing, 1, 3...	4	Engineering drawing, 2, 4...	4
English, 1a	4	Surveying, 20	4
Shop, 1a	2	Shop, 1b	2
Military drill	2	Military drill	2
	<hr/>		<hr/>
	16+4		16+4

SOPHOMORE YEAR

	Hours		Hours
Calculus, 3b	4	Calculus, 4b	4
Physics, 1a, 1b.....	6	Physics, 2a, 2b.....	5
Machine design, 5a.....	3	Machine design, 5b.....	2
Industrial chemistry, 15....	3	Mechanism, 10	2
Shop, 2a	2	Political science, 1a.....	4
Military drill	2	Shop, 2b	2
	<hr/>	Military drill	2
	16+4		<hr/>
			17+4

JUNIOR YEAR

	Hours		Hours
Calculus, 5a	2	Mechanics, 42	4
Mechanics, 41	5	Electrical engineering, 2, 3...	7
Electrical engineering, 1....	4	Hydraulics, 50	4
Electrical measurements, 4...	4	Experimental engineering, 13a	2
El. St. engineering, 6.....	2		<hr/>
	<hr/>		17
	17		

SENIOR YEAR

	Hours		Hours
Alternating currents, 21, 22..	8	Alternating currents, 23, 24..	6
Electric railways, 44, or		Central stations, 46.....	2
Telephones, 31	2	Power transmission, 48.....	2
Dynamo design, 36	2	Thesis	4
Steam turbines, 26.....	2	Elective	2
Hydraulic design, 53.....	2		<hr/>
	<hr/>		16
	16		

COURSE IN ELECTRICAL ENGINEERING

Leading to the degree of Bachelor of Science.

FRESHMAN YEAR

First Semester—

	Hours
Plane trigonometry and higher algebra, 1a.....	4
Foreign language	4
Chemistry, 1	4
English, 1a	4
Engineering drawing, 1.....	1
Military drill	2
	<hr/> 17+2

Second Semester—

	Hours
Analytic geometry, 2a.....	4
Foreign language	4
Chemistry, 1a	4
Surveying, 20	4
Engineering drawing, 2.....	1
Military drill	2
	<hr/> 17+2

SOPHOMORE YEAR

	Hours
Calculus, 3b	4
Foreign language	4
Chemistry, 2a	4
Engineering drawing, 5.....	4
Shop, 1a	2
Military drill	2
	<hr/> 16+4

	Hours
Calculus, 4b	4
Foreign language	4
Physics, 1a, 1b.....	6
Engineering drawing, 6.....	2
Shop, 2a	2
Military drill	2
	<hr/> 16+4

JUNIOR YEAR

	Hours
Calculus, 5a	2
Physics, 2a, 2b.....	5
Political science, 1a.....	4
Machine design, 5a.....	3
Industrial chemistry, 15.....	3
Shop, 3a	2
	<hr/> 17+2

	Hours
Mechanics, 41	5
Electrical engineering, 1.....	4
Electrical measurements, 4....	4
Machine design, 5b.....	2
Mechanism, 10	2
Shop, 4a	2
	<hr/> 17+2

SENIOR YEAR

	Hours
Mechanics, 42	4
Electrical engineering, 2, 3...	7
Hydraulics, 50	4
El. steam engineering, 6.....	2
	<hr/> 17

	Hours
Alternating currents, 21, 22..	8
Telephones, 32, or meters, 41.	2
Experimental engineering, 13a	2
Hydraulic motors, 53.....	2
Elective	2
	<hr/> 16

GRADUATE YEAR

Leading to the degree of Master of Science in Electrical Engineering.

	Hours
Alternating currents, 23, 24..	6
Electric railways, 44.....	2
Dynamo design, 38.....	2
Steam turbines, 26.....	2
Structural materials, 65.....	2
Elective	2
	<hr/> 16

	Hours
Alternating currents, 51.....	4
Power transmission, 48.....	2
Central stations, 46.....	2
Thesis	4
Elective	4
	<hr/> 16

COURSE IN MECHANICAL ENGINEERING

Leading to the degree of Bachelor of Science in Mechanical Engineering.
FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Chemistry, 1a	4	Chemistry, 2a	4
Engineering drawing, 1, 3...	4	Engineering drawing, 2, 4...	4
English, 1a	4	Surveying, 20	4
Shop, 1.....	2	Shop, 2	2
Military drill	2	Military drill	2
	<hr/>		<hr/>
	16+4		16+4

SOPHOMORE YEAR

	Hours		Hours
Calculus, 3b	4	Calculus, 4b	4
Physics, 1a, 1b.....	6	Physics, 2a	5
Machine design, 10.....	3	Machine design, 11.....	2
Industrial chemistry, 13....	3	Political science, 1.....	4
Shop, 3	2	Mechanism, 20	2
Military drill	2	Shop, 4	2
	<hr/>	Military drill	2
	16+4		<hr/>
			17+4

JUNIOR YEAR

	Hours		Hours
Calculus, 5a	2	Mechanics, 42	4
Mechanics, 41	5	Electrical engineering, 2....	4
Electrical engineering, 1....	4	Hydraulics, 50	4
Steam engineering, 21.....	2	Engines and boilers, 22....	2
Experiment engineering, 41..	3	Valve gears, 24.....	2
Shop, 5	2	Shop, 6	2
	<hr/>		<hr/>
	16+2		16+2

SENIOR YEAR

	Hours		Hours
Hydraulic design, 53.....	2	Gas engines, 25.....	2
Machine design, 12.....	2	Machine design, 18.....	2
Engine and boiler design, 23.	3	Heating and ventilating, 31..	2
Steam turbines, 30.....	2	Power plants, 32.....	2
Thermodynamics, 31	2	Experimental engineering, 43.	2
Structural materials, 65....	2	Elective	2
Experimental engineering, 42	3	Thesis	4
	<hr/>		<hr/>
	16		16

COURSE IN MECHANICAL ENGINEERING

Leading to the degree of Bachelor of Science.

FRESHMAN YEAR

First Semester—		Second Semester—	
	Hours		Hours
Plane trigonometry and higher algebra, 1a.....	4	Analytic geometry, 2a.....	4
Foreign language	4	Foreign language	4
Chemistry, 1	4	Chemistry, 1a.....	4
English, 1a	4	Surveying, 20	4
Engineering drawing, 1.....	1	Engineering drawing, 2.....	1
Military drill	2	Military drill	2
	<hr/> 17+2		<hr/> 17+2

SOPHOMORE YEAR

	Hours		Hours
Calculus, 3b	4	Calculus, 4b	4
Foreign language	4	Foreign language	4
Chemistry, 2a	4	Physics, 1a, 1b.....	6
Engineering drawing, 5.....	4	Engineering drawing, 6.....	2
Shop, 1	2	Shop, 2	2
Military drill	2	Military drill	2
	<hr/> 16+4		<hr/> 16+4

JUNIOR YEAR

	Hours		Hours
Calculus, 5a	2	Mechanics, 41	5
Physics, 2a, 2b.....	5	Electrical engineering, 1....	4
Political science, 1.....	4	Machine design, 11.....	2
Machine design, 10.....	3	Mechanism, 20	2
Industrial chemistry, 13.....	3	Steam engineering, 21.....	2
Shop, 3	2	Elective	2
	<hr/> 17+2	Shop, 4	2
			<hr/> 17+2

SENIOR YEAR

	Hours		Hours
Mechanics, 42	4	Hydraulic motors, 53.....	2
Electrical engineering, 2....	4	Thermodynamics, 31	2
Hydraulics, 50	4	Power plants, 32.....	2
Experimental engineering, 41..	3	Valve gears, 24.....	2
Engine and boilers, 22.....	2	Engine and boiler design, 23..	2
Shop, 5	2	Machine design, 12.....	2
	<hr/> 17+2	Experimental engineering, 42..	3
		Shop, 6	2
			<hr/> 15+2

GRADUATE YEAR

Leading to the degree of Master of Science in Mechanical Engineering.

	Hours		Hours
Alternating currents, 21, 22..	8	Heating and ventilating, 31..	2
Machine design, 13.....	2	Gas engines, 25.....	2
Steam turbines, 30.....	2	Gas engine design, 26.....	2
Experimental engineering, 43..	2	Electric railways, 44.....	2
Structural materials, 65.....	2	Graphic statics, 33.....	2
	<hr/> 16	Elective	2
		Thesis	4
			<hr/> 16

DEPARTMENTS OF INSTRUCTION

CHEMICAL ENGINEERING

HORACE G. BYERS, *Professor*;

HENRY KREITZER BENSON, *Associate Professor*;

WILLIAM MAURICE DEHN, *Assistant Professor*;

ROBERT E. ROSE, *Instructor*;

*HARLAN TRUMBULL, *Instructor*.

1, 2. GENERAL CHEMISTRY. *Four hours*. Many students come from accredited schools in which chemistry is not required. To meet the needs of such students, a course is offered consisting of two lectures and six hours laboratory work per week. Text-books, Smith's College Chemistry and Laboratory Manual.

Professor BYERS, Instructors and Assistants.

1a, 2a. GENERAL CHEMISTRY. *Four hours*. This course is designed primarily for engineers, but is open to all students who have had a year's work in chemistry in an accredited high school. It consists of two lectures and six laboratory hours per week. At least one of these laboratory hours will be devoted to quiz work upon the subject-matter of the lectures. The text-books used are Smith's General Chemistry, Smith's Laboratory Manual and Byers and Knight's Qualitative Analysis.

Professor BYERS, Dr. ROSE and Assistants.

1b. GENERAL CHEMISTRY. *Second semester. Four hours*. To meet the need of students coming from high schools at the beginning of the second semester, the course 1a, 2a is repeated, beginning the second semester. Strong students or those carrying light course will be permitted to elect this course without the prerequisite high school course; but to satisfy the required work of the engineering course, such students must elect some other four-hour course in the department of chemistry. Dr. ROSE.

2b. GENERAL CHEMISTRY. *First semester. Four hours*. Continuation of 1b of second semester. Assistant Professor DEHN.

* Absent on leave.

3, 4. **ORGANIC CHEMISTRY.** *Four hours.* A lecture course on the chemistry of the compounds of carbon. Laboratory work on the preparation and testing of representative compounds. Bernthsen-Sudborough's text is used as a reference book in connection with the lectures and Sudborough-James's laboratory manual is used as a laboratory guide. Assistant Professor DEHN.

8. **ADVANCED QUALITATIVE ANALYSIS.** *First semester. Four hours.* Lectures on the theory of solution as applied to analytical work. Laboratory work on the analysis of alloys and minerals and illustrations of the subject-matter of the lectures. Two lectures and six laboratory hours per week. Professor BYERS.

8b. **ELEMENTARY QUALITATIVE ANALYSIS.** *First semester. Four hours.* Chemistry 1, 2, is followed by a course in qualitative analysis. The course consists of two lectures and six laboratory hours per week. Text-book: Byers and Knight.

Assistant Professor DEHN.

9. **QUANTITATIVE ANALYSIS.** *Each semester. Four hours.* Gravimetric and volumetric analysis. Olsen's Quantitative Analysis. Twelve laboratory hours and one recitation per week.

Associate Professor BENSON.

12. **INDUSTRIAL CHEMISTRY.** *First semester. Three hours.* A course designed for civil engineers. It takes up the study of the chemistry of the materials for engineering, such as cement, building stones, wood preservation, paints, explosives, paving materials, clay products, structural steel and sanitary water. Two lectures and one laboratory afternoon. Prerequisite: Qualitative analysis.

Associate Professor BENSON.

13. **INDUSTRIAL CHEMISTRY.** *First semester. Three hours.* A course designed for mechanical and electrical engineers. It deals with the chemistry of materials of engineering such as explosive mixtures, oils, lubricants, fuels, boiler water, insulating materials, alloys and the commercial forms of iron. Two lectures and one laboratory period. Prerequisite: Qualitative analysis.

Associate Professor BENSON.

14. **CHEMICAL TECHNOLOGY.** *Second semester. Four hours.* Required of chemical engineers and elective for students who have had quantitative chemistry. A course dealing with a detailed study of the industries of the Northwest and intended to acquaint

the student with the materials and processes employed in these industries. Three lectures and one laboratory period per week.

Associate Professor BENSON.

15. **WATER ANALYSIS.** *First semester. Four hours.* A course consisting of one lecture and twelve hours laboratory work per week will be given in the analysis of water for both industrial and sanitary purposes.

Professor BYERS.

16. **GAS AND FUEL ANALYSIS.** *Second semester. Four hours.* Required of chemical engineers and elective for students with prerequisite. The lectures deal with the properties of the natural fuels and the preparation of artificial fuels. The laboratory work deals with the testing of fuels and a study of fuel specifications and the analysis of flue gases and commercial gases. Two lectures and two laboratory periods per week. Prerequisite: Quantitative chemistry.

Associate Professor BENSON.

17. **SOILS AND FERTILIZERS.** *Second semester. Two hours.* A lecture course dealing with the soils of Washington and the method of soil enrichment. It aims to present the fundamental ideas necessary for field identification and classification and a discussion of the elements of fertility. Prerequisite: General chemistry.

Associate Professor BENSON.

18. **ROAD OILS AND TARS.** *Second semester. Two hours.* A course offered as a civil engineering option for students in highway engineering. One period of four hours' work is given over to the study of the composition and properties of road-binding materials. One hour is used for lecture and three hours for laboratory tests to determine whether the materials conform to specifications.

Associate Professor BENSON.

22. **PHYSICAL CHEMISTRY.** *First semester. Four hours.* An elementary lecture course dealing with fundamental theories of chemistry based upon physical measurements. The laboratory work consists of measurements of density, molecular weights, thermal effects, reaction, velocity and a short research problem. Three lectures and one laboratory period per week. Prerequisites: Quantitative chemistry and college physics.

Associate Professor BENSON.

23. **ELECTRO CHEMISTRY.** *Second semester. Four hours.* The lecture course deals with the historical development of electro

chemistry, the theories of electrolysis, migration of ions, concentration cells, solution pressure, etc. The laboratory work consists of the preparation of compounds by electrolysis and electro-synthesis, electro-plating, etc., and of illustrations of the subject-matter of the lecture work. Prerequisites: 8 and college physics.

Professor BYERS.

CIVIL ENGINEERING.

ALMON HOMER FULLER, *Professor*;

ELMER JAMES MCCAUSTLAND, *Professor*;

CHARLES CHURCH MORE, *Associate Professor*;

CHARLES W. HARRIS, *Assistant Professor*;

JOHN WILLIAM MILLER, *Instructor*;

JULIUS ADLER, *Instructor*;

WALTER AUSTIN GLEASON, *Instructor*;

WILLIAM CHARLES MUEHLSTEIN, *Instructor*;

_____, *Instructor*;

_____, *Instructor*;

CHARLES EVAN FOWLER, *Lecturer*.

SUBJECTS

1, 2. ENGINEERING DRAWING. *One hour.* Linear drawing, including exercises in irregular curves and section lining; Roman and Gothic capital letters; a system of freehand lettering for working drawings. Prerequisite, plane geometry.

Assistant Professor HARRIS and _____.

3, 4. ENGINEERING DRAWING. *Each semester. Three hours.* The elements of descriptive geometry, including orthographic projection, rotation of points, lines and planes, intersection of surfaces, warped surfaces and principles of shades, shadows and perspective. Prerequisites, solid geometry, preceded or accompanied by drawing 1 and 2.

Assistant Professor HARRIS, Professor MCCAUSTLAND, Mr. GLEASON, Mr. MUEHLSTEIN and Mr. _____.

5. ENGINEERING DRAWING. *Each semester.* Orthographic projection supplemented by principles of descriptive geometry to and including intersections and development of surfaces. Prerequisites: Drawing 2 and mathematics 2a.

Assistant Professor HARRIS and _____.

6. **ENGINEERING DRAWING.** *Second semester.* Continuation of drawing 5. Problems and tracings. Prerequisites, 5 or 4.

Assistant Professor HARRIS and ———.

7, 8. **ENGINEERING DRAWING.** *One hour.* Working drawings, including tracings of timber, masonry, and steel structures. Prerequisite, 4.

Assistant Professor HARRIS and ———.

20. **PLANE SURVEYING.** *Each semester.* Theory of chain, compass, and transit surveying, leveling, the adjustment and use of instruments, methods used in the United States public land surveys, computations of area, maps. Prerequisites: Drawing 1 and mathematics 1a.

Mr. GLEASON and Assistants.

21. **MAPPING.** *Each semester. Three hours.* Freehand lettering and tracing. Use of conventional signs and colors. Construction of industrial maps from actual field notes. Finishing and filing maps both for legal and for office use. Methods of computing and the use of computing instruments. One of the primary purposes of this course is to teach the student the value of keeping good notes. Working drawings of railroad structures. Prerequisite, surveying 20.

Mr. MILLER.

22. **CONSTRUCTION SURVEYING.** *Second semester. Three hours.* Field geometry and earthwork. Theory and field practice of circular, parabolic and spiral curves and turnouts. Staking out and computing earthwork and the setting of stakes for construction work generally. Computations and estimates from cross-section notes, profile and contour map. Prerequisite, surveying 21.

Mr. MILLER.

23. **TOPOGRAPHIC SURVEYING.** *First semester. Three hours.* Base line measurement. Reading, adjusting and computing triangulation systems. Methods of making topographic and hydrographic systems, including phototopography and cartography. Prerequisites: Surveying 21, mathematics 4b.

Mr. MILLER.

24, 25. **FOREST SURVEYING.** Instruction in the use of drawing instruments and practice in linear drawing, including freehand lettering. Theory of chain, compass, level and transit surveys and instruction in the use and adjustment of instruments. Methods used in the United States public land surveys with particular reference to work in forests. Computations and mapping. Prerequisites: Mathematics 1a and forestry 2.

Mr. ———.

26. **FOREST TOPOGRAPHY.** *First semester. Four hours.* Topographical surveys as applied to forestry. Reconnaissance and sketch maps and exercises in reading and adjusting plane triangulation systems. Filling in topographic details with transit, and plane table or traverse board. Study of the relative costs of mapping wooded areas by different methods. Mr. ———.

27. **LOGGING RAILROADS.** *Second semester. Four hours.* Circular curves, simple and compound. Vertical curves. Location of roads, trails and logging railroads. Profiles and estimates. Construction work of building logging roads. Cross-sectioning and computing earthwork. Mr. ———.

28. **MINING SURVEYING.** *Each semester. Three hours.* Field adjustments of the transit and level. Use of the mining clinometer and other instruments designed primarily for mining work. Methods of carrying a meridian underground and underground practice. Maps and records. The surface surveying in this course includes the surveying of mineral claims for patent, borehole surveys and a brief introduction to topographic work. The topographic work includes plane triangulation, base line measurement and photographic surveying. Prerequisite, surveying 20. Mr. ———.

31. **RAILWAY OPERATION.** *First semester. Three hours.* Economics of the operation of railways from an engineering standpoint. Train weights and resistances, costs, etc. Conducting transportation and maintenance of way and equipment. Track economics. Prerequisite, surveying 22, preceded or accompanied by mechanics 41. Mr. MILLER.

32. **RAILWAY CONSTRUCTION.** *Second semester. Two hours.* The economics of railway location and the relation of location to operation. Grade line design. Surveys and estimates. Betterment surveys. Contracts and specifications. Right-of-way. Prerequisite, 31. Mr. MILLER.

33. **YARDS AND TERMINALS.** *First semester. Two hours.* The design and operation of the large yards of modern railway organizations, and the control of trains by means of signaling and interlocking. Two hours class and office work. Prerequisite, 32. Mr. MILLER.

34. TUNNELLING AND TRACK ELEVATION. *Second semester. Two hours.* A course dealing with the problems confronting the engineer on track elevation and the construction of subways. Advanced railway engineering design. Prerequisite, 32.

Mr. MILLER.

35. RAILWAY ELECTRIFICATION. *Second semester. Two hours.* A study of the economic principles involved in the electrification of existing railway lines and the construction and operation of rapid transit lines. Prerequisites: 33 and electrical engineering 44.

Mr. MILLER.

41, 42. MECHANICS. *41 each semester, five hours. 42 each semester, four hours.* Statics, dynamics and mechanics of materials. Solution of problems by graphic and analytic methods. Recitations and computations. Prerequisites: Mathematics 4b, physics 1a.

Associate Professor MORE, and Mr. ADLER.

43, 44. ADVANCED MECHANICS. *Two hours.* An elective course in advanced structural mechanics, in which consideration is given to the general theories of flexure, elasticity and least work, with application to continuous girders, elastic arches, etc. Prerequisites, 42 and 45.

Associate Professor MORE.

45. MASONRY CONSTRUCTION. *Second semester. Five hours.* A study of the properties of the materials employed in masonry construction and their use in foundations, piers, abutments, retaining walls, dams and arches. Recitations and design. Prerequisites: Engineering drawing 6 or 8, preceded or accompanied by mechanics 42.

Associate Professor MORE.

50. HYDRAULICS. *Second semester.* Flow of water through pipes and orifices, over weirs and in open channels; energy, impulse and reaction of jets with application to impulse wheels. A brief review of hydrostatics is given at the beginning of the semester. This course must be preceded or accompanied by 42.

Assistant Professor HARRIS.

51. HYDRAULIC POWER. *First semester. Three hours.* Stream flow, storage and generation of power. Development and theory of present types of turbines; design of a spillway dam, penstock and reaction turbine; test of an existing power plant. Prerequisite, 50.

Assistant Professor HARRIS.

53. **HYDRAULIC MOTORS.** *First semester. Two hours.* Development and theory of water wheels and turbine pumps; design of a reaction turbine. Prerequisite, 50.

Assistant Professor HARRIS.

55. **WATER SUPPLY AND IRRIGATION.** *First semester. Three hours.* This course includes a study of the principal engineering operations necessary to secure suitable water supplies for cities and towns. Some of the features considered are, sources of supply, flow of streams, impounding and storage reservoirs, conduits and pipe lines, standpipes, and the distributing system. Standards of purity for potable waters. Drafting-room work weekly. Prerequisite, 50.

Professor McCAUSTLAND.

56. **SANITARY ENGINEERING.** *Second semester. Three hours.* A study of the design and construction of sewerage systems, both combined and separate. The disposal of organic wastes. Treatment of sewage to secure non-putrescible effluents. Drafting-room work weekly. Prerequisite, 55. Professor McCAUSTLAND.

57. **WATER SUPPLY AND IRRIGATION DESIGN.** *First semester.* Supplementary to course 55, with special problems in design. Purification of water. Sedimentation basins and filters. Design of diversion weirs, canals, flumes and drops.

Professor McCAUSTLAND.

58. **SANITARY ENGINEERING DESIGN.** *Second semester. Two hours.* Supplementary to course 56, with special problems in design. Treatment of sewage. Precipitation and septic tanks. Contact and percolating filters. Trickling filters and hydrolytic tanks.

Professor McCAUSTLAND.

61, 62. **BRIDGES.** Stresses, design and deflection of simple trusses with parallel and with non-parallel chords. Algebraic and graphic methods. Complete detail drawing of a portion of some structure. Estimates of cost. Prerequisite, 45.

Professor FULLER.

63, 64. **HIGHER STRUCTURES.** *Two hours.* Theory and design of drawbridges, cantilever and suspension bridges, metallic and reinforced concrete arches. Must be preceded or accompanied by 61, 62.

Professor FULLER.

65. **STRUCTURAL MATERIALS.** *First semester. Three hours.* A study of the physical properties of timber, iron, steel, stone,

brick, cement, concrete, etc. Lectures and laboratory work. Laboratory deposit three dollars. Prerequisite, 42.

Professor FULLER and Mr. MUEHLSTEIN.

70. HIGHWAYS. *Second semester. Two hours.* A series of illustrated lectures, and recitations, constituting a general survey of highway location, construction and maintenance, with particular reference to American road-building problems.

Mr. ADLER.

71. HIGHWAY LOCATION. *First semester. Two hours.* Theory of location as applied to country roads, city streets, drives and boulevards. A study of the difference between railway and highway location. Lectures, recitations and paper location. Prerequisite, 45.

Mr. ADLER.

73. HIGHWAY CONSTRUCTION. *First semester. Two hours.* A detailed study of rural highway construction from the standpoint of drainage, grading, and the treatment of the wearing surface of every type of road, whether of earth or the best types of gravel and crushed stone; current American practice as represented by various state highway commissions. Mr. ADLER.

74. HIGHWAY CONSTRUCTION. *Second semester. Two hours.* A study of city streets and pavements, and of the manufacture and testing of the various materials used therein. Mr. ADLER.

75. HIGHWAY METALS. *First semester. One hour.* A study of the proper selection of materials for use in metalling the surface of roads to meet the varying conditions of traffic. Laboratory work; all standard tests for highway metals. Mr. ADLER.

76. HIGHWAY ECONOMICS. *Second semester. Two hours.* The economic justification for improved highways; a study of the laws of American states dealing with revenues for construction, supervision and maintenance of highways. Mr. ADLER.

80. CONTRACTS AND SPECIFICATIONS. *Two hours. Second semester.* Lectures on the law of contracts and a study of engineering specifications. Mr. COCKERELL and Special Lecturers.

ELECTRICAL ENGINEERING

CARL EDWARD MAGNUSSON, *Professor*;FRANK E. JOHNSON, EDGAR A. LOEW, CHARLES E. MALLORY,
Instructors;JAMES D. ROSS, JOHN HARISBERGER, ELBERT G. ALLEN,
S. C. LINDSAY, *Lecturers*.

FOR UNDERGRADUATES

1. ELECTRICAL ENGINEERING. *Each semester. Four hours.* Theory of the magnetic circuit; construction, operation, and the characteristics of direct generators and motors. The theory is illustrated and supplemented by a large number of quantitative problems from commercial machines.

Mr. LOEW, Mr. MALLORY.

2. ELECTRICAL ENGINEERING. *Each semester. Three hours.* Continuation of course 1, and including storage batteries and the principles of photometry.

Mr. LOEW.

3. DYNAMO LABORATORY. *Each semester. Four hours.* Experimental work on direct current dynamo machinery and storage batteries. Commercial photometry. Must be taken in connection with course 2.

Mr. LOEW, Mr. MALLORY.

4. ELECTRICAL MEASUREMENTS. *Each semester. Four hours.* Prerequisite, physics 1a and 2a.

Dr. GRONDAHL.

5. ELECTRICAL ENGINEERING. *Each semester. Four hours.* This course deals with the more important industrial applications of electricity, and is arranged to meet the needs of students in civil and chemical engineering.

Mr. JOHNSON and Mr. MALLORY.

6. ELECTRICAL ENGINEERING. *Second semester. Three hours.* This course deals with the application of electricity to mining and is arranged for students in mining engineering.

Mr. MALLORY.

7. ELECTRICAL ENGINEERING. *Second semester. Four hours.* This course is planned for students in mechanical engineering who have completed course 1. The work covers the more important features of direct current dynamos and also includes a brief outline of alternating current theory and some experiments with alternating current machinery.

Mr. MALLORY.

15. **ALTERNATING CURRENTS.** *Second semester. Two hours.* An introduction to alternating currents theory and practice, with laboratory work on alternating current machinery. Elective for students who have completed course 5. Professor MAGNUSSON.

FOR GRADUATES AND UNDERGRADUATES

21. **ALTERNATING CURRENTS.** *First semester. Four hours.* The theory of the generation of single phase and polyphase currents, the use of the complex quantity, and the calculation and behavior of alternating current apparatus and transmission lines. Professor MAGNUSSON.

22. **ALTERNATING CURRENTS LABORATORY.** *First semester. Four hours.* Experimental work on alternating current machinery. To be taken with course 21. Professor MAGNUSSON.

23. **ALTERNATING CURRENTS.** *Second semester. Four hours.* The theory of the single phase and polyphase induction motor, synchronous motor, and rotary converter. The effect of these motors on transmission lines and systems. Distortion of wave shape and the effects of higher harmonics. Professor MAGNUSSON.

24. **ALTERNATING CURRENTS. LABORATORY.** *Second semester. Two hours.* A continuation of course 22 with tests on large commercial machines. Professor MAGNUSSON.

31. **TELEPHONES.** *First semester. Two hours.* Theory, construction, and operation of telephone and telephone systems. General station practice. Mr. JOHNSON.

32. **TELEPHONES AND TELEGRAPHS.** *Second semester. Two hours.* Details of automatic and manual switchboards. Testing and locating of faults. Multiplex and wireless telegraphy. Railway signal systems. Mr. JOHNSON.

36. **DYNAMO DESIGN.** *Each semester. Two hours.* Complete design of one direct current generator or motor. Mr. LOEW.

37. **DESIGN OF ELECTRICAL APPARATUS.** *Second semester. Two hours.* Design of switchboards, transformers, alternating generators or motors. Mr. LOEW.

41. **METERS.** *Second semester. Two hours.* Detail study of different types of electrical meters and the problems arising in

the measurements of electrical energy for various commercial requirements. Mr. JOHNSON.

44. **ELECTRIC RAILWAYS.** *First semester. Two hours.* Electrical equipment and rolling stock; roadbed; construction, and operation of direct current, single phase and polyphase systems.

Professor MAGNUSSON, Mr. ALLEN.

46. **CENTRAL STATIONS AND ELECTRIC LIGHTING.** *Second semester. Two hours.* Location, design, and operation of electric central stations. Electric lighting systems.

Mr. JOHNSON, Mr. ROSS.

48. **POWER TRANSMISSION.** *Second semester. Two hours.* Location, design, and operation of electric power transmission systems.

Mr. LOEW, Mr. HARISBERGER.

FOR GRADUATES

51. **ALTERNATING CURRENTS.** *Second semester. Four hours.* Transient electrical phenomena and alternating current commutator motors. Prerequisites: Courses 21, 22, 23, 24.

Professor MAGNUSSON.

MECHANICAL ENGINEERING

EVERETT OWEN EASTWOOD, *Professor;*

GEORGE SAMUEL WILSON, *Assistant Professor;*

SAMUEL THOMAS BEATTIE, *Instructor in Woodwork;*

SANDY MORROW KANE, *Instructor in Metalwork;*

_____, *Instructor.*

1. **CARPENTRY AND WOOD-TURNING.** One four-hour exercise a week, each semester. The student receives training in the use and care of wood-working tools. Instruction and practice is given in sawing, planing, chiseling, channelfering, grooving, framing, tenoning, mortising, dovetailing, splicing, gluing. Exercises in turning include consideration of speeds, use of gouges, chisels, nosing tools, side tools, parting tools, and calipers. Mr. BEATTIE.

2. **PATTERN MAKING AND CABINET WORK.** One four-hour exercise a week, each semester. Same schedule as 1. The pattern making includes the construction of core boxes, and such patterns as pipe fitting, valves, pulleys, and machine parts. This is followed by a series of exercises in cabinet work embracing the ap-

plication to more difficult and advanced work of the principles previously given. Mining engineers are given practice in framing of mine timbers, working from drawings and blue prints.

Mr. BEATTIE.

3. **FORGE AND FOUNDRY.** One four-hour exercise a week each semester. The student is given 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. In the foundry the student is given work in iron and brass; bench and floor moulding, core-making, and is instructed with the view toward proficiency in management of the cupola.

Mr. KANE.

4. **MACHINE WORK.** One four-hour exercise a week each semester. The course begins with exercises in chipping, filing, and scraping. These are followed by work on the lathe in both iron and brass, including straight and taper turning, centering, chucking, screw cutting, boring, drilling and tapping, knurling and polishing. A few exercises on other machines are given.

Mr. KANE.

5. **MACHINE WORK.** One four-hour exercise each week of the first semester. Continuation of 4, including more difficult work on the lathe, and the use of the milling machine, grinder, planer and shaper.

Mr. KANE.

6. **MACHINE WORK.** One four-hour exercise each week of the second semester. Construction of some special machine or apparatus for a particular purpose.

7. **MANUAL ARTS, WOODWORK.** Supplemental course in woodwork intended for those who expect to teach the subject. The work will be adapted to the individual needs and preparation of the student.

Mr. BEATTIE.

8. **MANUAL ARTS, METALWORK.** Supplemental course in machine work intended for those who expect to teach the subject. The work will be adapted to the individual needs and preparation of the student.

Mr. KANE.

In giving the course of shop work it is not the object of the department to make tradesmen of the engineering students, but

to give them sufficient experience to make them competent judges of shop work. A series of lectures is given during the progress of each course on the construction, care, and selection of all shop tools. In general, explanation and instruction will be given the class collectively before each exercise embodying new work or new principles. This will be supplemented by individual instruction.

10. MACHINE DESIGN. *Three hours. Each semester.* A study of the design of machine details, giving practice in the application of modern formulæ and manufacturers' standards. Design of bolts, riveted joints, boiler staying, bearings, etc. Prerequisite, engineering drawing 4. Mr. ———.

11. MACHINE DESIGN. *Each semester. Two hours.* A continuation of course 10, consisting in the design of gearing, cone pulleys and belt transmission. Practice in tracing and blue printing will comprise a part of this work. Prerequisite, 10, preceded or accompanied by mechanism 20. Mr. ———.

12. DESIGN OF SPECIAL MACHINERY. *First semester. Two hours.* Special problems in the design of hoisting and pumping machinery are assigned. Attention is given to the theory of design and the methods employed by various builders. Prerequisites, 11 and mechanics 41. Assistant Professor WILSON.

13. ADVANCED MACHINE DESIGN. *Second semester. Two hours.* Special problems in the design of machine tools, and automatic machinery are given, suited to the abilities and inclination toward specialization of the students. Prerequisites, 12, 20 and mechanics 42. Assistant Professor WILSON.

10a. MACHINE DESIGN. *Each semester. One hour.* First five weeks. For students taking mining engineering, an abridgement of 10. Mr. ———.

20. MECHANISM. *First or second semester. Two hours.* A study of the operation of machines involving the transmission of forces and the production of determinate motions. Assistant Professor WILSON.

21. STEAM ENGINEERING. *Each semester. Two hours.* Brings before the student the various forms of steam apparatus used in modern power plants, considering the construction, use and

reasons for installing such apparatus. The course tends to create a working vocabulary in this branch of engineering.

Professor EASTWOOD.

22. **ENGINES AND BOILERS.** *Second semester. Two hours.* A study of the generation and use of steam in boilers and engines; valve gears; governors; the conditions necessary for maximum efficiency; the influence of economizers, feed-water heaters, etc., upon the engine and boiler performance. Prerequisite, 21.

Professor EASTWOOD.

23. **ENGINES AND BOILER DESIGN.** *Second semester. Three hours.* A study of the theory of the design and its application. One complete problem will be assigned for solution in the class room. Special reference will be made to the methods employed by various engine and boiler manufacturers. Prerequisites, 11, 22 and mechanics 41.

Professor EASTWOOD.

24. **VALVE GEARS.** *Second semester. Two hours.* A course in the theory and practice of designing the various kinds of valve gears for steam engines. Prerequisite, 21 or 22.

Assistant Professor WILSON.

25. **GAS ENGINES.** *Second semester. Two hours.* A study of the development of gas engineering, including the different types of gas engines, and gas producers and methods of testing. Prerequisite, 21.

Assistant Professor WILSON.

26. **GAS ENGINE DESIGN.** *First semester. Two hours.* Calculations and plans for the design of a given type of gas engine. Prerequisite 25.

31. **THERMODYNAMICS.** *First semester. Two hours.* A consideration of the fundamental principles underlying the transformation of heat into work, with reference to the steam engine, the gas engine and hot air engine, including the discussion of the properties of gases and vapors, and the operation of refrigerating machinery; a study of the use and efficiency of the simple, compound, and multiple expansion engine. The solution of numerous problems arising in practice are required. Prerequisites, 21 or 22, physics 2a; and mathematics 4b. Professor EASTWOOD.

33. **GRAPHIC STATICS OF MECHANISM.** *First semester. Three hours.* The graphic determination of the forces acting at different points in machines used for hoisting, crushing, punching

and power transmission. Also, a study of the effects of friction and the stiffness of ropes and belts. Prerequisite, mechanics 41.
Professor EASTWOOD.

40. **EXPERIMENTAL ENGINEERING.** *First or second semester. Two hours.* Calibrations of thermometers, gages, indicator springs, etc. Friction and mechanical efficiency tests of the simple steam engine are made. One complete engine and boiler test with report is required. Prerequisite, preceded or accompanied by 21.
Assistant Professor WILSON.

41. **EXPERIMENTAL ENGINEERING.** *First semester. Three hours.* Same as 40 except an additional laboratory period is provided. Intended for mechanical engineering students.

42. **EXPERIMENTAL ENGINEERING.** *First semester. Two hours.* A continuation of course 40, involving more extended and complete investigations. Special attention is given to the theory involved and previous experiments. Gas and fuel analysis. Prerequisite, 41.
Assistant Professor WILSON.

43. **EXPERIMENTAL ENGINEERING.** *Second semester. Two hours.* An advanced course in commercial testing. Special advantages are enjoyed in this work in having the privileges of a number of the large power plants extended to the department. The work will be carried on from the commercial standpoint, and reports made from the same point of view. Prerequisite, 42.
Professor EASTWOOD and Assistant Professor WILSON.

30. **STEAM TURBINES.** *First semester. Two hours.* The theory, construction and design of steam turbines. Prerequisite, 21.
Professor EASTWOOD.

31. **HEATING AND VENTILATING.** *Second semester. Two hours.* A course of lectures and recitations considering the various systems of heating and ventilating, methods of design and tests. Prerequisite, 21.
Professor EASTWOOD.

32. **POWER PLANTS.** *Second semester. Two hours.* A study of the design of power plants involving their location, buildings, prime movers, power transmission, etc. Prerequisite, 22.
Professor EASTWOOD.

50. **NAVAL ARCHITECTURE.** *First semester. Two hours.* Elective. A course in theoretical naval architecture, involving the calculations common to ship construction, including areas, vol-

umes, weights, stability, streams, resistance; and powering. Instructions will be given by lectures and recitations, accompanying regular drafting room work. Professor EASTWOOD.

51. **SHIP DRAWING AND DESIGN.** *Second semester. Two hours.* Hours to be arranged. Elective. An application of the principles of naval architecture to the design of a steamship for a definite purpose. Having given the conditions under which the vessel is to operate, the student determines the type best suited for the purpose, and the dimensions and form of the hull. The work is continued by fairing the lines, determining the general arrangement, and the scantlings in accordance with the rules of the American bureau of shipping. Professor EASTWOOD.

COLLEGE OF FORESTRY

FACULTY

FRANK G. MILLER, M.F., Yale, Professor of Forestry, *Dean*;
HUGO A. WINKENWERDER, M.F., Yale, Associate Professor of
Forestry;
WILLIAM T. ANDREWS, Instructor in Forestry;
BURT P. KIRKLAND, M.F., Yale, Lecturer in Forest Management;
OLIVER P. M. GOSS, C.E., Purdue, Lecturer in Timber Physics;
BROR L. GRONDAL, A.B., Bethany, Graduate Assistant.

SPECIAL LECTURERS

GEORGE H. CECIL, District Forester, United States Forest Service,
Lecturer on Forest Administration.
W. E. HERRING, District Engineer, District 6, United States For-
est Service, Lecturer on Forest Engineering.
CHARLES S. JUDD, Assistant District Forester, United States For-
est Service, Lecturer on Timber Sales.
THOMAS P. MACKENZIE, Assistant District Forester, District 6,
United States Forest Service, Lecturer on Grazing.
CHARLES H. FLORY, Assistant District Forester, United States
Forest Service, Lecturer on Forest Organization.
F. E. AMES, Assistant District Forester, United States Forest
Service, Lecturer on Timber Sales.
THORNTON T. MUNGER, Chief of Silvics, United States Forest
Service, Lecturer on Silvics and Planting.
J. B. KNAPP, Assistant District Forester, District 6, United States
Forest Service, Lecturer on Forest Products.
C. J. BUOK, Assistant District Forester, United States Forest
Service, Lecturer on Forest Law.
D. W. HARRINGTON, D.V.M., Lecturer on Veterinary Science and
Animal Husbandry.
J. T. JARDINE, Grazing Expert, United States Department of Ag-
riculture, Lecturer on Plant Ecology.

STATEMENT

The School of Forestry was established in 1907. It has a two-fold 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 school 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.

In 1905, the United States government through its Forest Service designated the University of Washington as the site of a Government Timber Testing Station. A timber testing engineer and assistants are stationed here, and extensive scientific tests of the strengths of western timbers are regularly carried on. Students of forestry are given the privilege of the testing laboratory and have here ample facilities for making investigations in the strength and mechanical properties of wood.

"What are the opportunities for young men in forestry?" is a question that is frequently raised. In reply it is pointed out that the extensive national forests in the United States and Alaska are being put under scientific management. The proper handling of this work alone will eventually require the services of several thousands of men especially trained in forestry. Many of the states are developing forest policies, and these are employing foresters in increasing numbers. Private owners of timber lands, recognizing the importance of putting their holdings under expert management, are beginning to call for men trained for this purpose. Thus it is that while the practice of forestry is still in its infancy in the United States, the call for professional foresters is already comparatively large.

GROUPS OF STUDY AND DEGREES

The School of Forestry offers four groups of study. Groups I and II are undergraduate groups leading to the degree of Bachelor of Science in Forestry. Group I is designed to prepare students more especially for government and state work in forestry.

Group II (Lumberman's Group) is planned to meet the needs of young men preparing to take charge of logging and milling operations, or wishing to enter on a business career in some phase of the lumber industry. The group provides for several electives, thus permitting considerable specialization on the part of the student.

Group III covers five years. Like Group I, it is designed for young men who expect to enter the field of professional forestry, but who wish a broader foundation for the work than a four-year group makes possible. It is especially recommended for those young men who expect to enter the government service as forest assistants. The first four years lead to the degree of Bachelor of Science, and the fifth year to the degree of Master of Science in Forestry.

Group IV is a two-year graduate group, designed for men who, having obtained a collegiate degree, wish to take up the profession of forestry. The group leads to the degree of Master of Science in Forestry.

Thorough courses in the auxiliary sciences, mathematics, surveying and political economy are required in all groups as a foundation for the technical courses in forestry.

LABORATORIES AND MUSEUM

For description of the forest laboratories see page 77 and of the forest museum and other equipment, see page 68.

SUMMER WORK

Students of forestry are urged to spend their summer vacations 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 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.

FIELD EXCURSIONS

Much of the instruction in technical forestry is given in the field, necessitating frequent field excursions to nearby forests, logging camps and saw mills. The expense of these excursions is about ten dollars for the freshman year, fifteen dollars for the sophomore year, twenty-five dollars for the junior year, and fifty dollars for the senior year.

LABORATORY DEPOSITS

A deposit of one dollar is made in courses 1, 3, 5, 6, and 13, and two dollars in 7 and 19.

GENERAL FORESTRY

ADMISSION

The requirements for admission to the freshman class of the School of Forestry are:

	<i>Credits.</i>
English	4
Algebra	1½
Plane geometry	1
Solid geometry	½
Physics	1
U. S. history and civics.....	1
Botany	1
One foreign language	2
Elective	3
<hr/>	
Total.....	15

For more specific information concerning the preparation necessary to meet the above requirements and for list of electives, see page 87 and following:

Students may be admitted:

- (1) By presenting a certificate of graduation from an accredited school (for list see page 99) covering the above subjects.
- (2) By passing a satisfactory examination in the above subjects.

GROUPS OF STUDY

GROUP I

Leading to the degree of Bachelor of Science in Forestry.

FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Forestry, 1 (dendrology)....	4	Rhetoric, 1a	4
Botany, 10 (forester's bot.)..	4	Botany, 11 (fungi).....	4
Chemistry, 1	4	Chemistry, 2	4
Mathematics, 1a	4	Geology, 1b (forest geology)..	4
Forestry, 1a (camping and packing)	1	Drill	2
Drill	2		16+2
	17+2		

SOPHOMORE YEAR

	Hours		Hours
Civil engineering, 20 (survey- ing instruments)	4	Civil eng., 24 (forest surv.)..	4
Forestry, 3 (silviculture)....	4	Forestry, 4 (silviculture)....	4
Physics, 1c	4	Physics, 2c	4
Political science, 1.....	4	Zoology, 11 (forest entomol.)..	4
Drill	2	Drill	2
	16+2		16+2

JUNIOR YEAR

	Hours		Hours
Botany, 15 (plant physiology) 4		Botany, 16 (forest pathology) 4	
Civil eng., 25 (topog. surv.).. 4		Civil eng., 26 (railroad surv.) 4	
Forestry, 5 (mesuration).... 3		Forestry, 6 (mesuration).... 3	
Forestry, 7 (wood technology) 4		Forestry, 8 (forestry econom.) 2	
Zoology, 10 (forest zoology). 2		Forestry, 10 (forestry, history pol.)	3
—	17	Law (business law).....	2
			18

SENIOR YEAR

	Hours		Hours
Forestry, 11 (management).. 4		Forestry, 12 (management).. 5	
Forestry, 13 (adv. dendrology) 4		Forestry, 14 (mensuration).. 2	
Forestry, 9 (nat'l forest ad.) 2		Forestry, 16 (wood preserv.) 2	
Forestry, 17 (lumbering).... 4		Forestry, 18 (lumbering).... 6	
Forestry, 19 (timber physics) 3		Forestry, 20 (utilization).... 2	
—	17		17

GROUP II

(Lumberman's Group)

Leading to the degree of Bachelor of Science in Forestry.

FRESHMAN YEAR

Second Semester—		Second Semester—	
	Hours		Hours
Forestry, 1 (dendrology)....	4	Rhetoric, 1a	4
Botany, 10 (forester's bot.)..	4	Botany, 11 (fungi).....	4
Chemistry, 1	4	Chemistry, 2	4
Mathematics, 1a	4	Geology, 1b (forest geology)..	4
Forestry, 1a (camping and packing)	1	Drill	2
Drill	2		10+2
	17+2		

SOPHOMORE YEAR

	Hours		Hours
Civil engin., 20 (surv. inst.)..	4	Civil Eng., 24 (forest surv.)..	4
Forestry, 3 (silviculture)....	4	Forestry, 4 (silviculture)....	4
Physics, 1c	4	Physics, 2c	4
Political science, 1.....	4	Zoology, 11 (forest entomol.)	4
Shop, 1b	2	Shop, 3a	2
Drill	2	Drill	2
	16+4		16+4

JUNIOR YEAR

	Hours		Hours
C. E., 25 (topog. survey)....	4	C. E., 26 (railroad survey)...	4
Forestry, 15 (mesuration)...	3	Forestry, 6 (forest surveying)	3
Forestry, 7 (wood technology)	4	Forestry, 8 (forest economics)	2
M. E., 6 (El. of steam eng.)..	2	M. E., 10 (mechanism).....	2
Elective	4	Law (business law).....	2
	17	Elective	4
			17

SENIOR YEAR

	Hours		Hours
Forestry, 11 (management)..	4	Forestry, 12 (management)..	5
M. E., 13a (exper. engin.)..	2	Forestry, 14 (mensuration)..	2
Forestry, 17 (lumbering)....	4	Forestry, 16 (wood preserv.)..	2
Elective	6	Forestry, 18 (lumbering)....	6
	16	Forestry, 20 (wood util.)....	2
			17

GROUP III

Sub-group A.

Leading to the degree of Bachelor of Science.

FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Modern Language	4	Modern language	4
Botany, 10 (forester's botany) ..	4	Botany, 11 (fungi).....	4
Mathematics, 1a	4	Geology (forest geology)....	4
Forestry, 1 (dendrology)....	4	Rhetoric, 1a	4
Forestry, 1a (camping and packing)	1	Drill	2
Drill	2		
	<u>17+2</u>		<u>16+2</u>

SOPHOMORE YEAR

	Hours		Hours
Modern Language	4	Modern language	4
Civil Eng., 20 (surv. inst.)..	4	C. E., 24 (forest surv.)....	4
Chemistry, 1	4	Chemistry, 2	4
Elective	4	Political science, 1.....	4
Drill	2	Drill	2
	<u>16+2</u>		<u>16+2</u>

JUNIOR YEAR

	Hours		Hours
Forestry, 3 (silviculture)....	4	Forestry, 4 (silviculture)....	4
Physics, 1c	4	Physics, 2c	4
Botany, 15 (plant phys.)....	4	Botany, 16 (forest pathol.)..	4
C. E., 25 (topog. surv.)....	4	C. E., 26 (railroad survey)..	4
	<u>16</u>	M. E., 6 (El. of steam eng.)..	2
			<u>18</u>

SENIOR YEAR

	Hours		Hours
Forestry, 5 (mensuration)....	3	Forestry, 6 (mesuration)....	3
Forestry, 7 (wood tech.)....	4	Forestry, 8 (forest econ.)... 2	
Forestry, 9 (nat. for. admin.)	2	Forestry, 10 (for., hist., and pol.)	3
Forestry, 19 (timber physics)	3	Law (business law).....	2
Zoology, 10 (forest zoology)..	2	Zoology, 11 (forest entom.)..	4
Elective	3	Elective	4
	<u>17</u>		<u>18</u>

Sub-group B.

(GRADUATE YEAR.)

Leading to the degree of Master of Science in Forestry.

	Hours		Hours
Forestry, 11 (management)..	4	Forestry, 12 (management)..	5
Forestry, 13 (adv. dendrol.)..	4	Forestry, 14 (mensuration)..	2
Forestry, 17 (lumbering)....	4	Forestry, 16 (wood preserv.)..	2
Thesis	4	Forestry, 18 (lumbering)....	6
Forestry, 21 (seminar).....	2	Forestry, 20 (utilization)....	2
	<u>18</u>		<u>17</u>

GROUP IV.

(Graduate Group.)

Leading to the degree of Master of Science in Forestry.

Students who are graduates of this university or of other institutions of equal rank, and who have a satisfactory knowledge of botany, geology, physics, chemistry, trigonometry and languages are granted this degree on the completion of the following courses:

Forest pathology	Forest entomology
Silviculture	Forest mensuration
Forest history and policy	Wood preservation
Advanced dendrology	Wood technology
Timber physics	Forest economics
Forest utilization	Lumbering
Forest management	Thesis

1. DENDROLOGY. *Each semester. Four hours.* The principles of nomenclature and classification; the natural orders, artificial keys, the significance of orders, families, genera and species; the principles of geographic distribution; dispersions and migrations; floral areas of North America; identification and distribution of the timber trees of North America; the silvical characters of trees.

Associate Professor WINKENWERDER.

1a. CAMPING AND PACKING. *Second semester. One hour.* Selection of camp site; pitching camp; camp equipment; what to wear; camp rations, and camp cooking; breaking camp and moving; pack transportation by man, animal, boat. vehicle; camp sanitation; life in camp. Demonstrations. This course includes a half dozen lectures on first aid to the injured.

Mr. ANDREWS, Dr. HALL.

3, 4. SILVICULTURE. *Four hours.* A study of the individual tree; forest ecology; the forest as a whole; treatment of the forest; forest regions; forest types; silvical characters of trees reviewed; seed collecting; nursery practice; transplanting.

Professor MILLER.

5, 6. FOREST MENSURATION. *Three hours.* The construction and use of log scales; methods of determining the contents of logs, of individual trees, and of the whole forest; timber estimating and cruising; methods of studying growth; the construction and use of volume and yield tables.

Associate Professor WINKENWERDER, Mr. ANDREWS.

7. WOOD TECHNOLOGY. *First semester. Four hours.* Wood structure; color, grain, odor, hardness, specific gravity, conductivity; relation of wood to water; the distribution of water in wood; green wood compared with seasoned wood; hygroscopicity, warping and shrinking; mechanical properties, such as strength, durability, combustibility, and adaptability for use as building material; defects in wood in relation to mechanical qualities and commercial value; identification, classification, and uses of the chief commercial woods. Associate Professor WINKENWERDER.

8. FOREST ECONOMICS. *Second semester. Two hours.* The forest as a natural resource; the forest compared with other natural resources; history of the conservation movement; the special relation of forests to this movement; the relation of forests to climate, soil erosion, irrigation, water-power, navigation, grazing, public health, industry and labor; forest taxation, and tariff on timber. Open to students in other departments.

Associate Professor WINKENWERDER.

9. NATIONAL FOREST ADMINISTRATION. *Second semester. Two hours.* Objects of forest administration; regulations and instructions governing disposal of timber, range, and all other forest resources; use and disposal of land; rights-of-way; protection against fire, and trespass; improvement work; fiscal matters; principals and details of each subject, including investigations, reports, permits, use of all forms, supervision of work; suggestions and demonstrations.

Mr. ANDREWS.

10. FOREST HISTORY AND POLICY. *Second semester. Three hours.* Forest policy of the United States; forestry in the states and our island possessions; the rise of forestry abroad.

Professor MILLER.

11, 12. FOREST MANAGEMENT. *First semester. Four hours. Second semester. Five hours.* Economic management of forest lands; consideration of the normal forest; forest valuation; forest finance; regulation of the yield; working plans; forest administration; forest management on national forests. In the second half of the second semester the work is transferred to the field.

Professor MILLER, Mr. KIRKLAND, Mr. ANDREWS.

13. **ADVANCED DENDROLOGY.** *First semester. Four hours.* This course will take up a review of course 2, with an enlargement of the scope with reference to the number of species learned.

Associate Professor WINKENWERDER.

14. **FOREST MENSURATION.** *Second semester. Two hours.* This course will be given in the field the second half of the semester in connection with the field work in lumbering and forest management. It supplements and enlarges upon the work of timber estimating and mapping as given in courses 5 and 6.

Mr. ANDREWS.

16. **WOOD PRESERVATION.** *Second semester. Two hours.* The decay of timber; the prevention of decay; seasoning; application of external coatings; carbonization; injection processes; open and full-cell treatments; pressure and non-pressure processes. The treatment of special products; specifications for treatment in use by various corporations; cost and efficiency of the different methods of treatment; the strength of treated timbers. Classroom work supplemented by visits to dry kilns and to wood-treating plants. Prerequisite: One year of chemistry.

Associate Professor WINKENWERDER.

17, 18. **LUMBERING.** *First semester. Four hours. Second semester. Six hours.* This course includes methods of logging and transportation in the principal lumber regions of the United States; lumbering in the Northwest is given special emphasis; the manufacture, seasoning, and grading of lumber; cost and equipment of a logging and milling plant; buying and selling timber lands; marketing the product. Regular students of forestry are required to submit a comprehensive report of logging operations based upon a personal investigation of logging plants. During the last half of the second semester the work is carried on in the field.

Mr. ANDREWS.

19. **TIMBER PHYSICS.** *First semester. Three hours.* Various stresses which wood must resist; methods of making tests; theory of flexure; relation between moisture and strength, between specific gravity and strength; mechanical properties of wood.

Mr. Goss.

20. **FOREST UTILIZATION.** *First semester. Two hours.* Methods of the harvesting and the manufacture of secondary for-

est products; forest herbage. The chief commercial products of foreign forests. Statistics of production; regions of forest production; the markets and the chief centers of distribution. The utilization of waste in relation to the forest and to the wood-working plant; the influence of inventions and improved machinery. Classroom work supplemented by visits to industries using secondary forest products. Associate Professor WINKENWERDER.

21. GENERAL FORESTRY. *Second semester. Two hours.* This course is given to meet the requirements of teachers in public schools offering agriculture (includes forestry) for entrance. Education in forestry in the public schools of Europe, and of America; the relation of forests and forestry to agriculture; forest influences; the farm wood lot; the life history of the individual tree and of the forest; enemies of the forest; identification, distribution, and silvical requirements of the more common trees of Washington; classification of forest lands. Three afternoons in the field are required in addition to the lectures. Open to students in other departments.

Associate Professor WINKENWERDER.

22. SEMINAR. *First semester. Two hours.* Open to seniors and graduate students.

Professor MILLER.

SPECIAL SHORT GROUPS

I. RANGER GROUP

The United States forest service co-operates with the School of Forestry in offering a special two-year group of twelve weeks each, planned for forest rangers and guards desiring to increase their efficiency, or for those who wish to fit themselves for such work.

The session for 1912 opens Tuesday, January 2, and closes Friday, March 23. Several of the special courses are given by experts from the forest service. The others are handled by various departments of the University. The work is given by lectures, in the laboratory, and by actual field demonstrations. Applicants must be at least 20 years old and show ability to carry the work with profit to themselves. Admission to classes is without examination. A statement showing all courses satisfactorily completed will be issued to each student at the close of the session.

The expenses are approximately as follows: Deposit, two dollars; books, drawing instruments, and stationery, fifteen dollars; board and lodging with private families, twenty dollars to twenty-five dollars per month. In addition to the above expenses, the student should allow about twenty-five dollars to cover expenses of field trips. The total expense for the twelve weeks, exclusive of transportation, should not exceed one hundred dollars.

First Year—

1. Silviculture
2. Forest mensuration
3. Forest surveying
4. Forest law
5. National forest administration
6. English composition (elective)
7. First aid to injured
8. Diseases of trees

Second Year—

9. Silviculture
10. Forest mensuration
11. Forest surveying
12. Lumbering
13. Forest management
14. Geology (elective)

ELECTIVE—First or Second Year

15. Botany
16. Veterinary science
17. Animal husbandry

II. LUMBERMAN'S GROUP

This course is offered for the benefit of timber cruisers, logging superintendents, woodland owners and others who wish to acquire a knowledge of the general principles of forestry, and methods by which timber lands are handled to insure continuous crops. The terms of admission are the same as those for admission to the Ranger Group. For expenses, see statement for Ranger Group. The session for 1912 opens January 2 and closes March 23. In the enumeration of the subjects of this course, the numbers correspond to those designating the subjects in the Ranger Group. This group includes:

- | | |
|-------------------------|------------------------|
| 1. Silviculture | 8. Diseases of trees |
| 2. Forest mensuration | 12. Lumbering |
| 3. Forest surveying | 13. Forest management |
| 7. First aid to injured | 14. Geology (elective) |

1. SILVICULTURE. Simple tree botany—genera and species of the West, their relationship and identification. Silvical character of each—their demands upon soil, light, climate; reproduction of

each, naturally, and how to obtain after logging; system of cutting to this end; protection of young timber; seeding habits; seed collecting; nursery practice; transplanting. Professor MILLER.

2. FOREST MEASUREMENTS. (1) *Scaling*. Principles and comparison of log rules; actual demonstrations in the woods, covering instruction in allowance for defect; transposition of timber measures, board measure, shingle bolts, cord measure, etc. Log grading; scale records. Mr. ANDREWS.

(2) ESTIMATING, MAPPING AND REPORTS. (a) Methods in common use in the Northwest demonstrated in the woods; how to tell defect and allow for it in estimate; grading of standing timber; variation of methods according to different standards of merchantability and kinds of products, such as saw logs, railroad ties, shingle bolts, and mining timbers. Mr. ANDREWS.

(b) The construction and use of height measures; contents of felled and standing trees; use of volume tables.

Associate Professor WINKENWERDER.

3. SURVEYING.

(1) LAND SURVEYING. Use of the compass and chain and the Brunton pocket transit, with or without tape, in making rough land surveys, including rules governing closing, tying, corners, fractions, lots, meanders, etc.; simple methods of determining a true north and south line, and of obtaining the magnetic declination of the needle at any point; principles of surveying mining claims, and the United States government system of surveying the public lands; keeping and use of field notes; simple triangulation.

(2) MAPPING. Use of drawing instruments; lettering and use of conventional signs in representing topography. Use of protractor and scale; method of making rough maps without instrument or tape; special systems used for Forest Service purposes, such as timber sales, agricultural settlements, and boundary reports.

(3) ENGINEERING. Use of Wye level and hand level; contours; laying out roads and trails, and simple methods by which grades may be kept within a reasonable maximum; simple bridge construction. Mr. GLEASON.

4. FOREST LAW.

Interpretation of state and federal land, mining, live stock, water and forest laws which affect national forest administration; rulings and decisions; rules of practice before U. S. land offices; what constitutes trespass; what constitutes evidence and how to get it; authority of forest officers; when and how to make arrests.

Mr. BUCK.

5. NATIONAL FOREST ADMINISTRATION.

(1) POLICIES. Objects of forest administration. Use of the forests; timber sales, privileges, and grazing policies; organization of Forest Service; duties and qualifications of forest officers.

(2) METHODS. Regulations and instructions governing disposal of timber, range, and all other forest resources; use and disposal of land; rights of way; protection against fire and trespass; improvement work; fiscal matters; principles and details of each subject, including investigations, reports, permits, use of all forms, supervision of work; suggestions and demonstrations.

MESSRS. CECIL, HERRING, MACKENZIE, FLOBY, KNAPP, MUNGER, JUDD, AMES.

6. ENGLISH COMPOSITION. This course is designed to assist the student in the preparation of written reports. Weekly themes are assigned, and these are corrected by the instructor, and returned to the student. The theme work is supplemented by class-room instruction.

Mr. PINKERTON.

7. FIRST AID TO THE INJURED. This course consists of six to eight lectures on what to do in case of accidents, and the use of simple remedies. Demonstrations.

Director HALL.

8. DISEASES OF TREES. A course of lectures on the fungi diseases of trees. How fungi are distributed, how they get into trees, and what they do in them. General causes and nature of decay. The general principles underlying the treatment of diseased trees.

Professor FRYE.

9. SILVICULTURE. This is a continuation of course 1, in which forest ecology, the forest as a whole, forest regions and forest types are especially emphasized; additional work in methods of cutting and reproducing the forest; practice work in the field in writing forest descriptions.

Professor MILLER.

10. **FOREST MEASUREMENTS.** (1) Advanced work in cruising, topographical mapping and reports. Reports will include detailed forest descriptions, stumpage values, log grades, detailed cost and management of operations; additional practice in log scaling. Mr. ANDREWS.

(2) The construction of volume tables; valuation surveys by means of the volume curve and the arbitrary group methods; methods of determining mean and periodic annual growth in height and diameter. Each part of the work is demonstrated by actual field practice. Associate Professor WINKENWERDER.

11. **FOREST SURVEYING.** (1) Engineer's level: adjustment and use in laying out roads, trails, etc.

(2) Transit: adjustment and use in running out land lines, road or railroad lines, meridian with north star or sun, and in map work with stadia. Triangulation.

(3) Plane table: use in making maps on large and small scales. Study of U. S. government methods.

(4) U. S. government land surveys: complete study of Manual for U. S. Land Surveyors. Mr. GLEASON.

12. **LUMBERING.** Methods of logging, in different forest regions, particularly in the Northwest; methods of transportation; the manufacture, seasoning, and grading of lumber; cost and equipment of a logging and milling plant; minor products; lumber markets. Mr. ANDREWS.

13. **FOREST MANAGEMENT.** Principles of compound interest as applied to forest property; valuation of forest land; methods of ascertaining the value of the forest at different ages as a basis for sales, exchange and damage suits; determining the rotation; plans of management for continuous revenue; forest taxation. Professor MILLER.

14. **GEOLOGY.** Common minerals, manner of their occurrence and identification; mining, lode and placer work; how to select ore samples and use gold pan; work confined mainly to that which will assist in determining the validity of coal and mineral claims; liability of soils to erosion. Professor LANDES.

15. **BOTANY.** A study of roots, stems and leaves, and their modifications. Flowers, fruits and seeds. How plants are named, and how to find the names. Range plants will be used as far

as practicable in the laboratory work. This course will be supplemented by a series of eighteen to twenty-four lectures on forage grasses, and plants poisonous and injurious to animal life, value of different ranges for different classes of stock, and the effect of over-grazing.

Professor FRYE, Mr. JARDINE.

16. VETERINARY SCIENCE. This course is designed to give such instruction as meets the needs of stockmen in handling common diseases of animals or performing simple surgical operations. The minor ailments met with every few days are given special attention and specific directions given as to treatment.

Dr. HARRINGTON.

17. ANIMAL HUSBANDRY. This course is calculated to assist the men in acquiring a practical knowledge of the stock business. Feeds and feeding, breeding, care and management of live stock are considered. Stock judging.

THE SCHOOL OF LAW.

ACADEMIC YEAR 1911-12

FACULTY

THOMAS FRANKLIN KANE, Ph. D., *President.*
JOHN T. CONDON, LL. M., Dean and Professor of Law.
HARVEY LANTZ, A. M., LL. B., Professor of Law.
GEORGE S. COLE, LL. B., Professor of Law.
IVAN W. GOODNER, LL. B., Professor of Law.
EARL G. RICE, A. B., LL. B., Lecturer in Law.
ORVILLE PORTER COCKBILL, A. B., LL. B., Lecturer in Law.
CHARLES H. SHAMEL, Ph. D., LL. B., Lecturer in Mining Law.

HISTORY

The Law School was established in 1899 with a course extending over two years of thirty-six weeks each. The course was extended to three years of thirty-six weeks each in 1908.

LOCATION

The Law School, upon its establishment, was located downtown, in the city of Seattle, but in the fall of 1903 it was moved to the University campus, where it now is.

The University campus is located about thirty minutes' ride on the street cars from the courts in the city of Seattle, where the students of the Law School are afforded a splendid opportunity to observe the workings of the courts.

The bar of King county, in which Seattle is located, is particularly strong, and Seattle is the county seat and has seven departments of the Superior Court of King county in continuous session, trying civil and criminal cases and hearing motions and demurrers.

The United States Circuit and District Courts hold regular sessions in this city and the United States Circuit Court of Appeals convenes in Seattle at regular intervals.

PURPOSE

The purpose of the Law School is to give scientific instruction in the principles and history of the English Common Law and in the practical application of those principles to the present day affairs of life and thus to prepare students for the practice of the law in any state using the English Common Law system as a basis of its jurisprudence. And in addition to this we aim to give the student a thorough drill in the special application of these principles in the State of Washington.

REQUIREMENTS FOR ADMISSION

For admission to the Law School students must either pass an examination based on a course amounting to fifteen high school units, or present high school credits for fifteen units from an accredited high school. Of these fifteen units, eight and one-half are specifically named and six and one-half are elective. A detailed statement of the requirements for admission to the freshman class of the College of Arts and Sciences of the University of Washington, which will be taken to satisfy the high school requirements for entrance to the Law School, will be found at page 87 of this catalogue. And in addition to the above, the students must satisfactorily complete thirty-four hours in the College of Arts and Sciences, four hours of which must be physical training, or pass an examination based on an equivalent amount of college work of equal standing.

ADVANCED STANDING

If, in addition to satisfying the entrance requirements for regular standing, 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 advanced standing must spend at least one full college year in this school.

SPECIAL STUDENTS

No person will be admitted as a special student in law unless he is twenty years of age and his general education is such as to entitle him to take the state bar examination.

Special students who comply with the requirements 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 Arts and Sciences to enable them to clear up their entrance requirements in law.

COMBINED COURSE IN COLLEGE OF ARTS AND SCIENCES AND SCHOOL OF LAW

This combined course allows the student with a good record to complete the A. B. and LL. B. 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 Arts and Sciences.

The student is enrolled in the College of Arts and Sciences during the first three years. If at the end of three years he has a uniformly good record for scholarship and has earned ninety or more credits, including all the required work and major and minor, he may for the fourth year register in the Law School for the first years' work in law and must earn in the College of Arts and Sciences additional credits sufficient to make his total of Arts and Sciences credits amount to ninety-six, and earn in the Law School at least twenty-four credits in the first year law work, to apply on

his A. B. degree, thus making his one hundred twenty credits required for the A. B. degree.

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

Students are strongly advised to complete their full ninety-six credits in Arts and Sciences 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 Arts and Sciences for at least one full year's Arts and Sciences work and earn at least thirty Arts and Sciences 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 School of Law, before the beginning of the spring term 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 securely bound, 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 this law school) offers an annual prize of twenty-five dollars 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.

EVENING LAW SCHOOL

The University offers a course in law in the evening open to those who are not able to attend in the day time. The entrance

requirements for the evening school are the same as for the day school. The studies pursued in the evening school are exactly the same and the same text-books are used. The evening classes meet three times each week. Monday, Wednesday and Friday.

INSTRUCTION IN OTHER DEPARTMENTS

Students of 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. Those wishing to take advantage of this opportunity must procure permission and proper credentials from the dean of the Law School.

LIBRARIES

The library of the Law School contains about seven thousand well selected volumes, and considerable additions will be made to it each year.

Law School students have the right to use the University library, which contains about forty-one thousand 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.

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 hereinbefore, remain in residence in the school for three school years, successfully complete all the required law work provided in this Law School 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 towards 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 semester the members of each class are subject to written examinations 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*.

ADMISSION TO THE BAR

It is provided by an act of the legislature of the state of Washington that the graduates of this Law School shall be admitted to the bar of the courts of this state upon motion without examination.

FEES

A tuition of forty dollars per annum is charged in the Law School. This fee is payable in equal payments, one at the beginning of the school year and one at the beginning of the second semester.

STUDENT EXPENSES

A general detailed statement of student expenses may be seen by reference to page 41 of this catalogue.

OTHER INFORMATION

Information on subjects not covered by the foregoing statement will be cheerfully furnished in answer to communications addressed to the Law School of the University of Washington, University Station, Seattle, Washington.

COURSES OF STUDY

FIRST YEAR

1. AGENCY. *First semester. Two hours.* Text-book: Mechem's Cases on Agency supplemented by a selection of Washington cases. ✓
Mr. GOODNER.

2, 3. CONTRACTS. *Each semester. Three hours.* Text-book: Keener's Cases on Contracts. ✓
Professor LANTZ.

4. CRIMINAL LAW. *First semester. Two hours.* Text-book: Mikell's Cases on Criminal Law, supplemented by the Washington Criminal Code and cases. ✓
Mr. COCKERILL.

5. EQUITY. *Second semester. Two hours.* Text-book: Ames' Cases on Equity Jurisprudence, volume I. ✓
Mr. GOODNER.

✓ 6. PERSONS. *Second semester. Two hours.* Text-book: Woodruff's Cases on Domestic Relations and the Law of Persons, supplemented by a selection of Washington cases.

Professor LANTZ.

✓ 7, 8. PLEADING. *Each semester. Two hours.* Text-book: Ames' Cases on Common Law Pleading and Whittier's Cases on Common Law Pleading in first semester and Hinton's Cases on Code Pleading, second semester and Hepburn's Development of Code Pleading as collateral reading for second semester.

Professor CONDON.

✓ 9, 10. PROPERTY. *Each semester. Two hours.* Text-book: Gray's Cases on Property, volumes I and II. Professor COLE.

✓ 11, 12. STATUTORY INTERPRETATION. *Each semester. Two hours.* Washington Cases. Professor CONDON.

✓ 13, 14. TORTS. *Each semester. Two hours.* Text-book: Ames and Smith's Cases on Torts. Two volumes and supplement. Mr. RICE.

✓ 15, 16. PROCEDURE I AND II. *Each semester. One hour.* These courses are planned as laboratory courses to accompany the course in pleading. In course 1 the student will be required to copy and draft original writs, declarations and other pleadings at common law and to copy and draft proceedings in equity; and in course 11 to do the same character of work in reference to code pleading which occupies the second half of the course on pleading.

Mr. COCKERILL.

✓ 17, 18. HOW TO FIND THE LAW, I AND II. *Each semester. One hour.* This course consists of five lectures on legal bibliography, followed by a study of the system of legal classification employed in the leading digests etc., used by lawyers and a series of selected practical problems in finding and keeping a record of the law.

Professor CONDON.

SECOND YEAR

✓ 19. BANKRUPTCY. *Second semester. One hour.* Cases on Bankruptcy. Mr. GOODNER.

✓ 20. BILLS AND NOTES. *First semester. Two hours.* Text-book: Huffcut's Cases on Negotiable Instruments.

Professor LANTZ.

✓ 21. CARRIERS. *Second semester. Two hours.* Text-book: Green's Cases on Carriers. Professor LANTZ.

22. CORPORATIONS, PRIVATE. *Each semester. Two hours.*
Text-book: Warren's Cases on Private Corporations.

Professor COLE.

23. DAMAGES. *Second semester. Two hours.* Text-book:
Gilbert and Mechem's Cases on Damages, supplemented by a
selection of Washington cases.

Mr. COCKERILL.

24, 25. EQUITY, JURISDICTION. *Each semester. Two hours.*
Text-book: Ames' Cases on Equity, volume II, supplemented by
a selection of Washington cases.

Mr. GOODNER.

26, 27. EVIDENCE. *Each semester. Two hours.* Text-book:
Wigmore's Cases on Evidence, supplemented by a selection of
Washington statutes and cases.

Professor CONDON.

28. PARTNERSHIP. *Second semester. Two hours.* Text-book:
Burdick's Cases on Partnership.

Mr. COCKERILL.

29, 30. PROPERTY. *Each semester. Two hours.* Text-book:
Gray's Cases on Property, volumes III and V.

Professor COLE.

31. QUASI-CONTRACTS. *First semester. Two hours.* Text-
book: Scott's Cases on Quasi-contracts.

Professor LANTZ.

32. SALES, INCLUDING CONDITIONAL SALES AND SALES UNDER
SALES IN BULK ACT IN WASHINGTON. *First semester. Three hours.*
Text-book: Williston's Cases on Sales and Washington statutes
and cases.

33, 34. WASHINGTON STATUTE LAW. *Each semester. Two*
hours. Washington Cases.

Professor CONDON.

35, 36. PROCEDURE III AND IV. *Each semester. One hour.* A
continuation of courses I and II of first year, to consist of the
procedure in civil and criminal actions, in the Justice and Su-
perior Courts.

Professor CONDON and Mr. COCKERILL.

THIRD YEAR

37. ADMIRALTY. *First semester. Two hours.* Text-book:
Ame's Cases on Admiralty.

Professor LANTZ.

38, 39. COMPARATIVE STATUTE LAW. *Each semester. Two*
hours.

Professor CONDON.

40. CONFLICT OF LAWS. *Second semester. Two hours.* Text-
book: Lorenzen's Cases on Conflict of Laws.

Professor LANTZ.

41, 42. CONSTITUTIONAL LAW. *Each semester. Two hours.* First semester, Federal; second semester, State of Washington. Text-book: McClain's Cases on Constitutional Law.

Professor CONDON.

43. MORTGAGES. *First semester. Two hours.* Text-book: Wyman's Cases on Mortgages and Washington statutes and cases.

Mr. GOODNER.

44. MUNICIPAL CORPORATIONS. *Second semester. Two hours.* Text-book: Smith's Cases on Municipal Corporations and Washington constitution, statutes and cases.

Professor COLE.

45. OFFICE PRACTICE. *Second semester. Two hours.* Conveyancing and examination of abstracts, care of a law office generally, drawing wills and contracts, preparation of briefs and office accounting.

Professor CONDON.

46, 47. PROCEDURE V AND VI. *Each semester. One hour.* Consisting of a study of the proceedings in Probate, Admiralty, in Equity, in United States courts, and the appellate procedure of the state of Washington.

Professor CONDON and Mr. COCKERILL.

48, 49. PROPERTY. *Each semester. Two hours.* Text-book: Gray's Cases on Property, volume VI for first semester, and Washington statutes and cases on community property of husband and wife for second semester.

Professor COLE.

50. SURETYSHIP. *First semester. Two hours.* Text-book: Ames' Cases on Suretyship.

Mr. COCKERILL.

51. TRUSTS. *Second semester. Two hours.* Text-book: Ames' Cases on Trusts.

Mr. GOODNER.

52. WILLS. *First semester. Two hours.* Text-book: Costigan's Cases on Wills.

Mr. GOODNER.

ELECTIVE

JOINT SEMINAR. *Each semester. Two hours.* Designed for study and reports upon the problems in the historical, political and legal development of the State of Washington and the Pacific Northwest. (Open to graduate students and to a limited number of seniors on recommendation of their major professors).

Professors CONDON, SMITH and MEANY.

COLLEGE OF MINES.

FACULTY

- THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, *President*.
MILNOR ROBERTS, A. B., Stanford, Professor of Mining Engineering and Metallurgy, *Dean*.
JOSEPH DANIELS, S. B., M. S., Lehigh, Assistant Professor of Mining Engineering and Metallurgy.
CLARENCE RAYMOND COREY, E. M., Montana, Instructor in Mining Engineering and Metallurgy.
HENRY LANDES, A. M., Harvard, Professor of Geology and Mineralogy.
ALMON HOMER FULLER, M. S., C. E., Lafayette, Professor of Civil Engineering.
JOHN THOMAS CONDON, L. L. M., Northwestern, Professor of Law.
HORACE BYERS, Ph. D., Johns Hopkins, Professor of Chemistry.
TREVOR KINCAID, A. M., Washington, Professor of Zoology.
FREDERICK ARTHUR OSBORN, Ph. D., Michigan, Professor of Physics.
ROBERT EDOUARD MORITZ, Ph. N. D., Strassburg, Professor of Mathematics and Astronomy.
CARL EDWARD MAGNUSSON, Ph. D., E. E., Wisconsin, Professor of Electrical Engineering.
EVERETT OWEN EASTWOOD, C. E., A. M., Virginia, Professor of Mechanical Engineering.
D. C. HALL, Ph. B., M. D., Sc. M., Chicago, Professor of Physical Culture.
E. J. MCCAUSTLAND, B. C. E., M. C. E., Cornell, Professor of Civil Engineering.
CHARLES CHURCH MORE, M. S., C. E., Lafayette, Associate Professor of Civil Engineering.
JAMES EDWARD GOULD, Ph. B., A. M., Harvard, Assistant Professor of Mathematics.
HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.
VANDERVEER CUSTIS, Ph. D., Harvard, Assistant Professor of Economics.
FRANK MARION MORRISON, A. B., Michigan, Assistant Professor of Mathematics.
LOREN DOUGLAS MILLIMAN, A. B., Michigan, Assistant Professor of Rhetoric.

GEORGE SAMUEL WILSON, B. S., Nebraska, Assistant Professor of Mechanical Engineering.

CHARLES M. HARRIS, C. E. Cornell, Assistant Professor of Civil Engineering.

E. A. LOEW, B. S., Instructor in Electrical Engineering.

HENRY LOUIS BRAKEL, A. M., Washington, Instructor in Physics.

FRANK EDWARD JOHNSON, E. E., Minnesota, Instructor in Electrical Engineering.

GEORGE JAMME, Lecturer on Coal Mining.

HARVEY L. GLENN, B. S., Lecturer on Assaying of Bullion.

ROGER TAYLOR, B. S., Lecturer on Copper Smelting.

GEORGE IRVING GAVETT, B. S., C. E., Instructor in Mathematics.

WILLIAM VERNON LOVITT, A. M., Instructor in Mathematics.

CHARLES EDWARD WEAVER, Ph. D., Instructor in Geology.

C. H. SHAMEL, LL. B., Ph. D., Lecturer on Mining Law.

JOHN W. MILLER, B. S., Instructor in Civil Engineering.

JULIUS ADLER, B. S., Instructor in Civil Engineering.

SAMUEL THOMAS BEATTIE, Instructor in Wood Work.

DAVID C. BOTTING, State Coal Mine Inspector, Lecturer on Mine Regulations.

EDWARD H. DENNY, Assistant in Metallurgy.

JAMES M. McDONALD, Assistant in Mining.

ADMISSION

The requirements for admission to the freshman class of the College of Mines for the courses leading to the degrees of bachelor of science in mining engineering, in geology and mining, or in metallurgical engineering, are as follows:

	<i>Units.</i>
English	4
Algebra	1½
Plane Geometry	1
Solid Geometry.....	½
Physics	1
Chemistry	1
One foreign language	2
History, American preferred	1
or { U. S. History	½
{ Civics	½
Elective	3
Total	15

For course IV, leading to the degree of bachelor of science (B. S.), the entrance requirements are:

	<i>Units.</i>
English	4
Algebra	1½
Plane Geometry	1
Solid Geometry.....	½
Physics	1
One foreign language	2
History, American preferred	1
or { U. S. History	½
{ Civics	½
Elective	4
Total	15

For more specific information concerning the preparation necessary to meet the above requirements and for list of electives, see page 87 and following.

Students may be admitted:

(1) By presenting a certificate of graduation from an accredited school (for list see page 99), covering the above subjects.

(2) By passing a satisfactory examination in the above subjects.

It is desirable for the student to review his preparatory mathematics just before entering the School of Mines. By such a step much time will be saved and the work of the school will be rendered far more valuable.

SUMMER WORK

All students in the College of Mines study the operations taking place in two mining districts through the excursions made in the spring. Each student who has reached the end of his junior year makes the trip catalogued as Mining 9. At the end of his senior year he visits a different district while on the trip catalogued as Mining 7. In addition to this training, it is necessary for each student to spend several weeks in actual work pertaining to his chosen profession before he enters upon the studies of his senior year. Mining work is elected under courses I and IV, geological field studies or mine mapping under course II, and smelter or assay practice under course III.

DEGREES

The four-year courses in the College of Mines that are numbered I, II and III, are practically unchanged from those of previous years. They lead to the following degrees: Course I, Bachelor of science in mining engineering (B.S. in Min. E.); course II, bachelor of science in geology and mining (B.S. in Geol. and Min.); course III, bachelor of science in metallurgical engineering (B.S. in Met. E.).

In addition to the above, there is offered a new course, IV, which leads to the degree of Bachelor of Science (B.S.). The entrance requirements for course IV are less technical than for the other courses and the training given by it is broader. Students who graduate in this course are advised to spend an additional year in study and research according to the schedule given for the degree of Master of Science in Mining Engineering (M.S. in Min. E.).

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.

DEGREE WITH HONORS

A degree with honors may be conferred upon any student who has been recommended by the faculty of the College of Mines.

LABORATORIES

The ore-dressing, metallurgy and other laboratories of the College of Mines are described on page

MINE RESCUE TRAINING STATION

The Mine Rescue Training Station was established by the coal mine operators of the State of Washington, in conjunction with the Technologic Branch of the United States Geological Survey. The University provided the building used by the government during the A.-Y.-P. Exposition for the Philippine exhibit, and the coal mining companies spent about \$2,000 in fitting it for a training station. It is now maintained by the United States Bureau of Mines. The Bureau of Mines keeps one of its Mine Rescue Cars, No. 5, in constant service in the states

of the Pacific Northwest. H. M. Wolfiin, B.S., a mining engineer of the bureau, is in general charge of operations in this region, with A. A. Flynn in local charge of this station, No. E.

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 smoke room represents a portion of a mine, and is equipped with mine car, track, overcast, timbers and brick. Applicants who have completed the course of training are given a certificate to that effect.

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 Pittsburgh Station and the safe methods of charging, tamping and firing are explained. Lectures are given by State Mine Inspector Botting, Assistant Inspector Corey and government engineers.

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. The amount of time available during the college year for this purpose is not great and even by using the summer vacations it is impossible for a student to cover the whole field of local industries included in his chosen profession.

Mining machinery of the best types 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 the 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. 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 brief list of the other available works of interest includes coal mines, with the largest production west of the Rocky mountains; metal mines of gold, silver, copper, arsenic, antimony, iron, etc.; two cement plants, glass works, 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 and Everett smelters and refineries; the U. S. assay office; the Irondale steel plant of the Western Steel Corporation, and several plants engaged in metallurgical work.

MINING SOCIETY

The Mining Society, affiliated with the American Institute of Mining Engineers, has a membership composed of upperclassmen, 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 are given by students as results of their summer's work. The officers for 1910-11 are W. R. Canton, Pres., L. H. Cogswell, Sec.-Treas.

COURSES IN THE COLLEGE OF MINES.

I. COURSE IN MINING ENGINEERING

FRESHMAN YEAR

First Semester—	Hours	Second Semester—	Hours
Mathematics, 1a (plane trigonometry, higher algebra)..	4	Mathematics, 2a (Anal. Geom., higher algebra)....	4
Chemistry, 1a (general inorganic)	4	Chemistry, 2a (general inorganic)	4
Civil engineering, 1 and 3 (Engin. drawing)	4	Civil Engin., 2 and 4 (Engin. drawing)	4
Rhetoric, 1a (Eng. Comp.)..	4	Civil Engin., 20 (plane Surv.)	4
Mechanical engineering, 1a (woodwork)	2	Mech. Engin., 1b (mine timber)	2
Military science	2	Military science	2
	<hr/> 16+4		<hr/> 16+4

SOPHOMORE YEAR

	Hours		Hours
Geology, 1a (general)	4	Geology, 5 (mineralogy)....	4
Mathematics, 3b (Diff. calculus)	4	Mathematics, 4b (calculus)..	4
Physics, 1a	5	Chemistry, 9 (Quant. Anal.)	4
Civil Engn., 28 (mine surv.)	3	Physics, 2a	5
Military science	2	Military science	2
	<hr/> 16+2		<hr/> 17+2

JUNIOR YEAR

	Hours		Hours
Mining, 4 (coal mining).....	2	Mining, 9 (junior excursion)	1
Math., 3a (analytics).....	2	Metallurgy, 2 (general).....	4
Metallurgy, 1 (fire assaying)	4	Geology, 9 (petrography)....	4
Civil Engin., 41 (mechanics)	5	Civil Engin., 50 (hydraulics)	4
Geology, 6 (optical Cryst.)..	4	Economics, 1	4
Mech. Engin., 3a (forge, foundry)	2		<hr/> 17
	<hr/> 17+2		

Mining practice in summer vacation.

SENIOR YEAR

	Hours		Hours
Mining, 1 (metal mining)...	4	Mining, 2 (ore dressing)....	4
Mining, 3 (milling).....	2	Mining Law	1
Mining, 6 (thesis).....	1	Mining, 7 (mine examination)	1
Metallurgy, 5 (gold, silver)..	3	Mining, 8 (thesis).....	2
Metallurgy, 7 (wet assaying)	3	Geology, 10 (economic)....	4
Metallurgy, 13 (design of plant)	3	Geology, 16 (field work)....	1
	<hr/> 16	Electrical engineering, 1f....	3
			<hr/> 16

II. COURSE IN GEOLOGY AND MINING

FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Mathematics, 1a (plane Trig., higher algebra)	4	Mathematics, 2a (Anal. Geom., higher algebra)	4
Chemistry, 1a (general inorganic)	4	Chemistry, 2a (general inorganic)	4
Civil Engin., 1 and 3 (Engin. drawing)	4	Civil Engin., 2 and 4 (Engin. drawing)	4
Rhetoric, 1a (English Comp.)	4	Civil Engin., 20 (plane Surv.)	4
Mech. Eng., 1a (woodwork) ..	2	Mech. Engin., 1b (mine timber)	2
Military science	2	Military science	2
	<hr/> 16+4		<hr/> 16+4

SOPHOMORE YEAR

	Hours		Hours
Geology, 1a (general)	4	Geology, 5 (mineralogy)	4
Math., 3b (Diff. calculus) ..	4	Math., 4b (calculus)	4
Physics, 1a	5	Chem., 9 (Quant. Anal.)	4
Civil Engin., 23 (mine Surv.)	3	Physics, 2a	5
Military science	2	Military science	2
	<hr/> 16+2		<hr/> 17+2

JUNIOR YEAR

	Hours		Hours
Mining, 4 (coal mining)	2	Mining, 9 (junior excursion)	1
Metallurgy, 1 (fire assaying)	4	Metallurgy, 2 (general)	4
Metallurgy, 3 (fuels)	2	Metallurgy, 9 (pyrometry) ..	2
Geology, 6 (optical cryst.) ..	4	Metallurgy, 12 (clay testing)	2
Geology, 16 (field work)	1	Geology, 9 (petrography)	4
Civil Eng., 23 (Topog. Surv.)	3	Economics, 1	4
Mech. Engin., 3a (forge, foundry)	2		<hr/> 17
	<hr/> 16+2		

Geology or mining practice in summer vacation.

SENIOR YEAR

	Hours		Hours
Mining, 1 (metal mining)	4	Mining, 2 (ore dressing)	4
Mining, 6 (thesis)	1	Mining Law	1
Metallurgy, 5 (gold, silver) ..	3	Mining, 7 (mine Exam.)	1
Metallurgy, 7 (wet assaying) ..	3	Mining, 8 (thesis)	2
Geology, 11 (paleontology) ..	4	Metallurgy, 4 or 6	3
Geology, 14 (field work)	1	Geology, 10 (economic)	4
	<hr/> 16	Geology, 16 (field work)	1
			<hr/> 16

III. COURSE IN METALLURGICAL ENGINEERING

FRESHMAN YEAR

<i>First Semester—</i>		<i>Second Semester—</i>	
	Hours		Hours
Mathematics, 1a (plane Trig., higher algebra)	4	Mathematics, 2a (Anal. Geom., higher algebra)	4
Chemistry, 1a (general inorganic)	4	Chemistry, 2a (general inorganic)	4
Civil Engin., 1 and 3 (Engin. drawing)	4	Civil Engin., 2 and 4 (Engin. drawing)	4
Rhetoric, 1a (English Comp.)	4	Civil Engin., 20 (plane Surv.)	4
Mech. Eng., 1a (woodwork) ..	2	Mech. Engin., 1b (mine timber)	2
Military science	2	Military science	2
	<hr/> 16+4		<hr/> 16+4

SOPHOMORE YEAR

	Hours		Hours
Geology, 1a (general)	4	Geology, 5 (mineralogy)	4
Math., 3b (Diff. calculus) ..	4	Math., 4b (calculus)	4
Physics, 1a	5	Chem., 9 (Quant. Anal.)	4
Civil Engin., 28 (mine Surv.)	3	Physics, 2a	5
Military science	2	Military science	2
	<hr/> 16+2		<hr/> 17+2

JUNIOR YEAR

	Hours		Hours
Metallurgy, 1 (fire assaying)	4	Mining, 9 (junior excursion)	1
Metallurgy, 10 (Metallog.) ..	3	Metallurgy, 2 (general)	4
Civil Engin., 41 (mechanics) ..	5	Metallurgy, 4 (copper, lead) ..	3
Economics, 1	4	Civil Engin., 42 (mechanics) ..	4
Mech. Engin., 3a (forge, foundry)	2	Civil Engin., 50 (hydraulics) ..	4
	<hr/> 16+2	Mech. Engin., 5b (machine design)	1
		Mech. Engin., 4a (machine work)	2
			<hr/> 17+2

Metallurgical practice in summer vacation.

SENIOR YEAR

	Hours		Hours
Mining, 1 (metal mining)	4	Mining, 2 (ore dressing)	4
Mining, 6 (thesis)	1	Mining, 8 (thesis)	2
Metallurgy, 3 (fuels)	2	Mining, 7 (mine Exam.)	1
Metallurgy, 5 (gold, silver) ..	3	Metallurgy, 6 (minor metals)	2
Metallurgy, 7 (wet assaying) ..	3	Metallurgy, 8 (analysis)	3
Metallurgy, 11 (problems) ..	1	Geology, 10 (economic)	4
Metallurgy, 13 (design)	3		<hr/> 16
	<hr/> 17		

IV. COURSE IN MINING ENGINEERING

Leading to degree of Bachelor of Science (B. S.)

FRESHMAN YEAR

First Semester—		Second Semester—	
	Hours		Hours
Mathematics, 1a (plane Trig., higher algebra)	4	Mathematics, 2a (Anal. Geom., higher algebra)	4
Chemistry, 1 (general)	4	Chemistry, 2 (general)	4
Rhetoric, 1a (English Comp.) ..	4	Civil Engn., 1 and 3 (Engin. drawing)	4
Modern foreign language	4	Modern foreign language	4
Mech. Engn., 1a (woodwork)	2	Mech. Eng., 1b (mine timber) ..	2
Military science	2	Military science	2
	16+4		16+4

SOPHOMORE YEAR

	Hours		Hours
Mathematics, 3a (calculus) ..	4	Mathematics, 4a (calculus) ..	4
Chemistry, 8b (Qual. Anal.) ..	4	Physics, 1a	5
Civil Engn., 2 and 4 (Engin. drawing)	4	Chemistry, 9 (Quant. Anal.) ..	4
Modern foreign language	4	Civil Eng., 20 (surveying) ..	4
Mech. Engn., 3a (forge, foundry)	2	Military science	2
Military science	2		17+2
	16+4		

JUNIOR YEAR

	Hours		Hours
Mathematics, 5a (calculus) ..	2	Mining, 9 (junior excursion) ..	1
Physics, 2a	6	Metallurgy, 1 (fire assaying) ..	4
Geology, 1a	4	Elec. Engn., 1f	3
Civil Engn., 28 (mine Surv.) ..	3	Civil Engn., 41 (mechanics) ..	5
Mining, 5 (field work)	1	Geology, 5 (mineralogy)	4
	16		17

Mining practice in summer vacation.

SENIOR YEAR

	Hours		Hours
Metallurgy, 2 (general)	4	Mining, 2 (ore dressing)	4
Mining, 1 (mining)	4	Mining, 7 (mine Exam.)	1
Civil Engn., 42 (mechanics) ..	4	Metallurgy, 8 (metal Anal.) ..	2
Geology, 6 (optical Cryst.) ..	4	Geology, 9 (petrography)	4
	16	Geology, 16 (field wor-)	1
		Economics, 1	4
			16

GRADUATE COURSE IN MINING ENGINEERING.

Following course IV and leading to the degree of master of science in mining engineering.

First Semester—

	Hours
Mining, 10 (mining methods) ..	3
Mining, 5 (thesis)	1
Metallurgy, 7 (wet assay)	3
Metallurgy, 4 (copper, lead) ..	3
Metallurgy, 13 (design)	3
Elective, engineering	8
	16

Second Semester—

	Hours
Mining, 4 (coal mining)	4
Mining, 6 (mining law)	1
Mining, 7 (mine Exam.)	1
Mining, 8 (thesis)	3
Geology, 10 (economic)	4
Elective, engineering	3
	16

V. SHORT SESSION FOR MINING MEN

The 15th annual Short Session for mining men will open on January 4th, 1912, continuing until April 1st. During that period each year nine of the instructors in mining engineering offer a course for the benefit of persons who are interested in prospecting, mining or metal-working. Admission to the classes is without examination. Instruction is given by lectures, laboratory exercises, and visits to mines and plants in operation. The past experience and future aims of each student are taken into consideration, and the character of his work arranged accordingly.

No preparation is needed for this course. 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. In 1911 the number of students was 28, their ages varying from 20 to 53 years. During the first week of the course the instruction is of a general nature. Thereafter the students select those courses which best fit their needs. It is expected that a student will elect only those courses that he can attend with considerable regularity. Practically all the students attend the following subjects: evening lectures, mining, field trips, mineralogy, geology, mining law; in addition to these subjects, fire assaying and general chemistry are taken by many of the quartz miners, while the placer men substitute placer mining and surveying. Subject 3 cannot be taken without subjects 5 and 6. A few students each year attend only one or two subjects. Students who satisfactorily complete a course of study are given a certificate stating the amount and character of work done. For students who return a second year, a special course is arranged in continuation of their previous work.

The advantages of the University laboratories and libraries are open to all. Students may board and room at the dormitories or elsewhere, as preferred. Occasional trips are made to the Tacoma and Everett smelters, the United States assay office in Seattle, the coal and metal mines and the hydro-electric plants near Seattle. Tests of ore are made in the complete concentrating and stamp milling laboratory (described on page 81.) Miners and prospectors who have ore samples to be assayed or tested by mill-run may perform their own tests with the assistance of the professors in charge, as soon as the necessary skill has been attained.

There are no charges, except for material used. Deposits are made to cover the actual cost of supplies drawn by each student, the balance of the deposit being returned at the end of the course. All deposits are made at the beginning of the course.

SUBJECTS

A. MINERAL INDUSTRY. Tuesday evenings in February and March, 8:00 p.m. A series of lectures illustrated by lantern slides, showing views of the mining and metallurgical industries, with details of machinery and processes. Faculty and special lecturers.

1. **MINING.** Lectures on prospecting, development, mining systems, timbering, mine transportation, pumping, ventilation, and hydraulic mining. Practice with stamp-milling and concentrating machinery, testing of ores, etc. *Two lectures and one afternoon a week.* Professor ROBERTS.

2. **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.* Professors ROBERTS and DANIELS.

3. **FIRE ASSAYING.** Lectures on sampling, preparing ores for assay, furnaces, fuels, reagents, and the fire assay of gold, silver, lead, and tin ores. The laboratory work includes the testing of reagents, and the assaying of various ores. *One lecture and three afternoons a week in laboratory.* Deposit, fifteen dollars. Mr. COREY.

4. **METALLURGY.** 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.* Deposit, five dollars. Mr. COREY.

5. **GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS.** Laboratory practice in the determination of the common elements. *Three lectures a week, and Saturday laboratory.* Deposit, ten dollars. Professor BENSON.

6. **MINERALOGY.** Instruction and practice in blowpipe analysis, with lectures upon the common minerals, and practice in the identification of minerals by field tests. *Twice a week.* Deposit, two dollars. Dr. WEAVER.

7. **GEOLOGY.** Lectures on the elements of geology, the common varieties of rock, metalliferous vein and ore deposits, etc. *Twice a week.* Dr. WEAVER.

8. **MINING LAW.** A series of lectures on the mining laws of the United States and Alaska. Illustrated by drawings and mine maps. *Once a week.* Professor CONDON, Mr. SHAMEL.

9. **SURVEYING.** 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 afternoons a week.* Mr. GLEASON.

10. **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. Deposit, two dollars. *One afternoon a week.* Mr. KANE.

11. **PLACER MINING.** The elements of hydraulics; the flow of water in pipes, flumes and ditches; the methods and costs of placer mining in its various forms. *Three lectures a week.* Professor McCAUSTLAND.

12. **COAL MINING AND RESCUE TRAINING.** For a description of the short courses in coal mining, first aid to the injured and rescue training, see under "Mine Rescue Training Station," page State Mine Inspector BOTTING and Government Engineers.

DEPARTMENTS OF INSTRUCTION.

MINING ENGINEERING AND METALLURGY

MILNOR ROBERTS, *Professor*;

JOSEPH DANIELS, *Assistant Professor*;

CLARENCE RAYMOND COREY, *Instructor*;

GEORGE JAMME, HARVEY L. GLENN, and ROGER TAYLOR, *Lecturers*;

EDWARD H. DENNY, *Assistant in Metallurgy*;

JAMES M. McDONALD, *Assistant in Mining*.

MINING ENGINEERING

For a description of the courses offered to the short session students during January, February and March, see the preceding three pages.

Coal miners who are taking the ten-days' course in the Mine Rescue Training Station are given daily instruction and laboratory demonstrations in the subjects of mine gases, ventilation, the origin and composition of coals, and coal analysis.

A. MINERAL INDUSTRY. *Second semester*. A series of lectures illustrated by stereopticon views. Tuesday evenings in February and March, 8:00 p. m. An outline of the mining and metallurgical industries of the Pacific Northwest and Alaska, illustrated by views of mines, mills and smelters.

Professor ROBERTS and special lecturers.

1. MINING. *First semester. Four hours*. Three lectures and one laboratory period. Lectures on sinking, tunneling, stoping, timbering, systems of mining, power generation, air compression, hoisting, transportation, drilling, explosives, and cost keeping. Practice in machine drilling, ventilation, air compression, and the designing of mine equipment. Regular course of training under U. S. Bureau of Mines in first aid to the injured and in use of oxygen helmets. Prerequisite, senior standing.

Professor ROBERTS.

2. ORE DRESSING. *Second semester. Four hours*. Two lectures and two laboratory periods. A detailed study of certain branches of ore dressing with laboratory practice in the same, followed by the complete test of assigned ores by millruns checked by sampling and assaying. Prerequisite, Mining 3. Senior or graduate subject.

Professor ROBERTS and Mr. McDONALD.

3. **MILLING.** *First semester. Two hours.* One lecture and one laboratory period. Lectures on the principles of ore dressing. Mill practice in breaking ores by hand and machinery, crushing by stamps, rolls and grinders, screen-sizing, classifying, panning, amalgamation, concentration by jigs, vannels, Overstrom, New Standard, Wilfley and revolving slime tables, and magnetic concentration.

Professor ROBERTS and Mr. McDONALD.

4. **COAL MINING.** *First semester. Two hours.* Coal mining methods, lighting, ventilation, haulage, and all phases of the mining and preparation of coal for the market, with especial reference to the geological structure of the coal fields of the Pacific coast and the local methods of mining. A complete study of the Renton coal mine.

Professors ROBERTS and DANIELS and Mr. JAMME.

5. **FIELD WORK.** *First semester. One hour.* One laboratory period (or its equivalent in total time required) and monthly seminar. Class or individual visits to a mine, mill, smelter, or engineering work, to be followed by a report on field notes and sketches.

Professors ROBERTS and DANIELS.

6. **THESIS OUTLINE.** *First semester. One hour.* The outlining of the senior thesis, the gathering of material, study of references, making of drawings, maps, etc., in preparation for the work of the second semester. See mining 8. Senior or graduate.

Professors ROBERTS and DANIELS and Mr. COREY.

7. **MINE EXAMINATION.** *Second semester. One hour.* Ten days in the second semester. An excursion of the senior class to a mine or mining district for the purpose of studying mine equipment, methods and economic conditions, and for practice in mine sampling and estimation of ore.

Professors ROBERTS and DANIELS and Mr. COREY.

8. **THESIS.** *Second semester. Two hours.* A continuation of Mining 6. Weekly consultation.

Professors ROBERTS and DANIELS and Mr. COREY.

9. **JUNIOR EXCURSION.** *Second semester. One hour.* An excursion of the junior class to a mine or mining district. Sometimes made in connection with the senior excursion, Mining 7, in which case a given district will not be visited two years in succession. Required for senior standing.

Professors ROBERTS and DANIELS and Mr. COREY.

10. **MINING METHODS.** *First semester. Three hours.* Two lectures and one laboratory period. A detailed study of certain branches of mining. Senior or graduate. Professor ROBERTS.

METALLURGY

1. **FIRE ASSAYING.** *First semester.* One lecture and three laboratory periods. The testing of reagents, the crushing, sampling, and assaying of ores, furnace and mill products for lead, silver, gold and tin; also, the assay of base and dore bullion. Prerequisite, chemistry 9. Deposit, fifteen dollars.

Messrs. COREY and GLENN.

2. **GENERAL METALLURGY.** *Second semester.* Two lectures and two laboratory periods. Lectures and laboratory experiments on the properties of metals and alloys, fuels, refractory materials, furnaces and the extraction of the common metals from their ores. Visits to smelter. Prerequisites, geology 5, chemistry 9, metallurgy 1. Deposit, ten dollars.

Professor ROBERTS, Messrs. COREY and TAYLOR.

3. **METALLURGICAL FUELS.** *First semester. Three hours.* One lecture and two laboratory periods. The composition and metallurgical uses of natural and artificial fuels; the methods and costs of coking in beehive and by-product ovens, gas making, and coal briquetting. Furnace and calorimeter tests of various types of fuels; especially the testing of Washington coals to determine their fitness for coking, gas making, power purposes, etc. Deposit, five dollars.

Professor DANIELS.

4. **COPPER AND LEAD.** *Second semester. Three hours.* Two lectures and one laboratory period. Lectures and recitations on the metallurgy of copper, including roasting of ores and matte, smelting in blast and reverberatory furnaces, converting of matte and refining of copper by furnace and electrolytic methods; the metallurgy of lead, roasting, pot roasting and smelting of lead ores, lead refining by Parks, Pattinson and Betts processes. Laboratory practice in roasting copper and lead ores and mattes, smelting and refining in reverberatory furnace, and electrolytic refining. Visits to lead and copper smelters and refineries. Deposit, five dollars.

Mr. COREY.

5. **GOLD AND SILVER.** *First semester. Three hours.* Two lectures and one laboratory period. Amalgamation, cyaniding, and chlorination of gold and silver ores. Complete tests checked by assays. Deposit, five dollars.

Mr. COREY.

6. **MINOR METALS.** *Second semester. Three hours.* Two lectures and one laboratory period. The metallurgy of zinc, antimony, tin, mercury, nickel, etc.; a study of the plant required, the methods and costs of treatment, and the economic conditions governing the production of the minor metals. Laboratory experiments on ores and furnace products. Deposit, five dollars.

Mr. COREY.

7. **WET ASSAYING.** *First semester. Three hours.* The technical methods for the determination of copper, lead, zinc, etc., in ores and furnace products, etc. Prerequisite, chemistry 9. Deposit, ten dollars.

Mr. COREY.

8. **METALLURGICAL ANALYSIS.** *Second semester. Three hours.* Laboratory practice in technical methods of analysis of coals, slags, and industrial products. Prerequisite, chemistry 9. Deposit, ten dollars.

Mr. COREY.

9. **PYROMETRY AND ALLOYS.** *Second semester. Two hours.* One lecture and one laboratory period. Methods of measuring high temperatures. Union of metals by fusion, compression and electro-deposition; solution of metals in metals; the behavior of metals and alloys under heat; liquation and cooling curves; the rarer metals and their alloys. Laboratory practice in thermal measurements, synthesis and testing of alloys. Deposit, three dollars.

Mr. COREY.

10. **METALLOGRAPHY.** *First semester. Two hours.* One lecture and laboratory period. The constitution and microstructure of metals and alloys, especially iron and steel. The preparation and study of metal sections, photo-micrography and the use of the microscope to aid in testing structural iron and steel. Students in this course have the privilege of using the extensive collections of metal sections in the Seattle city testing laboratory. Deposit, three dollars.

Professor ROBERTS and Mr. COREY.

11. **METALLURGICAL PROBLEMS.** *First semester. One hour.* Physical chemistry for the metallurgist, slag calculations, etc., illustrated by figures quoted from the present practice at a number of smelting plants. Prerequisites, chemistry 9, and metallurgy 2.

Mr. COREY.

12. CLAY TESTING. *Second semester. Three hours.* One lecture and two laboratory periods. Methods of testing clays, refractory materials, cement making materials. Designed especially to determine the industrial value of crude materials found in Washington. Deposit, three dollars. Mr. COREY.

13. DESIGN OF PLANT. *First semester. Three hours.* Three drafting periods. The designing of a piece of equipment or a structure for mining, milling or metallurgical purposes. Problems with all conditions and requirements stated are given to the student for solution in the drafting room. Numerous blue prints and photographs of plants and equipment are on file for reference. Senior or graduate.

Professors ROBERTS and DANIELS.

THESIS. See mining 6 and 8.

SUMMER FIELD WORK. See mining 7 and 9.

COLLEGE OF PHARMACY.

FACULTY

- THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, President.
CHARLES WILLIS JOHNSON, Ph. C., Ph. D., Michigan, Dean and Professor of Pharmaceutical Chemistry.
HORACE G. BYERS, Ph. D., Johns Hopkins, Professor of Chemistry.
THEODORE CHRISTIAN FRYE, Ph. D., Chiago, Professor of Botany.
WILLIAM MAURICE DEHN, Ph. D., Illinois, Assistant Professor of Physiological Chemistry.
JOHN WEINZIRL, Ph. D., Wisconsin, Associate Professor of Bacteriology.
ARTHUR DAY HOWARD, Ph. D., Harvard, Assistant Professor of Zoology and Physiology.
ALBERT HASKIN DEWEY, Ph. G., B. S., Washington, Instructor in Pharmacy and Materia Medica.
GEORGE BURTON RIGG, B. S., A. M., Washington, Instructor in Botany.
JOHN JACOB WINTLER, Ph. C., B. S., Washington, Graduate Assistant in State Food and Drug Analysis.
AGNES FAY MORGAN, S. B., S. M., Chicago, Graduate Assistant in Chemistry.
FREDERICK MORGAN PADLEFORD, Ph. D., Yale, Professor of English Literature.
FREDERICK ARTHUR OSBORN, Ph. D., Michigan, Professor of Physics.
PIERRE JOSEPH FREIN, Ph. D., Johns Hopkins, Professor of French.
ROBERT EDOUARD MORITZ, Ph. D., Strassburg, Professor of Mathematics.
FREDERICK WILLIAM MEISNEST, Ph. D., Wisconsin, Professor of German.

PURPOSE

The College of Pharmacy of the University of Washington was established in 1894. It has for its chief aim the preparation of young men and women for responsible positions in the practice of pharmacy. It is well equipped to give instruction in all lines of work that constitute a liberal, as well as technical, education in

this important profession. It is not the purpose of the school to give "practical drug store experience," but to give such thorough instruction in practical manufacturing, the compounding of prescriptions, materia medica, and such allied subjects as chemistry, physiology, botany, and toxicology as will enable its graduates to take first rank in their chosen line of work. Being a department of the State University, the school is able to offer its students the advantages of various liberal arts courses, which afford those pursuing advanced work a liberal scientific education.

COURSES

Two courses of study have been outlined. 1. A two year course which prepares its graduates for responsible positions in the profession of pharmacy, and as pharmacaetical chemists. 2. A four year course which includes the professional training of the two year work, and which leads to a regular collegiate degree. Students taking the four year course will be granted the degree of pharmacaetical chemist (Ph. C.) upon the completion of the work of the two year course; and the degree of bachelor of science (B. S.) when four years of work is completed.

SPECIAL OPPORTUNITIES OF THE FOUR YEAR COURSE

The four year course is outlined to meet the needs of several classes of students. Those students who wish to extend the work of the two year course will find opportunity in the third and fourth year for specializing in pharmaceutical chemistry and pharmacy, thus becoming proficient in the chemistry of alkaloids, volatile oils, and other plant principles; the testing of foods and drugs for adulteration, both chemically and by use of the microscope; also opportunity for training in bacteriology, modern foreign language, English, mathematics, and physics. Students with the four year degree are well prepared not only to take up the regular practice of pharmacy, but also to fill positions as technical and manufacturing chemists and as teachers.

THE FOUR YEAR COURSE AS A PREPARATION FOR THE STUDY OF MEDICINE

Students who desire a thorough scientific training as a prerequisite for the study of medicine are allowed to arrange the work of the third and fourth year so as to include zoology, physiology, bacteriology, and comparative anatomy. The work of the first two years includes courses in general chemistry, organic chemistry, qualitative and quantitative analysis, physiological

chemistry, toxicology, and materia medica, which, if not taken before entering upon the study of medicine must be pursued after entering a medical school.

The attention of students preparing for medicine is particularly called to the courses in pharmacy, pharmaceutical preparations, and the study of the United States Pharmacopœia. The physician who is constantly prescribing pharmacopœial and National Formulary preparations should have a thorough knowledge of the methods of chemistry involved in these preparations, so as to avoid chemical and pharmaceutical incompatibilities in prescription mixtures. Work of this kind is all the more important as a premedical training, because of the fact that the curriculum of a course in medicine is too crowded to allow a thorough study of such subjects. Many of the best eastern schools of medicine are receiving our graduates, and giving them advanced credit for duplicate courses. While this may not save the student any time in obtaining the medical degree, it allows opportunity to follow up special lines of study in the college of medicine. In addition to this special training for medical studies, the student obtains the general training afforded by modern foreign language, English, mathematics, physics, and other elective liberal arts courses.

FOOD AND DRUG LEGISLATION

The enactment of the Food and Drugs Act by Congress, and of similar legislation by most of the states (Washington included), has placed very great importance upon pharmaceutical education. It is at once apparent that pharmacy, or a knowledge of drugs, is at least equally important with chemistry in the administration and enforcement of this legislation. The graduate in chemistry is not wholly qualified to act as 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 Pharmacopœia and National Formulary, pharmacognosy, materia medica and therapeutics, etc. A great many pharmaceutical chemists will be needed to carry out the analytical processes involved in the enforcement of the recent 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 University of Washington College of Pharmacy is in close touch with the government and state food and drug work, and is able to offer courses that will fit students for positions in this important line of work.

THE PREREQUISITE MOVEMENT

Several states have enacted laws requiring a college training in addition to a certain amount of high school work as a prerequisite for registration as a pharmacist. The standard of preliminary education in several of these states will soon be that of graduation from a four year high school. Since this movement is spreading rapidly, and many other states are sure to follow those now in the lead, it is desirable that young men and women of the Northwest who desire to enter the profession of pharmacy prepare themselves with a proper high school education, and then attend a school of pharmacy, the diploma of which will admit them to examination in any state in the Union. The University of Washington College of Pharmacy stands second to none in its standard of requirements for preliminary education, and character of work necessary to secure a degree; and its graduates will find no trouble in meeting the requirements of the various states.

The pharmacy law of the state has recently been amended, giving the State Board of Pharmacy the power to prescribe the preliminary training of candidates for registration. It is expected that in the near future all candidates for registration will be required to show evidence of training in a reputable school of pharmacy.

ENTRANCE REQUIREMENTS

CANDIDATES FOR DEGREES

To be admitted clear to either the two or four year course of the College of Pharmacy, students must either (a) pass an examination based on a course amounting in the aggregate to fifteen units, or (b) complete a course of the same length in an accredited school. Of these fifteen units eight and one-half are specified and required of all students; the remaining six and one-half may be selected from the list of optional subjects, except that two must be a foreign language.

Students from accredited schools, in order to be admitted without examination, must bring with them a full statement of

their high school or academy studies, signed by the proper authorities. As a rule the accredited school list of other state universities will be accepted by the University of Washington. Graduates of accredited schools in other states will present certified record of work, as in case of local students.

It will be of assistance to students from non-accredited schools, seeking admission by examination, to bring with them a certified statement of their studies.

STUDENTS NOT CANDIDATES FOR DEGREES

Students over twenty years of age, who have not the regular high school entrance requirements, but who can give satisfactory evidence of their fitness to carry the work, may enter and pursue the regular course of study. Such students will not be classed as candidates for a degree, but, upon satisfactorily completing the two year course, as outlined, will receive recognition for it as explained under the heading of certificate graduates. Students desiring to enter under the above conditions should write to the Dean, giving detailed statement of their previous school training, and making mention of any practical experience in pharmacy they may have received. Such students may become candidates for a degree upon clearing all entrance conditions.

DEGREES

1. The degree of pharmaceutical chemist (Ph.C.) will be granted to any student who has fulfilled the entrance requirements, and has completed the two year course as outlined. This degree entitles any holder who has had two years of practical experience to a certificate of registration from the State Board of Pharmacy (without examination) entitling him to practice pharmacy in the state of Washington. The graduates of the two year course are entitled to entrance to many of the best medical colleges.

2. The degree of bachelor of science (B.S.) will be conferred upon those who comply with the entrance conditions and complete the four year course. Graduates of the four year course may continue work in the graduate school leading to the master's degree.

A degree with honors may be conferred upon a student of the College of Pharmacy, if recommended for this distinction by the dean.

CERTIFICATE GRADUATES

Students not candidates for degrees who satisfactorily pursue the studies outlined in the two year course will be granted a certificate of graduation. This certificate entitles the holder who has had two years of practical experience to a certificate of registration from the State Board of Pharmacy (without examination) entitling him to practice pharmacy in the state of Washington.

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. It is of advantage for persons making such inquiries to state definitely their previous school training. Copies of the catalogue of the University or of the special announcement of the School of Pharmacy may be had upon application.

REQUIREMENTS FOR GRADUATION

1. (a) With degree of pharmaceutical chemist. (Entrance requirements page 296 and following.)

(b) With certificate of graduation. (Entrance requirements page 296 and following.)

FIRST YEAR, FIRST SEMESTER

	<i>Hours Credit.</i>	<i>Hours in Lec. & Rec.</i>	<i>Hours in Laboratory.</i>
Chemistry 1	4	54	90
Pharmacy 1	4	36	108
Botany 13	4	36	72
Physiology 8	4	36	72
Total for semester.....	16	162	342

FIRST YEAR, SECOND SEMESTER

Chemistry 2	4	54	90
Pharmacy 2	4	36	108
Botany 14	4	36	72
Chemistry, 8b	4	36	108
Total for semester.....	16	162	378

SECOND YEAR, FIRST SEMESTER

Chemistry 9	4	18	162
Materia medica 1.....	4	72	
Pharmacy 3	2	36	
Chemistry 8	4	36	108
Pharmacy 5	2	18	54
Total for semester.....	16	180	324

SECOND YEAR, SECOND SEMESTER

Chemistry 9a	4	18	162
Materia medica 2.....	4	72	
Pharmacy 4	2	36	
Chemistry 20a	4	36	108
Chemistry 4	2	36	
<hr/>			
Total for semester.....	16	198	270
Totals of required work.....	64	702	1314
Hours in lectures and laboratories.....			2016

2. With degree of bachelor of science. (Entrance requirements, page 264 and following).

For graduation with the degree of bachelor of science the student is required to do sufficient work in addition to that of the two year course to make *one hundred and twenty* hours of credit. Of the additional work the following courses are required:

Rhetoric, 4 hours.

Trigonometry, 4 hours.

Modern language, 16 hours.

Physics, 8 hours.

Laboratory science, 16 hours.

Physical culture, one year.

The work in laboratory science may be elected in bacteriology, botany, geology, pharmacy, pharmaceutical chemistry, physics, physiological chemistry, physiology, toxicology, and zoology.

3. With the degree of master of science.

Graduates with the degree of bachelor of science, who have been accepted for a higher degree, may present themselves for examination for the degree of master of science, after at least one year of graduate study in three subjects (a major subject and two minors).

DEPARTMENT OF INSTRUCTION

PHARMACEUTICAL CHEMISTRY

CHARLES WILLIS JOHNSON, *Professor*;HORACE G. BYERS, *Professor*;WILLIAM MAURICE DEHN, *Assistant Professor*;JOHN JACOB WINTER, *Graduate Assistant*;AGNES FAY MORGAN, *Graduate Assistant*.

1, 2. GENERAL CHEMISTRY. *Four hours*. Many students come from accredited schools in which chemistry is not required. To meet the needs of such students, a course is offered consisting of two lectures and six hours laboratory work per week. Text-books, Smith's College Chemistry and Laboratory Manual. Deposit, ten dollars per semester.

Professor BYERS, Instructors and Assistants.

3, 4. ORGANIC CHEMISTRY. *Four hours, first semester. Two hours, second semester*. A lecture course on the chemistry of the compounds of carbon. Laboratory work on the preparation and testing of representative compounds. Bernthsen-Sudborough's text is used as a reference book in connection with the lectures and Sudborough-Jame's laboratory manual is used as a laboratory guide. Deposit, ten dollars per semester.

Assistant Professor DEHN.

8b. ELEMENTARY QUALITATIVE ANALYSIS. *Second semester. Four hours*. Chemistry 1 is followed by a course in qualitative analysis. The course consists of two lectures and six laboratory hours per week. Deposit, ten dollars per semester.

Assistant Professor DEHN.

9. DRUG ASSAYING. *First semester. Four hours*. Experiments in gravimetric and volumetric methods of 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. Deposit, ten dollars per semester.

Professor JOHNSON.

9a. DRUG ASSAYING (Continuation of course 9). *Second semester. Four hours*. Methods of quantitatively estimating the active

constituents of crude drugs and their preparations, also the assay of a number of inorganic pharmaceutical preparations. Deposit, ten dollars per semester. Professor JOHNSON.

9b, 9c. ALKALOIDS AND DRUG ASSAYING.. Continuation of chemistry 9a. *Four hours.* The class work consists of the study of the structure and synthesis of alkaloids and of general methods of plant analysis. In the laboratory the various alkaloidal tests are studied, also methods of extracting, purifying and estimating plant principles. Laboratory three afternoons per week. Hours to be arranged. Prerequisite, quantitative and organic chemistry. Deposit, ten dollars per semester. Professor JOHNSON.

10. FATS AND OILS. *First semester. Four hours.* Study of the source, preparation and chemical nature of the various fats and oils of food and pharmaceutical use. The laboratory includes methods of identifying fats and oils and of testing for adulterants. Laboratory, three afternoons per week. Deposit, ten dollars per semester. Professor JOHNSON.

11. FOOD ANALYSIS. *Second semester. Four hours.* This course, together with course 10, is designed for students preparing for positions as food and drug analysts. Various food products on the market are analyzed for preservatives and other added ingredients that would be in opposition to the existing food and drug laws. Published methods of the official association of agricultural chemists are used, as well as liberal reference made to standard books on analysis of foods and drugs. Laboratory, three afternoons per week. Deposit, ten dollars per semester. Professor JOHNSON.

12. TOXICOLOGY. (Detection of poisons). *One hour. Either semester.* A laboratory course on the detection and estimation of poisons in animal tissues and practice in the preparation of testimony for legal cases. Hours to be arranged. Deposit, five dollars per semester. Professor JOHNSON.

20a. PHYSIOLOGICAL CHEMISTRY. *Second semester. Four hours.* Chemical composition of foods, tissues, secretions and excretions, their physiological and pathological changes, with special attention to the composition and clinical analysis of blood and urine. Deposit, ten dollars per semester.

Assistant Professor DEHN.

15. **PHYSIOLOGICAL CHEMISTRY.** *First semester. Four hours.* A continuation of course 20a, with special attention to the chemistry of the cell and individual organs and studies of sera and immunity. The laboratory practice consists largely of select quantitative methods. Deposit, ten dollars per semester.

Assistant Professor DEHN.

19. **URINARY ANALYSIS.** *Second half of second semester. One hour.* Practical methods of analysis of normal and pathological urines. This course is included in, but may be taken separate from course 14. Deposit, five dollars per semester.

Assistant Professor DEHN.

NOTE—For additional courses in chemistry, see general catalogue.

PHARMACY

CHARLES WILLIS JOHNSON, *Professor;*

ALBERT H. DEWEY, *Instructor.*

1. **THEORY AND PRACTICE OF PHARMACY.** *First semester. Four hours.* The study of the principles of pharmaceutical operations, such as comminution, expression, decantation, filtration, maceration, percolation, diffusion, dialysis, crystallization and precipitation. The laboratory work includes the manufacture of such preparations as best illustrate the above processes. Deposit, ten dollars per semester.

Mr. DEWEY.

2. **PHARMACEUTICAL PREPARATIONS.** *Second semester. Four hours.* Continuation of course 1. The study of galencial and other preparations; waters, tinctures, extracts, spirits, oleoresins, etc., also of pills, suppositories, ointments, plasters, etc. The laboratory work includes the manufacture and testing of various typical preparations. Deposit, ten dollars per semester.

Mr. DEWEY.

3. **U. S. PHARMACOPOEIA.** *First semester. Two hours.* A study of the inorganic and organic chemicals included in the pharmacopoeia. The manufacture, tests for purity, assay and medicinal properties are considered.

Mr. DEWEY.

4. **U. S. PHARMACOPOEIA AND NATIONAL FORMULARY.** *Second semester. Two hours.* A careful study of the United States pharmacopoeia and national formulary with the special object

of explaining the chemistry involved in the manufacture of the various compounds and preparations and in the assay processes.

Mr. DEWEY.

5. PRESCRIPTIONS. *First semester. Two hours.* One lecture period and one laboratory period. The compounding of prescriptions is practiced in the laboratory while the class work includes a study of the prescription itself, the various forms of incompatibilities and the state laws governing the filling and filing of prescriptions. Deposit, five dollars per semester. Mr. DEWEY.

6. PRESCRIPTIONS. Continuation of course 5. *Either semester.* Hours to be arranged. A more detailed course in prescription practice and instruction in the many and varied operations of the dispensing counter. Deposit, ten dollars per semester.

Mr. DEWEY.

7. MANUFACTURING PHARMACY. *Either semester.* Hours to be arranged. An advance course in pharmaceutical manufacturing including the manufacture of some of the more difficult of pharmacopoeial and national formulary preparations as well as a number of inorganic and organic compounds used in pharmacy and medicine. Deposit, ten dollars per semester.

Professor JOHNSON and Mr. DEWEY.

PHARMACOGNOSY, MATERIA MEDICA AND TOXICOLOGY

ALBERT H. DEWEY, *Instructor.*

1. PHARMACOGNOSY. *First semester. Four hours.* A study of crude drugs, their source, methods of collecting and preserving, identification, active constituents and adulteration.

Mr. DEWEY.

2. THERAPEUTICS AND TOXICOLOGY. *Second semester.* A study of the action of chemicals, drugs and their preparations on the human organism in health and disease, also the physiological action of the various poisons, their antidotes and emergency treatment in cases of poisoning.

Mr. DEWEY.

PHYSIOLOGY

———, *Assistant Professor.*

8. **ELEMENTARY PHYSIOLOGY.** *First semester. Four hours.* The human body, its tissues and organs, and their functions with special reference to hygiene. In the laboratory experimental work is given, together with dissection and microscopic examination of illustrative material. Deposit, two dollars per semester.

BACTERIOLOGY

JOHN WEINZIRL, *Assistant Professor.*

7. **GENERAL BACTERIOLOGY.** *First semester.* The methods of growing and studying bacteria are first taken up; the structure, functions and distribution are considered at length; a brief review of the applications closes the course. During the second semester medical students will take course 8, all others are advised to take course 10. Prerequisite, a course in either botany or zoology, and a course in chemistry.

Assistant Professor WEINZIRL.

8. **MEDICAL BACTERIOLOGY.** *Second semester.* Continuation of course 7. Pathological conditions, toxins, reactive products formed in the blood, and immunity are considered in general. Each specific bacterial disease is then taken up in detail. An introduction to the protozoal diseases closes the course. This course is planned for students who intend to study medicine.

Assistant Professor WEINZIRL.

BOTANY

Since so many of the common drugs are obtained from plants, an intelligent pharmacist should have a general knowledge of botany. Since related plants often have similar medicinal properties, a knowledge of classification becomes valuable; and in the identification of drugs, a knowledge of cell forms, and of the structure of various parts of a plant is indispensable. With these needs in mind a year's work has been outlined, including studies in cell forms and contents, and a general knowledge of classification, with special emphasis on the flowering plants.

13. **PHARMACY BOTANY.** *First semester. Four hours.* Structure of roots, stems, rhizomes, leaves, barks. Types are studied with a view to locating the elements; later the dry drugs are studied for the recognition of kinds of cells in them.

14. PHARMACY BOTANY. *Second semester.* Variations in stems, leaves, roots, parts of flowers, seeds, fruits. Study of types of the various families of phaneograms, and the analysis of plants in the spring with a view to fixing the chief characters of the families.

NOTE—Students desiring information on courses in language, mathematics, physics, rhetoric and other liberal arts subjects will consult those departments in the general catalogue.

THE GRADUATE SCHOOL.

A graduate of any college or university of approved standing who wishes to do graduate work in this university, may be enrolled as a graduate student upon presentation of satisfactory credentials to the committee on graduate work.

GRADUATE FELLOWSHIPS

Three fellowships of \$416.66 each, known as the Loretta Denny fellowships, are open to graduate students in any department of the University. Applications for these fellowships must be in the hands of the Bursar of the University on or before March fifteenth.

A bulletin of the Graduate School is published and will be sent upon request.

SUMMER SESSION

The eighth annual summer school of the University of Washington will begin June 26th, 1911, and end August 4th. The opening of the session has been set one week later than has been the custom in previous years in order that teachers coming a long distance or coming from schools which close late may reach the summer school before the session begins.

ADMISSION

Formal entrance examinations are not required. Applicants, however, must give evidence of sufficient maturity and preparation to profit by the work offered.

CREDITS

A student may earn a maximum of six credits by securing passing grades in the requisite number of subjects.

TEXT-BOOKS

Text-books may be purchased at reduced rates at the University book store. The book store is located on the campus near Denny Hall.

THE COURSES

The courses of the summer school are planned to meet the needs of the following classes of teachers and students:

1. High school and grade teachers who wish further preparation and inspiration.
2. Superintendents and principals.
3. Supervisors and teachers of music, manual training and domestic science.
4. Students doing regular college work.
5. Students wishing to do graduate work. See page 15.

REGISTRATION

Registration will begin Monday morning, June 26th. All students should enroll the first day. Students enrolling after the first week should not attempt to earn full credit (six credits). All deposits must be paid to the secretary at the opening of the session.

FEEES

Special laboratory fees are charged in certain science departments such as physics and chemistry to cover the cost of materials consumed. A fee of ten dollars (\$10.00) is required of each student registering in the summer school. No reduction of refunding of fees will be made on account of entering late or leaving early, except when students may wish to enroll for a special line of work only which is not conducted during the entire six weeks. No one may have the privilege of attending classes, except those announced as open lectures, without being registered in the summer school.

ROOM AND BOARD

Room and board at the dormitories can be secured for \$5.00 a week. Students must, however, furnish their own bedding, mattresses and linen. A number of mattresses belonging to the regular occupants of the dormitories are left in the rooms during the summer, and these may in some instances be rented for small amount.

A list of desirable rooms and boarding places for any who do not care to take advantage of the dormitories may be found at the Secretary's office.

DIRECTORY

OFFICERS OF ADMINISTRATION AND INSTRUCTION

- Adler, Julius, B. S. (C. E.).....4539 Brooklyn Ave.
Instructor. 24.
- Andrews, W. T.....1405 E. Fifty-sixth St.
Instructor. 24.
- Austin, Isabella, A. B.....Women's Building
Dean. 34.
- Beale, F. F.....6320 Sixteenth Ave. N. E.
Instructor. 33.
- Beattie, S. T.....5714 Fifteenth Ave. N. E.
Instructor. 22.
- Beach, W. G., A. M.....5043 Eleventh Ave. N. E.
Professor. 16.
- Bell, J. E., B. S.....5269 University Boulevard
Instructor. 27.
- Benham, A. R., Ph. D.....1708 Ravenna Boulevard
Assistant Professor. 18.
- Bennett, H. B., Ph. B.....5249 Seventeenth Ave. N. E.
Instructor. 25.
- Benson, H. K., Ph. D.....4733 University Boulevard
Associate Professor. 17.
- Boetzkes, Otilie G.....717 Belmont Ave. N.
Assistant Professor. 21.
- Brakel, H. L., A. M.,.....4556 Twelfth Ave. N. E.
Instructor. 22.
- Byers, H. G., Ph. D.....546 E. Fifty-fifth St.
Professor. 11.
- Carpenter, A. F.....4024 Tenth Ave. N. E.
Instructor. 25.
- Cockerill, Orville R.
Instructor in Law. 27.
- Cole, G. S., LL. B.....2102 E. Fiftieth St.
Professor. 16.
- Cole, Lucy K.
Instructor. 29.

- Colvin, Howard M.
Instructor. 28.
- Condon, H. T., LL. B.....4616 Twenty-first Ave. N. E.
Bursar and Secretary of Faculty. 9.
- Condon, J. T., LL. M.....120 Thirteenth Ave. N.
Professor and Dean. 11.
- Cooper, Frank B.....1202 Fifteenth Ave. N.
Lecturer. 29.
- Corey, C. R., E. M.....4750 Twenty-first Ave. N. E.
Instructor. 22.
- Cosgrove, Howard G.....Seattle
Regent. 8.
- Currie, Florence B., B. L., B. L. S., ...4550 Eighteenth Ave. N. E.
Catalog Librarian. 33.
- Custis, Vandever, Ph. D.....4504 University Boulevard
Assistant Professor. 19.
- Darby, W. T., A. M.....1819 Kilbourne Ave.
Instructor. 23.
- Dehn, W. M., Ph. D.....5027 Fifteenth Ave. N. E.
Assistant Professor. 19.
- Densmore, H. B., A. B.....4549 Fifteenth Ave. N. E.
Instructor. 23.
- Dewey, A. H., Ph. G.....6302 Fifteenth Ave. N. E.
Instructor. 24.
- Dodd, Emily.
Secretary to the Recorder. 34.
- Eastwood, E. O., C. E., A. M.....4702 Twelfth Ave. N. E.
Professor. 14.
- Fleager, C. E., C. E.....1600 Thirtry-fifth Ave.
Lecturer. 23.
- Fowler, C. E., M. Am. Soc. C. E.....1600 Thirty-fifth Ave.
Lecturer. 29.
- Frein, P. J., Ph. D.....4317 Fifteenth Ave. N. E.
Professor. 13.
- Frye, T. C., Ph. D.....4558 Ninth Ave. N. E.
Professor. 13.
- Fuller, A. H., M. S. C. E.....5208 Fourteenth Ave. N. E.
Professor and Dean. 10.
- Garrett, Max Robert, Ph. D.....4218 Eleventh Ave. N. E.
Instructor. 25.
- Gavett, G. I., B. S. (C. E.).....5525 Sixteenth Ave. N. E.
Instructor. 23.

- Getty, Lillian B.....4742 Fifteenth Ave. N. E.
President's Stenographer. 34.
- Gleeson, W. A.....542 E. Eighty-second St.
Instructor. 28.
- Glenn, H. L., B. S.....703 Twentieth Ave.
Lecturer. 29.
- Goodner, I. W., LL. B.....Central Building
Lecturer. 16.
- Goss, O. P. M., C. E.....4750 Sixteenth Ave. N. E.
Instructor. 29.
- Gould, J. E., A. M.....5015 Fifteenth Ave. N. E.
Assistant Professor. 17.
- Gowen, H. H., F. R. G. S.....619 Eighth Ave.
Professorial Lecturer. 15.
- Grondahl, L. O., Ph. D.....The Mallory
Instructor. 25.
- Haggett, A. S., Ph. D.....4549 Fifteenth Ave. N. E.
Dean. 12.
- Hall, D. C., M. D.....550 Sixteenth Ave. N. E.
Professor. 15.
- Hall, F. S.....On Campus
Assistant Curator. 31.
- Hanna, C. Elizabeth.
Secretary to Bursar. 34.
- Harisberger, John.....4015 Fourth Ave. N. E.
Lecturer. 29.
- Hart, J. K., Ph. D.....4542 Brooklyn Ave.
Assistant Professor. 21.
- Harris, C. W., C. E.....5204 Fifteenth Ave. N. E.
Instructor. 21.
- Hauschild, G. W., A. B.....4540 University Boulevard
Instructor. 25.
- Hazeltine, F. A.....South Bend, Wash.
Regent. 8.
- Henry, W. E., A. M.....5209 Fifteenth Ave. N. E.
Librarian. 33.
- Herbsman, J. C., A. B., LL. B.....6305 Sixteenth Ave. N. E.
Instructor. 25.
- Higgins, J. C.....1212 Seventh Ave. W.
Regent. 8.
- Hipkoe, Max4312 Fourth Ave. N. E.
Clerk. 34.

- Hoff, H. J., Ph. D.....800 E. Forty-fifth St.
Instructor. 24.
- Howard, H. D., Ph. D.....5232 Brooklyn Ave.
Assistant Professor. 20.
- Hummell, Sarah M.....The Minerva
Instructor. 26.
- Jamme, G. E.....1627 Summit Ave.
Lecturer. 29.
- Johanson, J. M., A. B.....4530 Fourteenth Ave. N. E.
Instructor. 23.
- Johnson, C. W., Ph. C., Ph. D.....5031 Fifteenth Ave. N. E.
Professor and Dean. 13.
- Johnson, F. E., E. E.....On the Campus
Instructor. 22.
- Johnson, O. B.
Professor Emeritus. 10.
- Kane, S. M.....On the Campus
Instructor. 23.
- Kane, T. F., Ph. D.....On the Campus
President. 10.
- Kells, Lucas C., Ph. D.
Instructor. 27.
- Kimball, C. O.
Director of Music. 33.
- Kincaid, Trevor, A. M.....4526 Brooklyn Ave.
Professor. 11.
- Landes, Henry, A. M.....4503 Brooklyn Ave.
Professor. 10.
- Lantz, Harvey, A. M., LL. B.....4549 Fifteenth Ave. N. E.
Professor. 14.
- Lester, H. H., A. B.
Acting Instructor. 27.
- Loew, E. A., B. E., E. E.....4128 Brooklyn Ave.
Instructor. 26.
- Lovitt, W. V.
Instructor. 23.
- Lull, H. G., A. B.....5643 Twentieth Ave. N. E.
Associate Professor. 17.
- McCaustland, E. J., C. E., M. C. E.....5264 Nineteenth Ave. N. E.
Professor. 15.
- McDonnell, E. Pearl, A. B.....4239 Fifteenth Ave. N. E.
Periodicals and Local History Librarian. 33.

- McEwan, A. F.....1409 Madison
Regent. 8.
- McMahon, Edward, A. M.....4024 Tenth Ave. N. E.
Assistant Professor. 20.
- Magnusson, C. E., Ph. D., E. E.....4123 Twelfth Ave. N. E.
Professor. 13.
- Mallory, C. E., A. B.
Instructor. 28.
- Markham, William.....117 E. Sixtieth St.
Secretary Board of Regents. 8.
- Meany, E. S., M. L.....4025 Tenth Ave. N. E.
Professor. 10.
- Meisnest, F. W., Ph. D.....4705 Sixteenth Ave. N. E.
Professor. 14.
- Meissner, Josephine, B. L. S.....4022 Tenth Ave. N. E.
Circulation Librarian. 33.
- Merrick, Jessie B.....Clark Hall
Instructor. 26.
- Miller, A. A., B. S.
Lecturer. 27.
- Miller, F. G., M. F.....The San Marco
Professor and Dean. 14.
- Miller, J. W.....5517 Twelfth Ave. N. E.
Instructor. 26.
- Milliman, L. D., A. B.....5247 Fifteenth Ave. N. E.
Assistant Professor. 19.
- More, C. C., M. S., C. E.....4309 Fourth Ave. N. E.
Associate Professor. 17.
- Moritz, R. E., Ph. D., Ph. n. D.....4705 Twenty-first Ave. N. E.
Professor. 13.
- Morris, W. A., Ph. D.....5015 Fifteenth Ave. N. E.
Assistant Professor. 21.
- Morrison, F. M., A. B.....4626 Twenty-first Ave. N. E.
Assistant Professor. 19.
- Muehlstein, W. G....Fifty-sixth and Twenty-seventh Ave. N. E.
Instructor. 28.
- Nyvall, David A. B.....611 Belmont N.
Professor. 16.
- Ober, Caroline H.....4226 Brooklyn Ave.
Professor. 11.

- Osborn, F. A., Ph. D.....5215 Fifteenth Ave. N. E.
Professor. 12.
- Padelford, F. M., Ph. D.....4711 Fifteenth Ave. N. E.
Professor. 12.
- Parrington, V. L., A. M.....1316 E. Sixty-third St.
Assistant Professor. 20.
- Patten, Capt. W. T.....2836 Tenth Ave. N.
Commandant. 15.
- Patzer, Otto, Ph. D.....5232 Eighteenth Ave. N. E.
Assistant Professor. 19.
- Pease, R. B., A. M.....4549 Eleventh Ave. N. E.
Instructor. 26.
- Piercy, J. W.....5503 Fifteenth Ave. N. E.
Instructor. 28.
- Rea, J. A.....Tacoma
Regent. 8.
- Rice, E. G., A. B., LL. B.
Instructor. 24.
- Richardson, O. H., Ph. D.....4717 Nineteenth Ave. N. E.
Professor. 15.
- Rigg, G. B., A. B.....5453 Tenth Ave N. E.
Instructor. 27.
- Roberts, Milnor, A. B.....4505 Fifteenth Ave. N. E.
Professor and Dean. 12.
- Rogers, A. L.....Waterville
Regent. 7.
- Rose, R. E., Ph. D.....4723 Trackeray Place
Instructor. 24.
- Ross, J. D.....811 E. Harrison
Lecturer. 29.
- Salisbury, G. N., B. S.....916 Nineteenth Ave.
Lecturer. 29.
- Saunders, E. J., A. M.....4228 Tenth Ave. N. E.
Assistant Professor. 21.
- Savery, William, Ph. D.....Sixtry-third St. near Fifteenth Ave.
Professor. 12.
- Scott, S. F., Ph. C., M. S.....5027 Fifteenth Ave. N. E.
Instructor. 21.
- Sidey, T. K., Ph. D.....4245 Brooklyn Ave.
Assistant Professor. 18.
- Sisson, E. O., Ph. D.....1833 Ravenna Boulevard
Professor. 14.

- Smith, C. W., A. B., B. L. S.....5033 Twenty-first Ave. N. E.
Assistant Librarian. 33.
- Smith, J. A., Ph. D.....4533 Fifteenth Ave. N. E.
Professor. 10.
- Smith, Stanley, A. M.....123 Eastlake Ave.
Instructor. 23.
- Spooner, C. P.Seattle
Regent.
- Stevens, H. C., Ph. D.....4026 Eleventh Ave. N. E.
Assistant Professor. 19.
- Stevens, Edwin B.....4123 Fifteenth Ave. N. E.
Secretary to the President. 9.
- Stone, Edward N.....5226 Brooklyn Ave.
Recorder. 9.
- Strong, C. M., A. M.
Instructor. 22.
- Taylor, Roger, C. E.
Lecturer. 29.
- Thomson, David, A. B.....4504 University Boulevard
Professor. 12.
- Thorpe, M. H., A. B.....5647 Brooklyn Ave.
Assistant Professor. 20.
- Weaver, C. E., Ph. D.....4727 Brooklyn Ave.
Instructor. 24.
- Weinzirl, John, Ph. D.....4144 Tenth Ave. N. E.
Assistant Professor. 18.
- Weithaase, P. E., A. M.....5608 Fifteenth Ave. N. E.
Instructor. 24.
- Wester, C. W., B. S.....5033 Twenty-first Ave. N. E.
Instructor. 27.
- Wilson, G. S., B. S.....4114 Tenth Ave. N. E.
Assistant Professor. 20.
- Whittlesey, W. B., A. B.....2113 Fourth Ave. N.
Instructor. 24.
- Winkenwerder, H. A.....6306 Seventeenth Ave. N. E.
Associate Professor. 18.
- Zimmerman, C. W.
Engineer Timber Tests. 32.

DEGREES CONFERRED ON COMMENCEMENT DAY 1910

BACHELOR DEGREES

COLLEGE OF LIBERAL ARTS

BACHELOR OF ARTS

Bessie Louise Anderson	Charlotte Dootson
Ruth Fisk Anderson	Annie Marion Drummond
(<i>cum laude</i>)	Edward Frederic Ducasse
Iona Barash	(<i>magna cum laude</i>)
Jeannette Bartow	Violet Wilhemina Dungan
Lloyd Llewellyn Black	Hilda Elizabeth Eisenbeis
(<i>cum laude</i>)	Ada Sage Etsell
Rowena Bond	Winnie Evans
Charles S. Brown	Ione Edith Fenton
Edwin J. Brown	(<i>cum laude</i>)
William Lloyd Bruehlman	Albert Fertsch
(<i>cum laude</i>)	Edna Ficks
Josephine Mary Bulkeley	(<i>cum laude</i>)
Bertha Mary Challis	Henry Paul Filer
Marguerite Chase	Albert Le Verne Fitch
Olive Winifred Christopherson	Grace Annabel Forbes
Vera Anna Cogswell	Rosa Fünfsinn
Marian Lombard Colkett	Floy Victoria Gilmore
(<i>cum laude</i>)	Clyde Grainger
Helen Holman Collins	Grace Leone Gray
Howard Milton Colvin	Blanche Lydia Hackshaw
William Bell Cook	(<i>cum laude</i>)
Margaret Victoria Corbet	William Herbert Harris
Carrie Cowgill	Joseph Barlow Harrison
Roy Monteith Crismas	Harriet Fingland Hibben
Ruby Isabelle Livingston Dalgity	Alice Howes
Tarakanth Das	Lulu Hubert

Addie May Hunter
 Anne Ogden Johnson
 Annabel Milligan Johnstone
 Eleanor Jones
 Ethel Mary Jones
 Oscar Frederick Thurston John-
 son

William Zinn Kerr
 Grace Kindig
 Grace Elizabeth King
 Ethel Latham
 Minerva Ann Le Sourd
 George John Lewis
 Lillian Lohman
 Mabel Agnes McCormack
 Bess Olive McKay
 Flobell McKean
 Mabel Margaret McMurray.
 Lillian Madison

(cum laude)

Axia Adella Maltbie
 Elizabeth Josephine Mathieu
 Mae Mathieu
 Olive Maybelle Leone Mauer-
 mann

Gertrude Lucile Melton
 Mable Annora Neal
 Charles Edwin Olsan
 Margaret Catherine O'Meara
 Rosanna Osberg
 Helena Eleanor Parks
 Ida Anna Parton
 Priscilla Irene Patton
 Freda Ruth Paulson

(cum laude)

Emilie Stewart Peaslee
 Jessie Nutting Priest

William Prosser

As of the Class of 1909

Mary B. Quigley
 Dora Pearl Rademaker
 Chester Garnet Raymond
 Caroline Elizabeth Romine
 Marie Caroline Saeman
 Otilie Iona Schricker
 Emma Gertrude Scott
 Elizabeth Creed Searle
 Ethel Shave

(cum laude)

Nina Blanche Simpson
 Doy Slater
 Clara Smiley
 Elsie Pearl Smith

(cum laude)

Erna Spannagel
 Edna Belle Stanford
 Pluma Statler
 Edward Matthewson Stilwell
 Harriet Merle Tanner
 Arthur Ralph Tollefson
 Inda Nelly Truesdell
 Helen Caroline Urquhart
 Clara Van Sant

(cum laude)

Lovisa Catherine Wagoner
 Ruby Grace Walker
 Ernest Fredric Wells
 Florence White
 Glenn Thornton Whitney
 Esther Irene Wickwire
 Alma Josephine Wills
 Ella Wintler
 Ida Naoma Yeager

COLLEGE OF ENGINEERING

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

Donald William Ross

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Clarence Myers Bates

Hiram Ward Camp

Lloyd Flint Fairbrook

Levi Alton Lovegren

Charles Culbertson May

Warren Wood Ryan

Fred George Tegtmeier

Chauncy Wernecke

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Earl Jacob Beery

Raymond Allon Hopkins

(cum laude)

James Raymond Johnson

George Gray Lall

Leonard Mathias Moyer

Edward Kirk Shelton

Glenwyn Harry Smith

Charles Foster Terrell

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Arthur Anderson Davis

Benjamin Franklin Phelps

SCHOOL OF MINES

BACHELOR OF SCIENCE IN MINING ENGINEERING

Allan Cunningham

Charles Reinhard Fettke

(cum laude)

Birger Norum

Claude Sims Thompson

SCHOOL OF PHARMACY

BACHELOR OF SCIENCE IN PHARMACY

John Harlon Carey

Martha Anna Ramsey

Rita Agnes Carlin

PHARMACEUTICAL CHEMIST

Cathryn Polly Udwell

Rita Agnes Carlin

Faye Gertrude Derry

Frank Gilluly

Francis Edith Hindman

Thomas Martin Johnson

Mary Ryley-McGahn

Benjamin Williams Mitchell

Martha Anna Ramsey

Carleton Irving Sears

Edward Otto Sempert

Bess E. Storch

Peter Thompson

Ruth West.

CERTIFICATE IN PHARMACY

J. Laurence Randles

NORMAL DIPLOMAS AND CERTIFICATES

UNIVERSITY LIFE DIPLOMA

Sophia E. Townsend

UNIVERSITY TEACHERS' CERTIFICATES

Bessie Louise Anderson	Ethel Latham
Ruth Fisk Anderson	Minerva Ann Le Sourd
Iona Barash	Elizabeth Josephine Mathieu
Jeannette Bartow	Mae Mathieu
Rowena Bond	Olive Maybelle Leone Mauer-
Josephine Mary Bulkeley	man
Marguerite Chase	Mabel Agnes McCormack
Vera Anna Cogswell	Bess Olive McKay
Marian Lombard Colkett	Gertrude Lucile Melton
Ruby Isabelle Livingston	Charles Edwin Olsan
Dalgity	Margaret Catherine O'Meara
Charlotte Dootson	Rosanna Osberg
Ada Sage Etsell	Helena Eleanor Parks
Winnie Evans	Ida Anna Parton
Ione Edith Fenton	Priscilla Irene Patton
Edna Ficks	Freda Ruth Paulson
Grace Annabel Forbes	Emilie Stewart Peaslee
Rose Fünfsinn	Mary B. Quigley
Grace Leone Gray	Caroline Elizabeth Romine
Blanche Lydia Hackshaw	Marie Caroline Saeman
Harriet Fingland Hibben	Ottillie Iona Schricker
Alice Howes	Elizabeth Creed Searle
Lulu Hubert	Ethel Shave
Addie May Hunter	Nina Blanche Simpson
Anne Ogden Johnson	Clara Smiley
Annabel Milligan Johnstone	Edna Belle Stanford
Ethel Mary Jones	Pluma Statler
Grace Kindig	Edward Matthewson Stilwell
Grace Elizabeth King	

SCHOOL OF LAW

BACHELOR OF LAW

Alton Covell Allen	Cleo Preston King
William C. Bates	Ralph Read Knapp
Homer L. Boyd, A. B.	Philip George Krueger
Broder D. Brown	Samuel B. Lawrence
George Donald Bowe	Francis Joseph Lebeck
Lambert Milton Burnett	Penrose Lee McElwain, A. M
Ralph Guild Chittenden	Joseph Edison Miller
Ambrose William Codd, A. B.	Charles Alfred Norton, A. B.
Walter Joseph Codd, A. B.	Augustus Henry Packard
Daniel Burgess Cogswell	Byron Elmo Reser
Frederick Michael Crollard	Harold Mark Rogers
Frederick William Dorr	James Irvine St. John
Kenneth Paul Durham	Jay H. Sigsworth
Wedell Foss	George East Starr, A. B.
Max H. Garretson	Joseph Phelps Totten
John William Gordon	Lewie Williams
Nelda Jaeger	Grover Cleveland Winn
Walter Lewis Johnstone	Hyman Zettler

GRADUATE DEGREES

MASTER OF ARTS

Lois Clark, A. B., University of Washington.
Rose Glass, A. B., University of Washington.
Euna Pearl Kelly, Ph. B., Colorado College.
Lebbeus Jared Knapp, A. B., Albion College.
Hjalmar Laurits Osterud, A. B., University of Washington.
Martin William Steinke, A. B., Wartburg College.
Sophia Elizabeth Townsend, A. B., Willamette University.

MASTER OF SCIENCE IN CHEMISTRY

Godfrey Leonard Alvin Ruehle, A. B., University of Washington.

MASTER OF SCIENCE IN FORESTRY

Herman M. Johnson, A. B., University of California.
--

ELECTRICAL ENGINEER

Magnus Tate Crawford, B. S. in E. E., University of Washington.

SCHOLARSHIPS AND PRIZES AWARDED

The following awards of prizes and scholarships were made for 1911:

- The John Walter Ackerson Scholarship for Women.....
Miss Margaret Sarah Floyd.
- The Judge Alfred Battle Cash Prize for Debate.....
Charles McKinley, Andrew Reuben Hilten.
- The Philo Sherman Bennett Cash Prize in Political Science.....
William Lloyd Bruehlman.
- The E. F. Blaine Cash Prize for Oratory
- The Judge Thomas Burke Scholarship Cash Prizes.....
Latin, Miss Mollie Burnett; French, Miss Lucia Haley; German,
Miss Louise P. Schrieber.
- The Vivian M. Carkeek Cash Prize for Law Thesis.....
Max H. Garretson.
Honorable Mention—John William Gordon.
- The Cash Prize in Chemistry (anonymous).....
Marc de Lepine Darrin.
- The L. J. Corkey Cash Prize for Oratory.....,....
Clarence Benjamin Keith.
- The Loretta Denny Fellowships
- Taraknath Das, Political Science and History; Miss Katharine
Berry Judson, History; John Merritt McGee, Chemistry.
- The Jacob Furth Scholarship Cash Prize in Electrical En-
gineeringRaymond Allan Hopkins
- The Thomas T. Kerl Prize on an Industrial Topic Involving
Products of Northwest.....Donald Ross
- Senior Scholars
- Miss Margaret Corey, German; Miss Lucia Haley, French; Mr.
Enoch Karrer, Physics; Mr. Sebastian Karrer, Physics; Miss
Dorothy Craik Mason, English; Miss Florence Lucile Rey-
nolds, History; Miss Louise P. Schreiber, German; Mr. Lloyd
Leroy Smail, Mathematics; Mr. Fred Lea Stetson, Education.

Sigma Xi

Lois Clark, John Merritt McGee, Charles Reinhard Fettke, Raymond Allan Hopkins.

The Alden J. Blethen Prizes for Declamation and Oratory.....

Declamation—Wallace McPherson, Tacoma, first; Lance Hart, Aberdeen, second; Anna R. Peterson, Spokane, third. Oratory—Cole Newell, Kirkland, first; Arthur E. Carr, Seattle, second; Ruth Pitka, Seattle, third.

REGISTER OF STUDENTS

GRADUATE SCHOOL

<i>Name of Student</i>	<i>Home Address</i>
Ashmun, Raymond Nims	Cosmopolis
A. B., University of Washington, 1909.	M. A. 1911, Mathematics.
Ball, Myrtle Maitland	Tacoma
A. B., Ouachita College, 1907.	M. A. 1912, English Literature.
Boyd, Grace Martha	Kennewick
A. B., Hastings College, 1902.	M. A. 1912, Mathematics.
Bruehlman, William Lloyd	Seattle
A. B., University of Washington, 1910.	M. A., Political Science.
Burgess, Edith Luella	Seattle
A. B., University of Washington, 1904.	M. A. 1912, Eng. Lit.
Caskin, Olaf Emerie H.	Puyallup
A. B., University of Washington, 1909.	M. A., History.
Challis, Bertha Mary	Seattle
A. B., University of Washington, 1910.	M. A. 1911, Zoology.
Cook, William Bell	Seattle
A. B., University of Washington, 1910.	English.
Corbet, Margaret V.	Seattle
A. B., University of Washington, 1910.	M. A. 1911, Latin.
Craven, Inez Helena	Seattle
A. B., Smith College, 1910.	Education.
Crawford Magnus Tate	Seattle
B. S., University of Washington, 1907.	M. S., Elec. Engineering.
Dalgity, Ruby I. L.	Seattle
A. B., University of Washington, 1910.	Botany.
Das, Taraknath	Seattle
A. B., University of Washington, 1910.	M. A. 1911, Polit. Science.
Dewey, Albert Haskin	Seattle
B. S., University of Washington, 1909.	M. S. 1911, Chemistry.
Easter, Roderick Ralph	Seattle
B. S., University of Washington, 1909.	M. S., Elec. Engineering.

- Fitch, Albert LeVerneSeattle
A. B., University of Washington, 1910. English.
- Fitch, Helen MarieSun Prairie, Wis.
A. B., University of Wisconsin, 1910. M. A. 1912, German.
- Gaebler, HansWatertown, Wis.
A. B., Northwestern University, 1907. German.
- Georgeson, DagmarSitka, Alaska
A. B., University of Washington, 1907. English.
- Gillette, Alletta MariaSeattle
A. B., Smith College, 1907. M. A. 1911, English.
- Grainger, ClydeSumner
A. B., University of Washington, 1910. English.
- Hartman, Frank AlexanderSeattle
A. B., University of Kansas, 1905.
M. A., University of Kansas, 1909. Physics.
- Haworth (Mrs.), Eleanor FrothinghamVancouver, B. C.
A. B., Rockford College, 1904. M. A. 1911, English Literature.
- Johnson, Oscar F. T.Portland, Ore.
A. B., University of Washington, 1910. M. A. Political Science.
- Judson, Katherine BerrySeattle
A. B., Cornell University, 1904. M. A. 1911, History.
- King, John RussellSeattle
B. S., University of Washington, 1906. Electrical Engineering.
- Lewis, George John, Jr.Seattle
A. B., University of Washington, 1910. Education.
- Lovegren, Levi AltonPreston
B. S., University of Washington, 1910. Chemistry.
- McCarney, MargaretSeattle
A. B., University of Washington, 1909. M. A. 1911, Botany.
- McCowan, MargaretEverett
A. B., University of California, 1901. M. A. 1912, Latin.
- McGee, John MerrittSeattle
A. B., University of Washington, 1909. M. A. 1911, Chemistry.
- Madison, LillianKent
A. B., University of Washington, 1910. Mathematics.
- Maltbie, Axia AdeliaSeattle
A. B., University of Washington, 1910. History.
- Marsh, LinnieSedro Woolley
A. B., Whitman College, 1905. Journalism.

Morgan, Agnes Fay	Seattle
B. S., University of Chicago, 1904.	Chemistry.
Martin, Lillia Lynn	Montera
A. B., Women's College, Baltimore, 1900.	Latin.
Murphy, Loretta Belle	Forest Grove, Ore.
A. B., Pacific University, 1910.	Education.
Newton, Earl Burdett	Norwich, N. Y.
A. B., University of Washington, 1907.	M. A., Zoology.
Niedergesaess, Gertrude Louise.....	Seattle
A. B., University of Washington, 1907.	English.
Noelker, Robert E.	Baterville, Ind.
Ph. B., 1910.	German.
Odell, Walter Tompkins	Tompkins Cove, N. Y.
A. B., Princeton, 1907.	M. S. 1912, Forestry.
Perkins, Georgia Yost	Seattle
B. S., Cornell University, 1909.	Domestic Science.
Plath, Otto	Harney, Ore.
A. B., Northwestern University, 1910.	M. A., German.
Pope, Clarence R.....	Hoxie, Kansas
B. S., Bellevue College.	M. S., Forestry.
Pyle, Stephen Donald	Brooklyn, N. Y.
A. B., Brown University, 1910.	M. A. 1912, English.
Rademaker, Dora Pearl	Seattle
A. B., University of Washington, 1910.	Zoology.
Reichen, John Edward	Madras, Ore.
A. B., Willamette University, 1908.	Physics.
Rigg, George B.	Seattle
B. S., University of Iowa, 1896.	M. A., Botany.
M. A., University of Washington, 1909.	
Ross, Donald	Seattle
B. S., University of West Virginia, 1910.	M. S. 1911, Geology.
Runner, Joseph James	Seattle
A. B., University of Nebraska, 1907.	Geology.
Sawyer, Newell Wheeler.....	North, Yakima
Ph. B., Dickinson College, 1906.	English Literature.
Schmidt, William Anton	Hillsboro, Ore.
A. B., Willamette University, 1909.	M. A. 1911, Philosophy.
Siewert, Samuel August.....	Seattle
A. B., Willamette University, 1903.	M. A. 1911, Political Science.

Smith (Mrs.), Christina Denny	Seattle
A. B., University of Illinois.	Political Science.
Soltaw, David Livingston	Seattle
B. S., Northwestern University, 1909.	M. S. 1912, Physics.
Streator, Gertrude Inez	Seattle
A. B., University of Washington, 1909.	M. A. 1911, English.
Stryker, Elizabeth B.	Indianapolis, Ind.
A. B., College of Emporia, Kansas, 1901.	Political Science.
Sveinson, Mekkin	Seattle
A. B., University of Washington, 1908.	M. A. 1911, French.
Thedinga, Henry Herman	Seattle
B. S., University of Washington, 1905.	M. S., Elec. Engineering.
Wakefield, Cleo Marie	Seattle
A. B., University of Washington, 1908.	M. A. 1913, French.
Wakefield (Mrs.), Ella M.	Seattle
A. B., Oberlin, 1880.	M. A. 1913, Latin.
Wester, Charles William	Seattle
B. S., University of California, 1908.	M. A. 1911, Mathematics.
Wheeler, Belle Pearsons	Seattle
Ph. B., University of Chicago, 1903.	M. A. 1912, French.
Whitney, Erle Francis	Seattle
B. S., Mass. Inst. of Technology.	M. S., Electrical Engineering.
Wolfin, Hugh M.	Seattle
B. S., University of Arizona, 1907.	
B. S., Mining Engineering, 1908.	M. S. 1911, Mining Engineering.
Zeller, Myron Sanford	Seattle
A. B., Greenville College.	Botany.

COLLEGE OF ARTS AND SCIENCES.

ABBREVIATIONS

CLASSES

'11 Senior
'12 Junior
'13 Sophomore

'14 Freshman
Sp. Special Student
Ext. Extension Student

*Name of Student and Rank**Home Address*

Ackerman, Ethel Chestina, '14.....	Yreka, Calif.
Adair, Grover Charles, '11.....	Littlerock
Adams, Jay Andrew, '14.....	Leavenworth
Agassiz, Eva May, '14.....	Seattle
Ake, Mary Frances, '13.....	Mountain Home, Idaho
Albitz, Alice Blanche, '13.....	Seattle
Aldridge, Steele Grace, '14.....	Seattle
Allen, Carolyn Elizabeth, '14.....	Milwaukee, Wis.
Allen, Lillian, '12.....	Tacoma
Allen, Mame, '14.....	LaConner
Allen, Ruth Abigail, '12.....	Seattle
Almack, Velenthal, '12.....	Seattle
Almquist, Herman Elof David, '14.....	Seattle
Ames, Laura, '12.....	Poulsbo
Ames, Margaret Ella, '14.....	Seattle
Amidon, Mabell Jessie, '14.....	Seattle
Anderson, Ada Charlotte, '13.....	Seattle
Anderson, Alice Mary, '14.....	Seattle
Anderson, Alice Olivia, '14.....	Bellingham
Anderson, Bernice, '14.....	Spokane
Anderson, Doris Francis, '14.....	Seattle
Anderson, Dorothy Louise, '14.....	Seattle
Anderson, Hilding C., '14.....	Mt. Vernon
Anderson, John Claus Frederick, '14.....	Arcola, Ill.
Anderson, Harry Finch, '13.....	The Dalles, Ore.
Anderson, Victoria, '14.....	Renville, Minn.
Andrews, Elsie, '13.....	Newberg, Ore.
Angevine, Lorin Deland, '14.....	Vancouver, B. C.
Angle, Robert Corydon, '14.....	Shelton
Archibald, Henrietta Stuart, '14.....	Denver, Colo.
Argo, Arnold Clarence, '12.....	Spokane
Armstrong, Florence Eloise, '13.....	West Sound
Armstrong, James Chester, Jr., '12.....	Seattle
Arnold, Clarence B., '14.....	Milwaukee, Wis.

Arnot, Agnes Jean, '12.....	Vancouver, B. C.
Auckland, Marie Tessie, '13.....	Lowell
Audett, Mary Rose, '14.....	Seattle
Austin, Beatrice, '14.....	Seattle
Austin, Gall Georgine, '14.....	Seattle
Auzias de Turenne, Aimar, '13.....	Seattle
Axtell, Ruth Cleveland, '14.....	Bellingham
Bachmann, Rose Mary, '14.....	Seattle
Bailey, Frank Holmes, '13.....	Snohomish
Baker, (Mrs.) Ella Meagher, '12.....	Seattle
Baker, Don R., '11.....	Seattle
Baker, Marguerite, '14.....	Seattle
Baker, Tracy Lee, '14.....	Pendleton, Ore.
Baker, William John Alford, '14.....	Hood River, Ore.
Balch, Anna Cordelia, '12.....	Seattle
Baldrige, Ethel Leona, '12.....	Seattle
Balkema, Richard Ray, '13.....	Seattle
Banks, Bertha Maude, '13.....	Seattle
Barber, Mary Mabel, '11.....	Seattle
Barber, Ruth, '14.....	Seattle
Bardell, Ethel N., '12.....	Seattle
Bardshar, Ruth, '14.....	Seattle
Barnes, Llewlyn Virginia, '14.....	Waterman
Barnes, Maude, '14.....	Sunnyside
Barnett, Dolph, '13.....	North Yakima
Barney, Ruby Mildred, '14.....	Seattle
Barr, Rosalind Marian, '14.....	Spokane
Barrell, Mary Lloyd, '14.....	Seattle
Barto, Thomas Coffin, '14.....	L.....Seattle
Bash, Mary Iola, '14.....	Seattle
Bash, Virginia, '14.....	Seattle
Baske, Hugo Frederick August, '14.....	Davenport
Bass, Emma Alice, '11.....	Seattle
Bass, Mabel Lena, '11.....	Seattle
Bauer, Ethel Emily, '14.....	Seattle
Bayer, Ralph W., '13.....	Seattle
Beck, John Dillard, '14.....	Seattle
Bedell, Mary Elizabeth, '14.....	Seattle
Beeler, Hazel Margaret, '13.....	Seattle
Beharrell, Helen Margaret, '12.....	Seattle
Belt, Bessy Joanna, '14.....	Arlington

Beltz, Frederick A., '13.....	Aberdeen
Benjamin, Ralph James, '13.....	Seattle
Bennett, Fred, '14.....	Woodland
Bergan, Clara Amanda, '11.....	Everett
Berge, James Hallard, '13.....	Davenport
Berggren, Arthur, '14.....	Tacoma
Bertch, Amy Luella, '14.....	Seattle
Bezeau, Gladys, '14.....	Spokane
Bickford, Ethel Mary, '13.....	Portland, Ore.
Bigelow, Bertha Lucille, '12.....	Spokane
Biggs, Katherine, '12.....	Seattle
Birks, Margaret Elizabeth, '14.....	Tacoma
Bjorklund, Irene Eleanor, '14.....	Seattle
Blackburn, Helen Stewart, '13.....	Edmonton, Alberta
Blossom, Marguerite, '14.....	Seattle
Boddy, Pearl M., '12.....	Seattle
Bodle, Mamie Ruth, '14.....	Seattle
Bohn, Herman Carl, '12.....	Seattle
Bolger, May, '11.....	Spokane
Bonsall, Vera Valentine, '13.....	Spokane
Borrill, Marjorie, '12.....	Seattle
Bothwell, Belle, '14.....	Anaconda, Mont.
Boub, Meta, '14.....	Seattle
Boucher, Jessie Louisa, '14.....	Kent
Bouillon, Victor J., '13.....	Edmonton, Alta.
Bouton, Fay, '13.....	Vancouver
Bovee, Homer Thomas, '13.....	Seattle
Bowen, Mabel Frances, '14.....	Hunter
Bowen, Milton, '14.....	Hunter
Bowers, James Bert, '11.....	Seattle
Bowman, Hugh Austin, '11.....	Seattle
Boyles, Page R., '11.....	Seattle
Brace, Maude, '14.....	Seattle
Brackett, Kathryn, '14.....	Seattle
Brady, Stella Marie, '14.....	Tacoma
Bragg, Frances E., '13.....	Hood River, Ore.
Bragg, Kitty Irene, '14.....	Hood River, Ore.
Brainerd, Elizabeth Ann, '11.....	Richmond Beach
Brigham, Ermie Belle, '12.....	Seattle
Brill, Geneva Virginia, '11.....	Seattle
Brinck, Raoul Alphonse, '12.....	Anacortes

Brinker, Lottie Marie, '14.....	Seattle
Brisbin, Charles Reginald, '14.....	Seattle
Brockett, Earl Melvin, '14.....	Seattle
Brokaw, Frank J., '13.....	Seattle
Bronson, Doris, '14.....	Seattle
Bronson, Lois, '14	Seattle
Brooks, Zola Olds, '14.....	Goldendale
Brown, Artie, '13.....	Arlington
Browne, Beryl Ione, '14.....	Edmonds
Brown, Clarence Albert, '11.....	Seattle
Brown, Kirk Charles, '13.....	Seattle
Brown, Luella Margaret, '13.....	Seattle
Brown, Vivian Sharpsteen, '14.....	Seattle
Bruce, Harriet L., '13.....	Seattle
Bryan, Goldie Alice, '14.....	Seattle
Bryant, Clarence, '14.....	Seattle
Buck, Miriam Patterson, '14.....	Seattle
Budden, Agnes Fay, '13.....	Seattle
Buell, Elsa Lenore, '11.....	Arlington
Bull, John Alva, '13.....	Ellensburg
Bunch, Agnes, '11.....	Seattle
Bunnell, Esther, '13.....	Seattle
Burford, Grover Scott, '14.....	Tacoma
Burnett, Meyer, '14.....	Seattle
Burnett, Mollie, '12.....	Seattle
Burns, Fern Elizabeth, '13.....	Thorp
Burns, Josepha Barbara, '14.....	Seattle
Buzzelle, Mary Charlotte, '13.....	Sedro-Woolley
Cahill, Fred, '11.....	Dayton
Callow, Russell Stanley, '14.....	Shelton
Cameron, Annie Betsy, '14.....	White Salmon
Campbell, Pansy Ellen, '14.....	Seattle
Canfield, Clerice, '14.....	Seattle
Canine, Howard Joseph, '14.....	Seattle
Cardle, Maynard McLeod, '13.....	Everett
Carey, Elizabeth May, '13.....	Seattle
Carey, Harold D., '13.....	Medford, Ore.
Carrigan, Frederick Paul, '14.....	Seattle
Carrington, Estelle Iola, '14.....	Port Townsend
Carson, Ingriffe Dietz, '13.....	Seattle
Carssow, Ida Hedvig, '12.....	Lamona

Casey, Ralph D., '13.....	Seattle
Catlin, Claude, '13.....	Ellensburg
Cavanaugh, Eula Frances, '14.....	Tacoma
Cayo, Eugene Felix, '12.....	Seattle
Celleyham, Adeline Hayes, '11.....	Seattle
Chadbourne, Will Reuben, '14.....	Seattle
Challacomb, Stowell, '14.....	Everett
Charles, Fannie Grace, '12.....	Puyallup
Child, Laura Theo, '12.....	Spokane
Chisholm, Theresa Blanche, '14.....	Seattle
Chittenden, Eleanor Mary, '14.....	Seattle
Christesen, Ruth Anna, '12.....	Seattle
Christoe, (Mrs.) Alice Hensen, '12.....	Treadwell, Alaska
Church, Edith Estelle, '11.....	Spokane
Churchill, Frederick Arthur, Jr., '12.....	Seattle
Clarke, Abigail Ball, '14.....	Seattle
Clarke, Charles Walter, '12.....	Seattle
Clark, Earle, '14.....	Tacoma
Clark, Elizabeth Freeman, '11.....	Spokane
Clark, Mary Anabel, '14.....	Dayton, O.
Clark, Pearl, '11.....	Seattle
Clifford, Earl V., '13.....	Tacoma
Clifford, Raymond W., '12.....	Tacoma
Clift, Ruby M., '14.....	Selah
Cline, Esther, '13.....	Seattle
Close, Frankie, '14.....	Seattle
Clulow, Lillian Josephine, '11.....	Wenatchee
Cochran, Ralph C., '12.....	Snohomish
Coe, Charles Rollet, '14.....	Seattle
Coe, Frantzel, '14.....	Seattle
Coffman, Edith Margaret, '14.....	Chehalis
Coffman, Robert Gates, '14.....	Chehalis
Coleman, Eunice Belle, '14.....	Seattle
Coleman, Lois Gertrude, '12.....	Seattle
Collier, Helen, '12.....	Wenatchee
Collins, Lillian Elice, '14.....	Seattle
Condon, Clifton French, '14.....	The Dalles, Ore.
Connaway, Lillian, '13.....	Vancouver
Conner, Hazel, '14.....	Olympia
Conner, Helen M., '14.....	Seattle
Conner, Zelda, '14.....	Seattle

Cook, Julia Geraldine, '14.....	Seattle
Cook, Inez Cassa, '14.....	Bellingham
Cook, Orpha Belle, '11.....	Castle Rock
Corbett, Charles E., '14.....	Seattle
Corcoran, Matt J., '14.....	Seattle
Cordz, Effie, '11.....	Seattle
Corey, Margaret Jessie, '11.....	Seattle
Corlett, Ruth Ernestine, '13.....	Seattle
Corliss, Helen Leona, '12.....	Seattle
Corwin, Hazel Irene, '14.....	Seattle
Coryell, George Kirby, Jr., '13.....	Seattle
Coryell, Ruth Eloise, '14... ..	Seattle
Cowley, Bess, '12.....	Ligonier, Ind.
Cox, Julia, V., '12.....	Toppenish
Cox, Lola L., '13.....	Toppenish
Coyle, Catherine May, '14.....	Seattle
Crider, Julia Margaret, '14.....	Seattle
Crilley, Paul Hoover, '14.....	Blaine
Crites, Gertrude, '12.....	Bellingham
Crowley, Myrtle Melva, '11.....	Vancouver
Crueger, George W., '14.....	Snohomish
Culbertson, Maria Josephine, '13.....	Dayton
Cushing, Melzar H., '14.....	Seattle
Cushman, Arthur Wilhelm, '13.....	Tacoma
Dabney, Elmer Stratton, '14.....	Seattle
Dabney, Helen, '14.....	Seattle
Dall, Jeannette McKenzle, '11.....	Seattle
Dallam, Kate Bessie, '12.....	Oroville
Dalquest, Emma C., '11.....	Everett
Daly, Ben H., '14.....	Seattle
Damus, Robert, '11.....	Seattle
Daniels, Ethel Agnes, '12.....	Seattle
Daubney, Lucy Adelaide, '13.....	Centralia
David, Blanche Cora, '11.....	Seattle
David, Grace Emily, '11.....	Seattle
Davidson, Sadie, '13.....	Seattle
Davies, Estella Annie, '11.....	VanAsselt
Davies, Myvanwy, '12.....	Seattle
Davis, Jennie, '14.....	Seattle
Dawson, Lewis R., Jr., '14.....	Seattle
Day, Florence Adelaide, '14.....	Seattle

Dean, Belle, '14.....	Seattle
Dean, Edmond Gilbert, '14.....	Walla Walla
Deering, Tam, '11.....	Snohomish
Dent, Margaret, '14.....	Seattle
dePledge, Ruth, '13.....	Colfax
deTourville, Audrey, '13.....	Seattle
Devine, Oda, '14.....	Seattle
Diamond, Rose Elizabeth, '13.....	Columbus, Mont.
Dickerson, Veola, '13.....	Centralia
Dickerson, Veora, '13.....	Centralia
Dickinson, Lillian, '12.....	Seattle
Dickson, David H., '14.....	Seattle
Dickson, Gordon Hunt, '14.....	Seattle
Dill, M. Beryl, '13.....	Seattle
Dixon, Elsa Klore, '11.....	Seattle
Dolsen, Mae Hazel, '12.....	Snohomish
Dolson, Camille G., '13.....	Auburn
Donahue, Sylvia, '14.....	Tacoma
Donaldson, Mildred Irene, '13.....	Seattle
Donaway, Alice May, '13.....	Tacoma
Dootson, Lily, '13.....	Everett
Dorgan, Mary Ellenor, '14.....	Seattle
Douglas, Clifford C., '13.....	Walla Walla
Douglas, Clinton, '14.....	Seattle
Douglas, Thomas Edmund, Jr., '14.....	Seattle
Douglas, Walter Thomas, '13.....	Seattle
Doxy, William Irving, '14.....	Seattle
Drake, Dorothy Ellen, '11.....	Seattle
Drake, Ethel Maude, '13.....	Seattle
Dressler, Noel Elizabeth, '14.....	Seattle
Drum, Barbara Binks, '11.....	Seattle
Drum, Dorothy, '14.....	Seattle
Drummond, Jessie S., '13.....	Tacoma
Duckering, Bernice, '13.....	Seattle
Dunbar, Camilla Kennon, '14.....	North Yakima
Dunlap, Sadie Lorraine, '13.....	Pe Ell
Dupertuis, Daniel, '14.....	Adna
Durham (Mrs.) W. W., '14.....	Seattle
Duttenhoefer, Helen Marie, '14.....	Seattle
Eagan, Clarence Biron, '11.....	Seattle
Eakins, Bess Dacotah, '11.....	Seattle

Earhart, Samuel Darragh, '12.....	Medford, Ore.
Easterday, Fay, Beatrice, '13.....	Tacoma
Eaves, Anna Wier, '14.....	Lewiston, Idaho
Eberle, Wynn Richard, '12.....	Vancouver
Eckstrom, Lucile Marie, '14.....	Seattle
Eddy, Beula Lydia, '14.....	Sumner
Edgerton, Floyd Walden, '14.....	Puyallup
Edwards, Elva Salome, '11.....	Port Townsend
Edwards, Lola Edith, '11.....	Port Townsend
Eldred, Andrew J., '13.....	Seattle
Elliott, Annabelle, '13.....	Seattle
Elliott, Bertram Robinson, '14.....	Vancouver, B. C.
Elliott, Jean Sutherland, '13.....	Seattle
Elliott, Muriel Gertrude, '14.....	Seattle
Ellis, Russell, '13.....	Seattle
Ellsperman, Winifred Louise, '14.....	Blaine
Enegren, Helen, '13.....	Seattle
Engelhorn, Essie, '11.....	Spokane
Erickson, Elsie, '12.....	Seattle
Esterly, Katherine Agnes, '14.....	Seattle
Etsell, Irma, '13.....	Seattle
Ettelson, Sadie, '12.....	Sprague
Evans, Ruth Pauline, '12.....	Tacoma
Everett, Ivah Cleona, '14.....	Custer
Fairbrook, Glen Joseph, '14.....	North Yakima
Farnham, Frankie Elva, '12.....	Ellensburg
Felder, Herman Abraham, '14.....	Toppenish
Felt, Julia Irene, '12.....	Seattle
Fenton, Enid Elizabeth, '11.....	Seattle
Fettke, Margaret Elizabeth, '14.....	Tacoma
Fifer, Ethel Faith, '14.....	Seattle
Fifer, Louella, '14.....	Seattle
Fillmore, Eva, '14.....	Seattle
Finley, Madge, '11.....	Seattle
Firth, Mildred, '14.....	Seattle
Fiske, (Mrs.) Mary Green, '11.....	Seattle
Fisken, Mary Carolyn, '14.....	Spokane
Fitzgerald, Katherine, '14.....	Seattle
Fix, John Penn, '13.....	Spokane
Fleming, Esther Frances, '14.....	Seattle
Fleming, Florence Elizabeth, '12.....	Seattle

Fletcher, Elizabeth Brodwater, '14.....	Tacoma
Fletcher, Hazel Velma, '12.....	Seattle
Floyd, Margaret Sarah, '11.....	Spokane
Folsom, Hazel Pearl, '13.....	Seattle
Ford, Kathryn Mabel, '13.....	Port Blakeley
Forde, Mathias Hansen, '14.....	Seattle
Ford, Rita L., '14.....	Seattle
Foster, Raymond, '13.....	Charleston
Fowler, Stella May, '12.....	Bellingham
France, Georgia M., '14.....	Hoquiam
Frank, Ruth A., '14.....	Seattle
Frasch, Leona Beatrice, '14.....	Seattle
Fraser, Alice Sinclair, '11.....	Seattle
Fraser, Eva Florence, '11.....	Seattle
Frater, Helen, '12.....	Seattle
Frederickson, Bertha Fredricka, '13.....	Seattle
Free, Blanche Evelyn, '12.....	Seattle
Freeser, Laura Louise, '14.....	Twodot, Mont.
French, Mrs. Albert N., '12.....	Osego, Mich.
French, Albert N., '11.....	Osego, Mich.
Fretwell, Martha Folsie, '13.....	Seattle
Freyd, Bernard, '14.....	Seattle
Friant, Josephine Nellie, '14.....	Seattle
Frye, Marion L., '14.....	Seattle
Fuller, Emilie Stone, '11.....	Seattle
Fuller, Ina Roe, '14.....	Seattle
Furry, Mabel Georgine, '11.....	Seattle
Gabel, Hestletine Marie, '14.....	Seattle
Gamble, Lex, '14.....	North Yakima
Gannon, Bertha, '14.....	Seattle
Garvey, Erma Catherine, '14.....	Seattle
Gault, Georgie, '11.....	Seattle
Gay, Ruth Edney, '14.....	Seattle
George, V. Blanche, '14.....	Sunnyside
George, Edna Charlotte, '14.....	Sunnyside
Getz, Carl Henry, '13.....	Tacoma
Gibson, Grant McDonald, '13.....	Issaquah
Gibson, Margaret Telford, '13.....	Seattle
Gilday, Cora Ellen, '14.....	Blaine
Ginnold, Doris Louise, '13.....	Seattle
Gischel, Maude N., '14.....	Seattle

Gish, Daniel Brailey, '14.....	Seattle
Githens, (Mrs.) Nellie Sutherland, '13.....	Seattle
Gladden, Orvis Curtis, '14.....	Seattle
Goetz, Harry Frankfort, '14.....	Spokane
Goodglick, James Herman, '14.....	Seattle
Goodglick, Samuel, '14.....	Seattle
Goodner, Grace Emily, '12.....	Seattle
Goodnow, Marion, '13.....	Seattle
Gore, Lester O., '13.....	Kalama
Goulden, Mildred Alice, '14.....	Seattle
Gourman, David Zanvil, '14.....	Seattle
Gowen, Vincent Herbert, '12.....	Seattle
Grace, Clarence Milo, '13.....	Chilllicothe, Mo.
Graham, Bessie, '11.....	Spokane
Graham, Robert, '14.....	Seattle
Grattan, William Henry, '14.....	Tacoma
Graves, Mary Luella, '14.....	Seattle
Gray, Charles Harold, '13.....	Seattle
Gray, Mary, '12.....	Fulton, Ala.
Greenberg, Edith Lois, '11.....	Hillyard
Greene, Gaylord Wilson, '13.....	Seattle
Greenwood, Ray, '14.....	Seattle
Gregory, Lair Hill, '12.....	Portland, Ore.
Gregory, Samuel Burr, '14.....	Puyallup
Grier, Gladys Carney, '14.....	Spokane
Griffin, Arthur Russell, '12.....	Seattle
Griffin, Hazel B., '14.....	Seattle
Griffith, Ruth Helen, '13.....	Seattle
Griffiths, Glenn George, '13.....	North Yakima
Griffiths, Lucille Charlton, '14.....	Port Townsend
Griffiths, Thomas E., '13.....	Seattle
Grignon, Jessie I., '13.....	Seattle
Grindrod, Ione, '11.....	Ellensburg
Gruber, Edwin, '11.....	Winlock
Guild, Grace, '14.....	Seattle
Gulliksen, Edna Louise, '13.....	Seattle
Gutheil, Carl Hughes, '14.....	Seattle
Gwilym, Gertrude, '14.....	Seattle
Hadley, Virginia Fleming, '14.....	Bellingham
Hagen, Dudley Hobbs, '14.....	Spokane
Haley, Lucia, '11.....	Seattle

Halferdahl, Alice, '14.....	Seattle
Hall, Christine, '13.....	Mt. Vernon
Hall, Cora Mae, '12.....	La Conner
Hall, Ethel Ellen, '14.....	Seattle
Hall, Myrtle, '14.....	Tukwilla
Haller, Marian, '14.....	Seattle
Hallstrom, Evangeline Maud, '11.....	Marquette, Mich.
Hamilton, Gladys Gertrude, '14.....	Seattle
Hankins, Fern, '13.....	Seattle
Hankins, M. Lillian, '12.....	Seattle
Hanna, Dorothea Dell, '14.....	Bellingham
Hanna, Lida A., '14.....	Belleville
Hannan, Ethel Elizabeth, '11.....	Seattle
Hannon, Robert Roger, '14.....	Seattle
Hanson, Ethel Alberta, '12.....	Seattle
Hanson, Mathea, '13.....	Seattle
Hargrave, Bertram Paterson, '13.....	Colfax
Harkins, Marjorie, '13.....	Seattle
Harkness, Hazel Alice, '13.....	Seattle
Harper, Robert MacMillan, '14.....	Seattle
Harris, John Jay, '14.....	Seattle
Harris, Marjorie, '12.....	Seattle
Harris, Waldo, '14.....	Kelso
Hart, Milton Edward, '14.....	Seattle
Hass, Karl Frederic, '14.....	Seattle
Hastings, Clara, '12.....	Seattle
Hatfield, Mabel Clair, '14.....	Seattle
Hattrem, Agnes Josephine, '11.....	Seattle
Havel, Joseph, '14.....	Tacoma
Havens, Mareta, '14.....	Marysville
Hawkes, Hazel, '13.....	Snohomish
Hayfield, Mark Frederick, '14.....	Spokane
Haynes, John Dickenson, '14.....	Seattle
Heifner, S. E. Lucile, '14.....	Seattle
Henry, Charles V., '14.....	Seattle
Henry, Zella Jane, '11.....	Seattle
Hensel, Emilie Theresea, '13.....	Seattle
Hensley, John Jackson, '11.....	Seattle
Hergert, Russell H., '14.....	Seattle
Herrett, John E., '14.....	Coupeville
Herthum, Florence E., '11.....	Seattle

Hess, Lucy Elizabeth, '13.....	Seattle
Hewitt, Edwin Henry, '14.....	North Yakima
Heyes, Lucy Jackson, '14.....	Seattle
Hibler, Jessie Lucile, '13.....	Seattle
Higgins, Nellie Linda, '13.....	Vancouver
Hile, Edith Elizabeth, '14.....	Seattle
Hill, Sallie Haddock, '11.....	Port Townsend
Hilton, Edmund Wilbur, '13.....	Seattle
Hipkoe, George August, '13.....	Seattle
Hively, Mamie, '11.....	Seattle
Hobi, Agnes Louise, '14.....	South Bend
Hodge, Alma Alverna, '14.....	Tacoma
Hoerner, Berta, '13.....	Seattle
Hoffman, Edward William, '14.....	Seattle
Hoffman, Harry Alfred, '13.....	Ellensburg
Holcomb, Philip M., '14.....	Seattle
Holeman, Beulah Jane, '12.....	Puyallup
Hollingsworth, Myrtle, '13.....	Seattle
Holmes, Ione Marcia, '14.....	Seattle
Hoover, Russell, '14.....	Hoquiam
Horne, Walter W., '14	Long Beach, Calif.
Horseley, William Henry, '13.....	North Yakima
Horton, Lucy Sherwood, '13.....	Marshfield, Ore.
Hosom, Desmond, '14.....	Seattle
Houck, Zenna A-Dell, '14.....	Puyallup
Howard, Grace Elizabeth, '11.....	Seattle
Howd, Cloice Ray, '12.....	South Bend
Howe, Ellen Ford, '11.....	Seattle
Hoxsie, Olive Grace, '13.....	Seattle
Huff, Mertice Sara, '14.....	Sumner
Hughes, Dan E., '14.....	Seattle
Hughes, Ursula Gertrude, '14.....	Seattle
Hunter, Gordon Chester, '13.....	Meadowdale
Hunter, Lila Alice, '12.....	Seattle
Hunter, Stella, '12.....	Island City, Ore.
Hurd, Laura Alice, '14.....	Mt. Vernon
Hutchinson, Claude A., '14.....	Seattle
Hutchinson, Orrel Eldora, '13.....	Seattle
Hutchinson, Stephen Asbury, '14.....	Union, Ore.
Iffland, Kathryn, '12.....	Port Townsend
Iffland, Nellie, '11.....	Port Townsend

Ikeda, Choichi, '14.....	Seattle
Ingersoll, Julia Louise, '14.....	Seattle
Ingham, Grace Edna, '14.....	Seattle
Irvine, Emily, '13.....	Everett
Irvine, Ethel Mary, '14.....	Seattle
Jaadan, Nels, '13.....	Seattle
Jack, Grace Irene, '14.....	Seattle
Jackson, Blanche Gertrude, '11.....	Seattle
Jackson, Herbert V., '14.....	Tacoma
Jacobs, Beatrice Pearl, '13.....	Puyallup
Jacobs, Claude Victor, '14.....	Puyallup
Jacobus, Margaret Edith, '13.....	Tacoma
Jarvis, Bruce Wilber, '11.....	Davenport
Jarvis, Melville Bouton, '13.....	Davenport
Jaxthelmer, Don, '14.....	Everett
Jeans, Ethel Jay, '11.....	Maple Valley
Jennings, Laura Belle, '14.....	Seattle
Jensen, Alvin Lambert, '14.....	Spokane
Jerdee, Inger Carolina, '13.....	Kiesling
Johanson, Edna T., '14.....	Tacoma
Johnson, Agnes V., '13.....	Seattle
Johnson, Angie, '14.....	Seattle
Johnson, Bessie, '14.....	Tacoma
Johnson, Emma Sophia, '14.....	Spokane
Johnson, George Wilfred, '11.....	Seattle
Johnson, Ida Irene, '13.....	Seattle
Johnson, Oscar Frederick, '14.....	Mt. Vernon
Johnson, Winifred Josephine, '14.....	Seattle
Johnson, Winnie Raye, '13.....	Seattle
Johnston, Rolland Burns, '14.....	Seattle
Johnstone, Marjorie Robinson, '14.....	Seattle
Joiner, Winnie Davis, '12.....	Seattle
Jones, Avis Leona, '14.....	Hartline
Jones, Chance Clarke, '14.....	Seattle
Jones, Florence Ellen, '14.....	Seattle
Jones, Effie D., '13.....	North Yakima
Jones, Myrtle Horton, '14.....	Seattle
Jones, Vera Florence, '11.....	Spokane
Jones, Zola Martha, '14.....	Longmont, Colo.
Jorgensen, Jennie Marie, '14.....	Seattle
Joslin, Effie Rubarda, '11.....	Port Orchard

Joslin, Ethel Roberta, '11.....	Port Orchard
Kadushin, Sarah Livia, '14.....	Seattle
Kahan, Osof Edward, '14.....	Seattle
Kane, Margaret Ellen, '14.....	Seattle
Kane, Mary Eleanor, '14.....	Seattle
Kane, McKinley, '14.....	Elma
Kangley, Helen Agnes, '14.....	Seattle
Karrer, Anna M., '11.....	Roslyn
Karrer, Enoch, '11.....	Roslyn
Karrer, Frank Xavier, '11.....	Roslyn
Karrer, Matilda W., '11.....	Roslyn
Karrer, Sebastine, '11.....	Roslyn
Kawai, Soichi, '13.....	Yanai, Japan
Keenan, E. Hortense, '14.....	Seattle
Keene, Gertrude Beckett, '14.....	Seattle
Keesling, Nelle, '12.....	Tacoma
Kellogg, June, '12.....	Seattle
Kennedy, Arthur Clarence, '14.....	Puyallup
Kenney, Samuel Emmer, '14.....	Bryn Mauer
Kenny, Petronilla Kathryn, '11.....	Seattle
Kenward, Hazel DeEtta, '13.....	Seattle
Kern, Carrie, '14.....	North Yakima
Kerr, Lelah Belle, '14.....	Seattle
Kettenbach, Marie Elizabeth, '13.....	Lewiston, Idaho
Keyes, Ruth Mary, '13.....	Laurelhurst
Kiddle, Netta Maria, '13.....	Island City, Ore.
King, Cleo Preston, '12.....	Seattle
King, Jennie Irene, '13.....	Bellingham
Kinnaird, Lottie Olivia, '14.....	Hood River, Ore.
Kinne, Verle E., '13.....	Seattle
Kirkpatrick, Anita Alice, '14.....	Weston, Ore.
Kirkpatrick (Mrs.), Rossae Swartz, '11.....	Seattle
Klopfer, Florenz, '14.....	Seattle
Knapp, Earl Horace, '13.....	Seattle
Knapp, Ellen M., '13.....	Seattle
Knox, Wanda Christina, '13.....	Centralla
Knuppenburg, Mae, '14.....	Seattle
Koester, Christine Marie, '14.....	Seattle
Kohler, Liela Mae, '13.....	Seattle
Lacey, Allen M., '12.....	Colfax
Laden, Ruth Elizabeth, '12.....	Seattle

Laird, Zora, '14.....	Seattle
LaMont, Ina Adelia, '14.....	Seattle
Landsburg, Gertrude, '14.....	Seattle
Lang, Edward Merrill, '13.....	Seattle
Lansing, Elaine, '13.....	Seattle
Latham, Leonie Marie, '11.....	Van Asselt
Law, Hugh, '11.....	Seattle
Lawrence, Edna Belle, '12.....	Seattle
Lawrence, Pansie Grace, '14.....	Tacoma
Learned, Aleen Hazel, '13.....	Port Townsend
Lebold, Frank, '14.....	Seattle
Lee, Jessie Louisa, '12.....	Seattle
LeHuquet, Gertrude Alene, '11.....	Sandpoint, Idaho
Leonard, Thomas Bernard, '14.....	Chicago, Ill.
Lewis, Ethel, '14.....	Seattle
Lewis, Florence Kathryne, '13.....	Wenatchee
Lewis, Loula May, '14.....	Seattle
Lewis, Sol Harris, '12.....	Seattle
Lichty, Ethel, '14.....	Seattle
Lind, Algodt, '12.....	Seattle
Lind, Arthur, '12.....	Seattle
Lindborg, Arthur E., '13.....	Portland, Ore.
Lindborg (Mrs.), Linda Wilkie.....	Spokane
Lindley, Kathleen, '11.....	Mooresville, Ind.
Lipscomb, Roy S., '12.....	Seattle
Littlefield, Leah Ina, '13.....	Seattle
Livingston, Carl Dorman, '13.....	Seattle
Lloyd, Marie Wilder, '14.....	Seattle
Lonergan, Pierce Arthur Francis, '14.....	Seattle
Long, Ruby Olive, '14.....	Cashmere
Loring, Mildred West, '12.....	Seattle
Lovejoy, Herbert C., '14.....	Seattle
Lovejoy, Lorna Jeanette, '12.....	Seattle
Lovejoy, Mary Agnes, '12.....	Seattle
Lovejoy, Winifred, '13.....	Seattle
Lowery, Daniel Harold, '14.....	Bellingham
Luby, Mabel Agnes, '11.....	Seattle
Lucks, Florence, '11.....	Seattle
Lund, Mabel A., '13.....	Seattle
Luther, India Ethel, '11.....	Seattle
McBroom, Cassius P., '14.....	Spokane

McCandless, Sam A., '14.....	Landusky, Mont.
MacCallum, Alice Ruth, '14.....	Tacoma
McCann, Adam John, '14.....	Seattle
McCann, Richard Joseph, '13.....	Seattle
McClarren, Mabel Lillian, '14.....	Seattle
McClure, William Benton, '14.....	Spokane
McCollough, Esther, '13.....	Seattle
McCready, Ida, '14.....	Tacoma
McDonald, Hazel Alice, '14.....	Seattle
MacDonald, Helen Mary, '14.....	Seattle
MacDougall, Georgia Josephine, '11.....	Seattle
McDowell, Sadie Belle, '14.....	Bellevue
McGee, Eva, '13.....	Seattle
McGillicuddy, Jerry A., Jr., '14.....	Aberdeen
McGinnis, Minnie Irene, '12.....	Waterville
McGlauffin, March, '14.....	Hoquiam
McGugan, Grace Edith, '14.....	Seattle
McHugh, Ed., '14.....	Seattle
McHugh, Ruth, '12.....	Seattle
McIntyre, Marguerite, '14.....	Seattle
McKay, Charles A., '14.....	Seattle
McKay, Mabel Amanda, '14.....	Olympia
McKinley, Charles, '13.....	Vancouver
McKinley, Robin, '12.....	Spokane
MacKinnon, Goff, '13.....	Seattle
McLean, Berenice, '13.....	Seattle
McLean, Blanche Libbie, '13.....	Seattle
McLean, Dollie Lomila, '13.....	Seattle
McLean, Murray Donnell, '14.....	Seattle
McMillan, Roy Allan, '14.....	Auburn
McNamara, Eugene James, '14.....	Edmonds
MacNaughton, Corabel, '12.....	Seattle
McNeil, Mellicent, '11.....	Ellensburg
McPherson, George H., '14.....	Seattle
MacPherson, William, '14.....	Cashmere
Macaulay, Margaret, '14.....	Deming
Mackintosh, Jessie, '14.....	Seattle
Macklem, Marjorie Graham, '14.....	Seattle
Madigan, Gladys, '14.....	Seattle
Madison, Marguerite, '11.....	Kent
Maegly, Monte Cecella, '14.....	Portland, Ore.

Maguire, Ernest, '14.....	Seattle
Major, Archie Moyer, '13.....	Seattle
Major, Ralph Day, '12.....	Seattle
Mallette, Gertrude Ethel, '11.....	Spokane
Malone, Marshall William, '14.....	Linton, Ore.
Maltbie, Theodora Edna Alice, '13.....	Seattle
Maney, Richard S., '13.....	Seattle
Mann, Anna Viola, '12.....	Olympia
Markey, Frances, '14.....	Seattle
Marland, George M., '14.....	Seattle
Marsh, Olivemay, '13.....	Seattle
Marshall, Rachael Eugenia, '12.....	Seattle
Marston, Charles S., '14.....	Seattle
Martin, Frances Margaret, '14.....	Seattle
Martz, Jesse Earl, '14.....	Seattle
Mason, Dorothy Craik, '11.....	Seattle
Mason, Elizabeth, '12.....	Seattle
Mason, Jessie V., '14.....	Seattle
Mathieu, George E., '14.....	Seattle
Mathieu, Irene Rose, '13.....	Seattle
Matsdorf, Arthur William, '14.....	Seattle
Maxwell, Kathleen Thornton, '14.....	Seattle
Maxwell, Lyall Edna, '14.....	Seattle
Meacham, Orpha Helen, '14.....	Seattle
Mearns, Edith Helena, '14.....	Seattle
Mecklem, Austin Merrill, '14.....	Olympia
Melvin, Lora, '14.....	North Yakima
Meyer, Alfred Walter, '14.....	Seattle
Meyer, Lillie Karoline, '14.....	Snohomish
Miles, Florence Elizabeth, '13.....	Alberni, B. C.
Miller, Anna, '12.....	Tacoma
Miller, Leah, '13.....	Seattle
Miller, Maude Elizabeth, '11.....	Seattle
Millican, C. W., '11.....	Seattle
Mills, Alice Isabel, '13.....	Seattle
Mills, Edward, '14.....	Puyallup
Mitchell, Edith Beatrice, '13.....	Seattle
Mitchell, Marie, '13.....	Glengary, Idaho
Mitchum, Imogen, '11.....	Harrington
Mobeck, Agnes Myrtle, '12.....	Seattle
Mohler, Pauline Marguerite, '14.....	North Yakima

Mohn, Esther, '13.....	Bothell
Moir, Laura Ruth, '14.....	Aberdeen
Montgomery, John Raymond, '11.....	Bellingham
Moody, Adelaide, '12.....	Everett
Moody, Ruth, '11.....	Everett
Moody, Ruth A., '12.....	Seattle
Moore, Florence, '13.....	Seattle
Moore, Elsie Virginia, '13.....	Seattle
Morgan, Alma Elizabeth, '13.....	Marysville
Morgan, Ora Parks, '14.....	Juneau, Alaska
Morgans, Olive Valence, '14.....	Seattle
Morrison, Henry Lorne, '14.....	Anacortes
Morse, Charles Leland, '14.....	Bellingham
Morse, Elsie Jane, '13.....	Seattle
Morse, Mabel Verne, '12.....	Puyallup
Mourant, Ethel May, '14.....	Hoquiam
Mower, Lulu Ione, '14.....	Blaine
Mowre, Edna L., '12.....	Billings, Mont.
Mowrey, Ruth Alice Mae, '11.....	Pomeroy
Moyer, Lillian Adele, '14.....	Seattle
Muenz, Grace, '14.....	Seattle
Muir, Florabel, '13.....	Seattle
Muncaster, Mary, '11.....	Seattle
Munter, Placie Howard, '14.....	Spokane
Murchison, Mary Kathleen, '14.....	Seattle
Murphy, Golda Lou, '14.....	Forest Grove, Ore.
Myers, Margaret, '14.....	Seattle
Nakai, Kiyoshi, '14.....	Agarimichi, Japan
Nakao, Yoshihito J., '13.....	Mukuno, Japan
Navarre, Guy F., '14.....	Everett
Neill, Frank W., '14.....	Seattle
Nell, Mabel Ione, '14.....	Anaconda, Mont.
Nelson, Arthur Emil Lament, '13.....	Seattle
Nelson, Elizabeth Kahrs, '14.....	Seattle
Nelson, Eva, '14.....	Seattle
Nelson, Harry Bernard, '14.....	Seattle
Nelson, Ruth, '13.....	Seattle
Nelson, William Elias, '14.....	Roslyn
Nesbit, Leslie Creighton, '13.....	Ellensburg
Nettleton, Mary Gertrude, '14.....	Christopher
Neuman, Frances Hattie, '13.....	Seattle

Nickerson, John Harding, '14.....	Seattle
Nieder, Mandel, '14.....	Seattle
Niesz, Paul, '14.....	Seattle
Nigh, Alice, '14.....	Tacoma
Noble, George Bernard, '14.....	Tacoma
Noel, Clyde Fellows, '14.....	Snohomish
Norris, Sadie Alice Sargent, '11.....	Seattle
Norris, Stewart M., '14.....	Burlington
Norton, Joe, '13.....	Mt. Vernon
Nunn, Herschel Pillsbury, '14.....	Seattle
Nyvall, Beda Pauline, '14.....	Seattle
Nyvall, David, Jr., '14.....	Seattle
O'Bar, Alleen Hall, '14.....	Seattle
O'Connor, Bernard L., '14.....	Seattle
O'Donnel, Gretchen, '11.....	Seattle
Ohlson, David, '13.....	Seattle
Okey, Maud Elizabeth, '13.....	Marietta, O.
Oldfield, Charles Belding, '14.....	Norfolk, Va.
Oldfield, Helen Iona, '14.....	Tacoma
O'Neill, Catherine Amelia, '12.....	Lakeview, Ore.
O'Neill, Hazel E., '11.....	Lakeview, Ore.
Orndoff, Irene S., '14.....	Thorp
Osborne, Ezra Meeker, '14.....	Seattle
Owen, Fenimore E., '14.....	Spokane
Owen, Neva Estella, '13.....	Seattle
Packard, Earl Leroy, '11.....	Tacoma
Palmer, Ben Bishop, '13.....	Seattle
Pape, Glenn E., '13.....	Seattle
Parish, William Francis, '13.....	Seattle
Park, Lical, '12.....	Seattle
Parker, Alice Leila, '14.....	Seattle
Parker, Ella M., '13.....	Seattle
Parker, Kathleen Eudora, '12.....	Seattle
Parker, Roscoe Stewart, '14.....	Seattle
Parker, William Edward, '14.....	North Yakima
Partlow, Verne Austin, '14.....	Olympia
Patten, John Paul, '14.....	Seattle
Patterson, Tom Scofield, '11.....	Seattle
Patton, Clotilde, '14.....	Everett
Pauley, Linna M. Lucile, '13.....	Seattle
Paulson, Carl Wilhelm, '13.....	Seattle

Peck, Juanita, '14.....	Seattle
Pendleton, Ross Louis, '13.....	Everett
Pendleton, Lura Wallace, '12.....	Everett
Pendleton, Verna, '13.....	Everett
Penepacker, Ruth Martin, '14.....	Hoquiam
Perl, Herman, '13.....	Seattle
Perry, Herbertine, '14.....	Seattle
Perry, Stewart Edwin, '11.....	Puyallup
Peterson, Elinor Beatrice, '13.....	Nampa, Idaho
Peterson, Mabel Albertine, '13.....	Seattle
Peterson, Reuben, '14.....	Seattle
Peterson, Rolland, '14.....	Seattle
Phillip, Frank Joseph, '13.....	Tacoma
Phillips, Alan A., '14.....	Prosser
Phillips, Ben Nelson, '11.....	Seattle
Phillips, Ray, '14.....	Tacoma
Pierce, Ora Extz, '13.....	Seattle
Pierce, Phebe M., '14.....	Seattle
Pierson, Carolyn, '14.....	Kirkland
Piles, Ross Barnard, '14.....	Seattle
Pingry, Madeline Mary, '14.....	Sedro Woolley
Pinkerton, Helen, '13.....	Tacoma
Pinkerton, Roy David, '12.....	Tacoma
Piro, Victor, '14.....	Cle Elum
Pitman, Rebecca May, '14.....	Moneta, Calif.
Platt, Imogene Bash, '14.....	Brighton
Plum, Frank Arents, '11.....	Port Townsend
Plummer, Alice Gertrude, '14.....	Seattle
Porter, Margaret Alice, '14.....	Columbus, Mont.
Posson, Mabel Maude, '14.....	Seattle
Post, Frances, '11.....	Syracuse, N. Y.
Potter, Edith Louisa, '13.....	Seattle
Powell, Sarah Mathlonia, '11.....	Laurelhurst
Pratt, Eloise Sawyer, '11.....	Prosser
Pratt, Randall Shannon, '14.....	Wenatchee
Price, William K., '14.....	Sunnyside
Prosch, Phoebe, '14.....	Seattle
Proulx, Camillia Eglantine, '13.....	Seattle
Proulx, Erminia Olive, '14.....	Seattle
Quigley, Agnes E., '11.....	Seattle
Quigley, Kenneth Richard, '14.....	Seattle

Quilliam, Elsie Beatrice, '14.....	Tacoma
Quinlan, Helen, '12.....	Marietta, Wis.
Radford, Marion Alma, '12.....	Seattle
Ramey, Janet Louise, '13.....	Seattle
Ramseyer, Walter Chapin, '13.....	Seattle
Randall, Bernice Hazel, '14.....	Marysville
Randall, Dorothy Catherine, '13.....	Seattle
Randell, Laura, '13.....	Seattle
Randolph, Hazel Fitz, '14.....	Seattle
Raser, Charles I., '13.....	Seattle
Rauen, John Paul, '14.....	Antigo, Wis.
Reavis, Nan Preston, '14.....	Seattle
Reding, Eugenia, '13.....	Sprague
Reed, Alfred H., '13.....	Santa Monica, Calif.
Reed, Ethel Geraldine, '14.....	Omak
Reed, Jane, '14.....	Seattle
Reekie, Martha Elizabeth, '13.....	Seattle
Reeves, Zelma, '13.....	Wenatchee
Rewalt, Alice Davidson, '14.....	Omay, Colo.
Reynolds, Avanelle, '14.....	Seattle
Reynolds, Florence Lucile, '11.....	Seattle
Rice, Bertha Belle, '13.....	Seattle
Rice, Stuart Arthur, '12.....	Longbranch
Richards, Karl Frederick, '13.....	Seattle
Richards, Vera Miriam, '12.....	Seattle
Richey, Charles A., '14.....	Seattle
Rieth, Zita, '12.....	Kent
Ringer, Frances Claire, '14.....	Sedro Woolley
Riordan, Jeremiah, '13.....	Vancouver
Riste, Rose Alma, '12.....	Chopaka
Robbins, Benjamin Irving, '14.....	Tacoma
Roberts, J. Vincent, '12.....	North Yakima
Roberts, Mary C., '12.....	Seattle
Robertson, Katharine Constance, '13.....	Seattle
Robinson, Elizabeth Langley, '11.....	Seattle
Robinson, Maude Isabel, '14.....	Seattle
Roe, Nellie Virginia, '14.....	Monroe
Rogers, Emily Alberta, '11.....	Waterville
Rogers, Fay Bernice, '14.....	Olympia
Romney, Winifred Lois, '12.....	Seattle
Rosaaen, Evelyn Hamilton, '14.....	Seattle

Rosaaen, James Douglas, '14.....	Seattle
Rose, Clyde Bernard, '14.....	Seattle
Rosman, Theos Juliet, '13.....	Dawson, Y. T.
Ross, Catherine J., '12.....	Everett
Ross, Helen Montana, '13.....	Seattle
Ross, Helen Winifred, '13.....	Seattle
Rounds, H. Philo, '14.....	Walla Walla
Roys, Hattie, '12.....	Seattle
Ryan, Helen Claire, '14.....	Seattle
Ryan, Russell Newkirk, '14.....	Seattle
Saintmeyer, Nellie Mae, '14.....	Seattle
Sanwick, Emma, '13.....	Seattle
Saunderson, Ruth, '13.....	Seattle
Sauter, Jean, '14.....	Seattle
Sauter, Ruth Marie, '12.....	Seattle
Sawyer, Miriam Jefferson, '13.....	Colorado Springs, Colo.
Scarff, Lestina Meda, '13.....	Seattle
Scearce, Lillian Addie, '11.....	Seattle
Schane, Adaline, '14.....	Vancouver
Schively, Annie Cunningham, '12.....	Olympia
Schmitz, Henry, '14.....	Seattle
Schneider, Rebecca, '12.....	Seattle
Schreiber, Louisa P., '11.....	Tacoma
Schumacher, Wilhelmina, '13.....	Everett
Schwartz, George Lewis, '14.....	Seattle
Scott, Oma Beatrice, '14.....	Seattle
Severs, Florence, '11.....	Cove, Ore.
Sexton, Lawrence Edward, '14.....	Everett
Seydel, Grace Viola, '14.....	Seattle
Seymour, Richard, '14.....	Seattle
Shackleford, Charlotte, '14.....	Tacoma
Shaff, Louise, '14.....	Lewiston, Idaho
Sharp, Mary, '14.....	Kent
Shaw, Ernest Thornton, '12.....	Tacoma
Shaw, Laura, '14.....	Seattle
Shaw, Varian Russell, '14.....	Snohomish
Sheer, Mary Agnes, '14.....	Seattle
Shelton, Alice W., '12.....	Seattle
Shelton, Annah Louise, '13.....	Seattle
Sherman, Florence M., '12.....	Seattle
Sherrick, Johnson, '12.....	Edmonds

Shields, Cleo, '14.....	Seattle
Shorett, Brace Lloyd, '14.....	Seattle
Shuey, Mabel, '11.....	Seattle
Siemens, Margaret, '14.....	Seattle
Simonds, William Adams, '12.....	Seattle
Sims, Ethel, '11.....	Seattle
Sinclair, Howard Raymond, '14.....	Seattle
Sipprell, James Ernest, '14.....	Sapperta, B. C.
Skirls, Ethel, '11.....	Seattle
Sleicher, Rebecca Ruth, '13.....	Chehalis
Slenker, Boyd A., '14.....	Grand Rapids, Mich.
Slyder, C. Frederick, '14.....	Seattle
Small, Lloyd Leroy, '11.....	Seattle
Smith, Bess Irene, '14.....	Seattle
Smith, Charles M., '14.....	Provo, Utah
Smith, Fern, '13.....	Seattle
Smith, Harry, '14.....	Everett
Smith, Ivy June, '14.....	Anacortes
Smith, Jay C., '14.....	Seattle
Smith, Louise Lillian, '13.....	Seattle
Smith, Roxy Margret, '12.....	Seattle
Snow, Frank Mead, '13.....	Seattle
Sorensen, Beatryce Marie, '12.....	Everett
Sowerby, Mina Belle, '14.....	Juneau, Alaska
Spannagel, Genevieve Edna, '13.....	Spokane
Spencer, Edith, '14.....	Seattle
Spicer, Cecil, '13.....	Portland, Ore.
Sprengle, Enid Amelia, '13.....	Seattle
Sprengle, Zella, '14.....	Seattle
Staatz, Karl Sutherland, '14.....	Tacoma
Stacy, Eloise, '13.....	North Yakima
Stahl, Eleanor Elizabeth, '13.....	Seattle
Stanton, Edgar, '11.....	Seattle
Statler, Gladys Gertrude, '13.....	Seattle
Staup, (Mrs.) Minnie Grant, '13.....	Seattle
Stedman, Marion Grace, '14.....	Seattle
Steele, Helen, '14.....	Seattle
Stephens, Eleanor Sharpless, '14.....	Spokane
Stetson, Fred Lea, '11.....	Seattle
Stevens, Dwight Norton, '14.....	Seattle
Stevens, Robert Wetzler, '12.....	Seattle

Stevenson, Frances Phillips, '13.....	Seattle
Stevenson, Janet Elizabeth, '12.....	Seattle
Stewart, Allen, '14.....	Seattle
Stewart, Frances, '12.....	Chehalis
Stewart, Gladys, '14.....	Seattle
Stewart, Neva Gracia, '12.....	Spokane
Stewart, Wilfred Lee, '13.....	Sunnyside
St. John, Lewis Holland, '14.....	Snohomish
St. John, Walter Stuart, '14.....	Snohomish
Stoll, Walter W., '11.....	Seattle
Stone, William Edward, '13.....	Everett
St. Onge, Arthur J., '11.....	Seattle
Strase, Anna Elizabeth, '13.....	Seattle
Strausz, Alva Leslie, '14.....	North Yakima
Streeter, Mildred, '13.....	Seattle
Strong, Clara Alta, '14.....	Seattle
Struble, Herbert Spencer, '14.....	Seattle
Stuart, George Percival, '14.....	Monroe
Stuart, Mildred, '14.....	Seattle
Stuchell, Helen, '14.....	Everett
Sturgis, Cyrus Cressy, '13.....	Pendleton, Ore.
Sullivan, Helen Virginia, '14.....	Seattle
Sully, Bernice Agnes, '14.....	Seattle
Summersett, Elizabeth Pauline, '14.....	Chehalis
Sutherland, Esther Helena, '11.....	Seattle
Sutton, Mary Catherine, '11.....	Seattle
Sutton, Sarah Patience, '11.....	Seattle
Swan, Eleanor J., '12.....	Seattle
Swanson, Dorothy Linnea, '13.....	Seattle
Swartz, Florence, '14.....	Granite Falls
Sweet, Elsie Sears, '14.....	Bellingham
Talbot, Caroline Ballard, '14.....	Seattle
Talbott, W. Ivan, '13.....	Ellensburg
Talbott, Lucile, '14.....	Ellensburg
Tamura, Teijiro, '13.....	Shigu, Japan
Tanner, Beth Edric, '13.....	Seattle
Taylor, Edward R., '13.....	Seattle
Taylor, Elizabeth Marguerite, '13.....	Seattle
Taylor, Harold Boyne, '13.....	Seattle
Taylor, Irene Eglantine, '11.....	Bellingham
Taylor, Laura Ella, '14.....	Seattle

Taylor, Mac. C., '12.....	Winchester, Tenn.
Taylor, Ida Marie, '14.....	Tacoma
Taylor, Marion Olive, '14.....	Tacoma
Taylor, Ralph Thompson, '13.....	Snohomish
Teel, Arvilla Marie, '11.....	Bellingham
Teel, Gladys Augusta, '12.....	Bellingham
Thaanum, Margaret Gertrude, '14.....	Seattle
Thomas, Clarence Lafayette, '11.....	Seattle
Thomas, Ellen Ann, '12.....	Seattle
Thomas, Ethel Ada, '11.....	Seattle
Thomas, Jacob Earl, '14.....	Seattle
Thomas, Maurine, '14.....	Seattle
Thomle, Gudveig, '14.....	Stanwood
Thompson, Lucille, '13.....	Tacoma
Thompson, William Calhoun, '12.....	Seattle
Thomson, Marion Wing, '14.....	Seattle
Thomson, Ruth R., '13.....	Kendall
Thorin, Arnold Victor Nathaniel, '14.....	Seattle
Thorpe, Blanche Marie, '13.....	Ellsworth, Kans.
Thurmond, Viola, '12.....	Seattle
Tibbits, Edna M., '13.....	Seattle
Tillinghast, Francis Pardon, '14.....	La Conner
Tolhurst, Bessie, '13.....	Livingston, Mont.
Tomlinson, Louise Arvilla, '14.....	Seattle
Tomlinson, Margaret May, '14.....	Seattle
Totten, Samuel Phelps, '14.....	Seattle
Totten, William Phelps, '14.....	Seattle
Towsley, Edith Edna, '13.....	Seattle
Tozer, Beatrice Maude, '14.....	Everett
Trenholme, Lottie Anna, '13.....	Seattle
Tretheway, Bessie Louise, '14.....	Butte, Mont.
Trueblood, Donald, '13.....	Seattle
Truesdell, Gladys Evadna, '12.....	Vancouver
Turnbull, George Stanley, '14.....	Seattle
Turner, Frank Lindsay, '12.....	South Bend
Twyman, Jeannette M., '12.....	Ellensburg
Uhler, William Preston, '12.....	Olympia
Ullin, Anna M., '11.....	Seattle
Van Dusen, Walter B., '14.....	Seattle
Van Horn, Walter John, Jr., '14.....	Seattle

Viele, William Arthur, '13.....	Orillia
Vincent, Lester Benson, '14.....	Chesaw
VonCadow, Arthur, '14.....	Dayton
Wagoner, Lyman Fisher, '11.....	Seattle
Wagoner, Ruth Mary, '13.....	Seattle
Waite, Netta Marguerite, '14.....	Seattle
Wakelee, Eva E., '14.....	Ellensburg
Waldrip, Sarah Pauline, '13.....	New Kamilchie
Wallace, Adeline Mary, '13.....	Bellingham
Wallace, Marian Kent, '13.....	Seattle
Wallace, Mary Alicia, '14.....	Seattle
Waller, Philip R., '14.....	Seattle
Wanamaker, Lemuel A., '13.....	Coupeville
Wand, Tom Harris, '13.....	Seattle
Ward, Arthur Hoyt, '14.....	Centralia
Warren, Anna Pixlie, '12.....	Seattle
Warren, Irvin, '14.....	Treadwell, Alaska
Watanabe, Harly Shnichi, '14.....	Seattle
Watters, Lisle T., '14.....	Everett
Waugh, James Ruggles, '13.....	Seattle
Waynick, Dean David, '14.....	Spokane
Weaver, John W., '12.....	Greencastle, Ind.
Wegener, Raymond Arthur, '14.....	Tacoma
Weisfield, Leo, '14.....	Seattle
Welch, Edith Lindley, '11.....	Kelso
Wells, Maude Euphemia, '13.....	Seattle
Welts, Robert V., '12.....	Mt. Vernon
West, Irene, '13.....	Seattle
Westervelt, Margaret, '13.....	Seattle
Wharton, Verna Marie, '13.....	Everett
Wheat, Laura Regina, '12.....	Seattle
Wheelon, C. Homer, '11.....	Sunnyside
White, Esther, '14.....	Seattle
White, May, '14.....	Seattle
Whitmore, J. Lester, '13.....	Buckley
Whittle, Marguerite Bernice, '11.....	Seabeck
Wlester, Grace Margaret, '14.....	Wenatchee
Wight, Ada Laughlin Sargent, '12.....	Seattle
Wilcox, Hazel Vivien, '13.....	Seattle
Willard, Gladys Florence, '14.....	Tacoma
Willard, Ida Estella, '11.....	Seattle

Willard, Richard C., '14.....	Seattle
Williams, Bertha Krogoll, '11.....	Seattle
Williams, Jane, '11.....	Rolling Bay
Williams, Marie Bertha, '11.....	Seattle
Williams, Rebecca Marie, '14.....	Anacortes
Willis, Ora Pinckney, '13.....	Seattle
Willson, Catharine Nancy, '13.....	West Seattle
Willson, Lovina, '13.....	Olympia
Wilsey, Walter Ralph, '14.....	Asotin
Wilson, Frances Thompson, '12.....	Ellensburg
Wilson, Marie Helen, '14.....	Seattle
Wilson, Maud, '13.....	Seattle
Wilson, Ralph Rinhart, '13.....	Ellensburg
Windust, Marie, '13.....	Dayton
Wingate, Alma Martha, '12.....	Seattle
Winslow, Irving D., '14.....	Buckley
Winter, Henry Earle, '14.....	Everett
Woelffen, Frederick Allen, '14.....	Asotin
Wold, Sylvia, '11.....	Seattle
Wolfe, Wendell Clemens, '12.....	Bellingham
Wood, Ruby Claire, '14.....	Seattle
Woodward, Frances Marie, '14.....	Seattle
Woodworth, Madeline E., '13.....	Seattle
Worsham, Edwin Hodge, '14.....	Seattle
Wright, Fay, '12.....	Seattle
Wright, Harrison Garner, '13.....	Seattle
Wright, June Mildred, '13.....	Tacoma
Wright, Leonard, '14.....	Payette, Idaho
Wright, Robert Creighton, '14.....	Seattle
Wyman, Horace Emery, '14.....	Elgin, Ill.
Young, Anna M., '14.....	Seattle
Young, Gertrude Mary, '13.....	Seattle
Young, Grace Mae, '11.....	Aberdeen
Zech, Luke D., '14.....	Auburn
Zech, Ray L., '14.....	Auburn
Zinkie, Marjorie Jeannette, '14.....	Seattle

COLLEGE OF ARTS AND SCIENCES

UNCLASSIFIED STUDENTS.

<i>Name of Student and Rank</i>	<i>Home Address</i>
Anderson, Katharine, Ext.....	Stanwood
Anderson, Pearl Elma, Sp.....	Spokane
Aspinwall, Mabel Gates, Ext.....	Seattle
Ayres, Jessie Cameron, Sp.....	Seattle
Babbage, Clara Mabel, Sp.....	Juneau, Alaska
Bacon, Mary A., Sp.....	Seattle
Ball, Florence, Sp.....	Seattle
Bassett, Eugenia Bae, Sp.....	Seattle
Benson, (Mrs.) E. Pearl, Sp.....	Seattle
Bloom, Verda Nell, Sp.....	Seattle
Blomquist, Charles Emanuel, Sp.....	Seattle
Botten, (Mrs.) Margaret Christine Murray, Sp.....	Seattle
Bowers, (Mrs.) Margaret Kaylor, Sp.....	Seattle
Brown, Lulu Albia, Ext.....	Vancouver, B. C.
Buchanan, Anna E., Sp.....	Seattle
Burch, Lita May, Sp.....	Spokane
Burns, Lillian Winslow, Sp.....	Seattle
Burns, Omar Allen, A. M., Ext.....	Seattle
Burton, Jennie L., Ext.....	Ballard
Burt, Nellie Louise, Sp.....	Seattle
Buxton, Catherine Henry, Sp.....	Centralia
Byerly, Marian, Ext.....	Ballard
Carson, (Mrs.) Rose Brookins, Sp.....	Seattle
Christien, Frances Ella, Sp.....	Seattle
Clark, Mary, Ext.....	Ballard
Coates, Grace Edith, Ext.....	Seattle
Cohan, Frank Douglas, Sp.....	Portland, Ore.
Council, (Mrs.) J. W., Sp.....	Seattle
Couture, Agnes, Sp.....	Litchfield, Minn.
Coyle, Frank, Sp.....	Seattle
Crane, Halcyon C., Sp.....	Seattle
Crickmore, Minnie M., Ext.....	Seattle
Danford, Agnes, Sp.....	Ashland, Ore.
Danielson, Lauritz Frederick Lilberoht, Sp....	Corinth, Denmark
Dean, Richard D., Ext.....	Seattle
Dempster, Elva, Ext.....	Seattle
Devlin, Mary Blossom, Sp.....	Seattle
DesCamp, Florence Anna, Ext.....	Seattle

Dickson, J. C., Ext.....	Seattle
Ditto, Ervin L., Sp.....	Elm Hall, Mich.
Drake, Nellie Gertrude, Ext.....	Delavan, Wis.
Dunmore, Blanche, Ext.....	Seattle
Durland, Winnie (Mrs.), Sp.....	Seattle
Fowler, Frances, Sp.....	Seattle
Fraser, Mabel, Sp.....	Port Blakely
Freer, Grant Blaine, Sp.....	Seattle
French, Bertha N., Ext.....	Seattle
Gist, Arthur S., Ext.....	Seattle
Green, Elmer Cole, Ext.....	Seattle
Gregg, G. Roy, Sp.....	Seattle
Gregg, Kate L., A. B., Ext.....	Mt. Vernon
Guha, Devendra Narayan, Sp.....	Murshidabad, India
Harding, Agatha M., Sp.....	Buckley
Harding, Helen Tahafarro, Sp.....	Seattle
Hardy, Michael Warren, Sp.....	Seattle
Hartman, Harold Hoover, Sp.....	Seattle
Hasbrouck, Nellie, Sp.....	Seattle
Hawksworth, (Mrs.) Ida, Sp.....	Nome, Alaska
Higbee, Helen Grace, Sp.....	Portland, Ore.
Hillier, Mabelle Ruth, Sp.....	Sunnyside
Jeffery, Fred E., Sp.....	Seattle
Johnson, Dallas Devello, Ext.....	Seattle
Johnston, Richard, Sp.....	Seattle
Jolivet, Gabrielle, Sp.....	Seattle
Kane, Susan Mary, Sp.....	Seattle
Kniseley, John Mitchell, Ext.....	Seattle
Krishna, R., Sp.....	Pudukotah, India
Lamping, Anna F., Sp.....	Seattle
Lawatschek, Elly W., Sp.....	Teplitz, Germany
Lawler, George Ward, Sp.....	Tacoma
Lentz, Katherine, Sp.....	Marietta, O.
Levinson, Herman, Sp.....	Seattle
Liska, Martha, Sp.....	Seattle
Longshore, Isaac Holcomb, Sp.....	Payson, Okla.
Lothrop, Daniel J., Ext.....	Seattle
McCall, Pearl, Sp.....	Fairfield, Ill.
McClure, Mary Elizabeth, Sp.....	Seattle
McGinnis, Ethel Dodge, Sp.....	Seattle
McGrew, Grace, Ext.....	Seattle

McKinstry, Fairfax D., Ext.....	Seattle
McMurtrey, Joseph Patton, Sp.....	Troy, Mont.
McNett, E. Frank, Sp.....	Leavenworth
Mallett, Pansy, Sp.....	Ontario, Ore.
Malony, Mary Elizabeth, Sp.....	Juneau, Alaska
Mathews, Achsah, Ext.....	Lake City, Minn.
Miller, Herbert Rinehart, Sp.....	Seattle
Millican, Alfred Clay, A. B., Ext.....	Seattle
Misrow, Jogesh Chander, Sp.....	Calcutta, India
Moore, Sybil Jane, Ext.....	LeMars, Iowa
Myers, Hazel Marie, Sp.....	Eastsound
Nakamaura, Juro, Sp.....	Kochiken, Japan
Nelson, Stanley Andrew, Sp.....	Seattle
Norris, Bessie May, Sp.....	Seattle
Norris, Ruth Stevens, Sp.....	Seattle
Norton, Charles Alfred, Sp.....	Seattle
Norton, Parker Lavelle, Sp.....	Kingfield, Me.
Nourse, Claribel, Sp.....	Tacoma
Oakley, Mary, Ext.....	Seattle
Oakley, Enola Inez, Ext.....	Seattle
O'Connor, Thomas Edward, Ext.....	Seattle
Oliver, Andrew, Ext.....	Seattle
Orner, Pearl Lillian, Sp.....	Seattle
Painter, Elisha, Sp.....	Seattle
Parks, Luella, Sp.....	Seattle
Pearce, (Mrs.) Marie Teresa, Sp.....	Seattle
Pearce, Stella E., Ext.....	Seattle
Peters, Harold Edwin, Sp.....	South Bend
Peterson, Elma Mabel, Ext.....	Seattle
Pratt, Frank Linden, Sp.....	Seattle
Randall, Vernon A., Sp.....	Tacoma
Read, (Mrs.) Isa Robinson, Sp.....	Seattle
Ricketts, Gertrude Ruth, Sp.....	Seattle
Rininger, Margaret Olive, Sp.....	Seattle
Rolle, Mary Elizabeth, Sp.....	Indianapolis, Ind.
Rowell, Elizabeth, Ext.....	Seattle
Sands, Clifford W., Sp.....	Seattle
Sawyer, Beulah B., Sp.....	North Yakima
Scanlan, Mabel Lulu, Ext.....	Everett
Schage, Florentine Juliet, Ext.....	Seattle
Sherwood, Homer Deming, Ext.....	Seattle

Shumway, Mary F., Ext.....	Kirkland
Siemens, Helena, Ext.....	Seattle
Simmons, Anna L., Ext.....	Seattle
Simmons, Elma, Ext.....	Seattle
Smith, Abram Walter, Sp.....	Seattle
Smith, P. C., Sp.....	San Jose, Calif.
Snyder, Bertha Amelia, Sp.....	Seattle
Spencer, Blanche, Sp.....	Seattle
Spencer, Gertrude Louise, Ext.....	Edgerton, Wis.
Staeger, D. A., M. A., Ext.....	Seattle
Stanley, (Mrs.) Bessie Mabel, Sp.....	Seattle
Steiner, May, Sp.....	Waterville
St. John, James I., Sp.....	Snohomish
Stone, Nellie Florence, Sp.....	Seattle
Stratton, Eleanor, Ext.....	Seattle
Supplee, Bertha Belle, Ext.....	Seattle
Templeton, Bertha Rowena, Ext.....	Seattle
Tsao, Mien, Sp.....	Canton, China
Waddingham, Elsie Kells, Sp.....	Seattle
Ward, Noel Gloria, Sp.....	Buffalo, N. Y.
Weissmiller, Cornelia, Ext.....	Seattle
White, William V., Sp.....	Seattle
Whitfield, Wilmot Gladstone, Ext.....	Seattle
Whitcomb, Mrs. O. L., Sp.....	Seattle
Wilson, (Mrs.) Anna B., Sp.....	Oakville
Wiltheis, Mary Statira, Sp.....	Elgin, Ill.
Wood, (Mrs.) Edna M. A., Sp.....	Seattle
Yamane, Masuo, Sp.....	Seattle
Yatsugi, Makato, Sp.....	Nagasaki, Japan
Yerkes, Jennie, Ext.....	Ballard
Zastavnikovic, Karola de, Sp.....	Seattle
Zwight, Stella Cecelia, Sp.....	Entiat

COLLEGE OF ENGINEERING.

ABBREVIATIONS

CLASSES

'11 Senior
'12 Junior

'13 Sophomore
'14 Freshman

COURSES

C. E. Civil Engineering
E. E. Electrical Engineering

M. E. Mechanical Engineering
Ch. E. Chemical Engineering

<i>Name of Student and Rank</i>	<i>Department</i>	<i>Home Address</i>
Algeo, Thomas Herbert, '14.....	C. E.	South Tacoma
Anderson, Asher Leslie, '14.....	C. E.	Canton, S. D.
Anderson, Clifford Walter, '12....	C. E.	Seattle
Anderson, Edwin Charles, '13....	C. E.	Seattle
Anderson, Fletcher Frank, '14....	E. E.	Valley City, N. D.
Armstrong, John Glenn, '14.....	C. E.	Seattle
Armstrong, Vernon D., '12.....	E. E.	Seattle
Arnold, Delfield, '14.....	E. E.	Lind
Ashim, Leland Edwin, '14.....	E. E.	Seattle
Baer, Harold Eugene, '13.....	E. E.	Seattle
Batcheller, Willis Tryon, '11....	E. E.	Seattle
Beam, Carl, '13.....	C. E.	North Yakima
Beardsley, Theron, '14.....	M. E.	Gig Harbor
Berry, James Fisk, '14.....	E. E.	Hoquiam
Bessesen, Ben B., '13.....	E. E.	Portland, Ore.
Bigelow, Paul T., '14.....	E. E.	Edmonds
Bird, Louis L., '14.....	E. E.	Seattle
Bissell, Addison Gardiner, '14....	Ch. E.	Tacoma
Blair, Homer Orrin, '12.....	E. E.	Tacoma
Blair, Nathan Dowd, '11.....	E. E.	Selah
Bliss, James Bernard, '12.....	E. E.	Seattle
Boissonnault, Frank, '11.....	E. E.	Everett
Bostian, Howard Reginald, '14....	C. E.	Seattle
Bowen, Hiram, '13.....	E. E.	Raymond
Bowman, Claire, '13.....	E. E.	Seattle
Bradford, Alford John, '14.....	C. E.	Seattle
Breece, William Lawrence, '13....	C. E.	Seattle
Brigham, Lew H., '14.....	C. E.	Seattle
Bringhurst, Horace Morton, '12....	C. E.	Seattle
Brock, Elias William, '14.....	M. E.	Tacoma
Brown, Arthur Leroy, '12.....	C. E.	Bellingham
Brown, Charles Earle, '11.....	E. E.	Bellingham

Brown, Earle Theodore, '13.....	E. E.	Centralia
Brown, Stanley W., '14.....	C. E.	Auburn
Burson, James William, '14.....	M. E.	Seattle
Buwaldo, Paul P., '13.....	C. E.	North Yakima
Calley, Charles Deans, '13.....	C. E.	Seattle
Cameron, James Fraser, '14.....	C. E.	Seattle
Campbell, Archibald, '13.....	C. E.	Seattle
Campbell, Edwin London, '13....	C. E.	Seattle
Campbell, John, '12.....	M. E.	Seattle
Canright, Jesse T., '13.....	C. E.	St. Johns, Ore.
Carpenter, I. Jay, '14.....	C. E.	Everett
Carr, Ernest Clifford, '14.....	E. E.	Seattle
Chamberlain, Henry Williams,		
'14	C. E.	Blaine
Chapman, Asa B., '13.....	C. E.	Seattle
Chouinard, William J., '13.....	C. E.	Everett
Christopher, Willis Clinton, '11.	C. E.	Seattle
Churchill, Charles Harrison, '14.	E. E.	Friday Harbor
Clawson, Bunnie Felix, '12.....	C. E.	Aberdeen
Cleaves, Harold Edwin, '12.....	Ch. E.	Seattle
Coffinberry, Clarence, '14.....	E. E.	Seattle
Cole, Ray Edward, '14.....	C. E.	Oregon City, Ore.
Conner, Elmer A., '12.....	C. E.	Seattle
Connor, Clyde Charles, '14.....	C. E.	Minot, N. D.
Cookerly, Grova C., '12.....	C. E.	Walla Walla
Corbitt, Hugh Blake, '13.....	Ch. E.	Seattle
Coy, Roy, '13.....	E. E.	Seattle
Crites, Herbert Newton, '14.....	Ch. E.	Bellingham
Damus, Walter, '13.....	C. E.	Seattle
Dana, Forest C., '13.....	C. E.	Seattle
Danner, Albert Lea, '14.....	E. E.	Seattle
Darland, Alvin Franklin, '14....	E. E.	Tacoma
Darling, Ralph Duncan, '14.....	C. E.	North Yakima
Darnell, Fred, '14.....	C. E.	Denver, Colo.
Darrin, Marc, '12.....	Ch. E.	Bellingham
Davies, Frank C., '14.....	C. E.	Kent
Dean, Iris Chester, '14.....	E. E.	Hoquiam
DeMoss, Sam, '14.....	C. E.	Seattle
Denham, Emerson P., '14.....	E. E.	Seattle
Denniston, Sam H., '14.....	C. E.	Manchester
Derham, Henry Michael, '13....	C. E.	Pocatello, Ore.

Diether, Ray Orren, '14.....	Ch. E.	Wapato
Dingwall, James Alexander, '13.....	E. E.	Drummond, Mont.
Dinsmore, Ozro Glen, '14.....	Ch. E.	Seattle
Drips, Arthur Noble, '14.....	E. E.	Olympia
Driscoll, Thomas, Jr., '14.....	C. E.	Bremerton
Dudley, William Lyle, '12.....	M. E.	Seattle
Dunlap, Clarence, '13.....	M. E.	LaConner
Eakins, Maxwell, '12.....	C. E.	Seattle
Edminson, Ross Wilton, '13.....	C. E.	Pasadena, Calif.
Edwards, George Ray, '11.....	C. E.	Port Townsend
Edwards, Guy DeWitt, '11.....	C. E.	Port Townsend
Eernisse, James Guy, '12.....	M. E.	Vashon
Ellefson, Elven Tinus, '12.....	Ch. E.	Seattle
Engels, Edward Emil, '14.....	E. E.	Seattle
Erickson, George Leonard, '14.....	M. E.	Seattle
Eshelman, Wallace Clair, '13....	Ch. E.	Seattle
Evans, Donald Hampton, '13.....	C. E.	Seattle
Fagerberg, Walter T., '14.....	E. E.	Kirkland
Farmer, Albert Merrill, '14.....	C. E.	Seattle
Febiger, George Lea, '14.....	C. E.	Spokane
Fenton, Arthur Robert, '13.....	M. E.	Seattle
Fifer, Walter R., '14.....	E. E.	Seattle
Foisie, Albert Victor, '14.....	C. E.	Seattle
Foltz, Irving J., '13.....	E. E.	Tacoma
Forbes, F. Barstow, '13.....	E. E.	Seattle
Forsyth, Harold, '13.....	C. E.	Port Townsend
Fowler, Harold Doyle, '13.....	C. E.	Seattle
Fowler, Harry Erb, '13.....	C. E.	Bellingham
Fox, Frank George, '13.....	M. E.	Brant, Canada
Frankland, James, '14.....	C. E.	Seattle
Franklin, Will H., '11.....	C. E.	Seattle
Franklin, Phil. A., '11.....	C. E.	Seattle
French, Boyd E., '13.....	E. E.	Cashmere
Frind, Paul Edmond, '14.....	M. E.	Toronto, Can.
Fukagava, Keech, '11.....	E. E.	Toyama, Japan
Fulton, Roy Leonard, '14.....	E. E.	Anacortes
Gehrke, Clarence William, '13....	C. E.	Port Angeles
Gibbs, Norman Bourne, '14.....	M. E.	Seattle
Gilkey, Frank, '14.....	C. E.	Edison
Goldsmith, Edward Denham, '13....	Ch. E.	Puyallup
Gooch, Edward Wyard, '12.....	C. E.	Bellingham

Gordon, Claude Phillip, '14.....	E. E.	Bellevue
Grady, Roger Jones, '13.....	E. E.	Granger
Gray, Clifford Warden, '14.....	C. E.	Arcola, Ill.
Green, Roy Laird, '12.....	C. E.	Centralia
Greene, Taylor Mitchell, '13.....	M. E.	Seattle
Griffith, Henry Maynard, '14.....	M. E.	Seattle
Grover, J. R., '14.....	C. E.	Seattle
Grubb, William Allen, '14.....	C. E.	Seattle
Hadley, Homer Mores, '14.....	C. E.	Seattle
Handsaker, Willard Nelson, '14.....	C. E.	Tacoma
Hanford, William Brown, '13.....	E. E.	Seattle
Hansen, Verne, '13.....	E. E.	Everett
Harrison, Millard, '13.....	E. E.	Seattle
Hart, Thomas Payne, '12.....	C. E.	San Antonio, Tex.
Hartman, Dwight Dryden, '12.....	M. E.	Seattle
Hartson, Joseph Tracy, '14.....	M. E.	Tacoma
Hawkins, Irving Mason, '14.....	M. E.	Seattle
Hawley, Don M., '12.....	M. E.	Seattle
Hawthorne, George Edward, '14.....	C. E.	Seattle
Hazelet, Craig Potter, '14.....	C. E.	Cordova, Alaska
Hazelton, Harry Beerton, '14.....	E. E.	Bellingham
Hedlund, David Arthur, '13.....	C. E.	Spokane
Hemphill, Clarence J., '14.....	C. E.	Auburn
Herman, William Edmond, '13.....	E. E.	South Bend
Herrick, John Sidney, '13.....	Cn. E.	Seattle
Hill, Daniel H., '14.....	E. E.	Port Townsend
Hinton, Warren David, '14.....	C. E.	Seattle
Holmes, J. Lister, '14.....	C. E.	Seattle
Hone, Herbert Henry, '14.....	C. E.	Bellefontaine, O.
Hopkins, George R., '11.....	C. E.	Milton
Hopkins, Hubert V., '14.....	C. E.	Seattle
Howard, Albert Leighton, '14.....	E. E.	Bellevue
Howe, William Bell White, '14.....	M. E.	Seattle
Hubbard, Dale, '14.....	E. E.	Centralia
Huestis, Robert A., '14.....	C. E.	Seattle
Huey, George W., '14.....	C. E.	Seattle
Hunt, George Elwood, '14.....	C. E.	Seattle
Hutchinson, Thomas M., '13.....	C. E.	Seattle
Hutton, Wm. Luthoff, '13.....	M. E.	Portland, Ore.
Irle, Charles Arthur, '11.....	C. E.	Sumner
Ivey, Joseph Austin, '14.....	Ch. E.	Portland, Ore.

Izumi, Ichisaburo, '13.....	E. E.	Seattle
Johnson, Frank Melvin, '11.....	C. E.	Seattle
Jones, Martin Luther, '13.....	E. E.	Seattle
Jorgensen, William Peter, '14....	C. E.	Seattle
Kable, George Wallace, '13.....	C. E.	Lincoln, Nebr.
Kaneko, Takayoshi, '12.....	Ch. E.	Seattle
Kaylor, Paul Porter, '11.....	E. E.	Bellingham
Keeler, Otis Edward, '13.....	E. E.	Seattle
Kelliher, John Waldrip, '14.....	M. E.	Ilwaco
Kendall, Percy, '13.....	C. E.	Port Orchard
Kerry, Harold Edwin, '14.....	C. E.	Seattle
Kilbourne, Kenneth Alexander,		
'14	E. E.	Seattle
King, George Hildebrand, Jr., '12..	C. E.	Seattle
Kimsey, H. D., '14.....	C. E.	Seattle
Koehler, Ben August, '13.....	C. E.	Wenatchee
Koren, Walter A., '13.....	M. E.	Spokane
Lagerlof, Percy J., '13.....	C. E.	Seattle
Land, Paul Corbin, '14.....	C. E.	Seattle
Lane, John William, '14.....	Ch. E.	Seattle
Langdon, Robert Sylvester, '14...M. E.		Sumner
Langley, Stanley Pawson, '14....	E. E.	Victoria, B. C.
Lee, George Olin, '12.....	C. E.	Maltby
Lee, Palmer C., '14.....	C. E.	Seattle
Lerom, Oscar S., '13.....	C. E.	Buxton, N. D.
Lew, Soun Harold, '14.....	M. E.	Seattle
Lewis, Isaac Ives, '12.....	Ch. E.	Seattle
Lieben, Howard, '14.....	C. E.	Seattle
Lincoln, Rolland Wayne, '13.....	C. E.	Seattle
Livingston, F. Lawrence, '14....	Ch. E.	Seattle
Lorente, Bernardo J., '14.....	E. E.	Estello, Spain
Love, William Dell, '14.....	M. E.	Seattle
Lyon, Donn Dee, '14.....	E. E.	Weiser, Idaho
McAbee, Ralph, '14.....	C. E.	Seattle
McCoy, Ray, '13.....	E. E.	Seattle
McDougall, Roy S., '14.....	M. E.	Seattle
McGranahan, Chester, '14.....	C. E.	Ellensburg
MacKechnie, J. Lloyd, '14.....	M. E.	Port Angeles
MacKinnon, John Harold, '14....	M. E.	Seattle
McRobbie, Henry William, '14....	E. E.	Seattle
Maass, John Lyman, '13.....	E. E.	Seattle

Mabee, George Eustace, '14.....	C. E.	Seattle
Manson, Harry Emil Petri, '14....	C. E.	Dockton
Martin, Cedric Albert, '13.....	E. E.	Puyallup
Martin, Walter Glenn, '14.....	C. E.	Wapato
Matson, Herman Albert, '14.....	M. E.	Bellingham
Matzger, George Waite, '14.....	M. E.	Dayton
Merrill, Harold Dexter, '13.....	M. E.	Seattle
Miller, E. Clarence, '14.....	E. E.	Seattle
Miller, Thomas, '13.....	C. E.	Seattle
Mills, Herbert Robert, '14.....	C. E.	Tacoma
Misfeldt, Carl R., '14.....	E. E.	Ellendale, N. D.
Morrisey, George, '14.....	M. E.	Tacoma
Morrison, Ray R., '14.....	E. E.	Wenatchee
Mullen, Roger Bonner, '11.....	E. E.	Lakebay
Munch, Marryon Isaac, '14.....	C. E.	Lovington, Ill.
Naber, Alexander H., '11.....	C. E.	Mansfield
Nakanishi, Shihaji, '13.....	E. E.	Seattle
Nelson, Wendell Monroe, '12....	E. E.	Seattle
Newell, Pearl, '14.....	C. E.	Seattle
Noble, Claude Stratton, '13.....	E. E.	Seattle
Noble, George Bayard, '14.....	E. E.	Tacoma
Olson, Oscar A., '13.....	C. E.	Brooklyn, N. Y.
Osborn, George Rogers, '14.....	M. E.	Seattle
Osen, Frank Sanford, '14.....	Ch. E.	Seattle
Paine, Frank Clarence, '14.....	C. E.	Everett
Paine, Sumner Emerson, '14....	C. E.	Everett
Palmer, George S., '13.....	E. E.	Ellensburg
Park, Quias Workman, '13.....	M. E.	Seattle
Parker, Kenneth, '14.....	C. E.	Astoria, Ore.
Patton, Gerald P., '14.....	Ch. E.	Seattle
Pease, Eugene Irving, '12.....	E. E.	Tacoma
Pebbley, Alonzo Finch, '12.....	C. E.	Deming
Pederson, Edwin Albion, '14....	E. E.	Port Blakeley
Perry, Edgar R., '13.....	E. E.	Seattle
Peters, Frank William, '13.....	E. E.	Seattle
Peters, Havard Warren, '14....	C. E.	Bellingham
Phelps, Happer Klein, '14.....	C. E.	Tacoma
Pollock, Carl D., '11.....	C. E.	Seattle
Post, Frank B., '13.....	E. E.	Seattle
Pratt, Foster J., '13.....	C. E.	Spokane
Pullen, Richard Thomas, '14....	E. E.	Seattle

Pullen, Royal R., '12.....	M. E.	Skagway, Alaska
Purdy, Frank Marion, '14.....	C. E.	Tacoma
Rader, Ray, '14.....	E. E.	Oakland, Ore.
Randell, Ralph Reginald, '11....	C. E.	Seattle
Rathbun, Vilas Richard, '11....	C. E.	Seattle
Rathvon, Haldy, '14.....	C. E.	Marysville
Reese, J. Lenhart, '13.....	E. E.	Seattle
Reynolds, Arnold Charles, '12....	C. E.	Seattle
Reynolds, George Edward, '14....	E. E.	Seattle
Richardson, George Bible, '14....	C. E.	Seattle
Richardson, Ralph Emerson, '14..	E. E.	Lind
Ridenour, Emsley Marion, '14....	Ch. E.	Seattle
Rieth, James Anthony, '14.....	C. E.	Seattle
Roberts, Caesar Rodney, '12....	C. E.	Denver, Colo.
Roe, Arthur Oscar, '14.....	M. E.	Everett
Rogers, Fcy O., '14.....	E. E.	Centralia
Royal, J. Millard, '14.....	M. E.	Skagway, Alaska
Ruggles, William Walker, '13....	C. E.	Seattle
Russell, Edgar, '13.....	M. E.	Seattle
Saito, Nohichiro, '14.....	Ch. E.	Gunma, Japan
Schneider, Hugo H., '13.....	M. E.	Seattle
Schwabland, George, '13.....	Ch. E.	Seattle
Scott, Bert J., '13.....	E. E.	Port Townsend
Shadinger, Gail Braddock, '11....	E. E.	Snohomish
Shafer, Trinkett Heth'ri'gt'n, '14	E. E.	Seattle
Shave, Samuel Richard, '13.....	E. E.	Seattle
Shaw, Melvin, '14.....	M. E.	Arlotta
Sheldon, Inez Kendall, '12.....	E. E.	Seattle
Shelton, J. Milton, '13.....	C. E.	Seattle
Sherman, Earl Clagg, '13.....	M. E.	Seattle
Shumway, Arthur Lowell, '13....	E. E.	Vancouver
Skans, William Samuel, '11.....	Ch. E.	Portland, Ore.
Smith, Corwin Day, '13.....	Ch. E.	Seattle
Smith, Earnest Lionel Com- peigne, '13.....	E. E.	Seattle
Smith, George Sherman, '14.....	E. E.	Centralia
Smith, Newton Carson, '14.....	C. E.	Portland, Ore.
Smith, Ralph A., '14.....	C. E.	Auburn
Smith, Roy Elmer, '12.....	C. E.	Pocatello, Idaho
Snyder, Harry Allen, '14.....	C. E.	Seattle
Sonnemann, Ray Koch, '14.....	C. E.	Chehalis

Sorensen, Bert, '13.....	E. E.	Bellingham
Sparger, Fred Robert, '13.....	C. E.	Seattle
Stacy, George Douglas, '12.....	E. E.	North Yakima
Stanwick, Charles Ames, '13....	E. E.	Seattle
Starkey, Frank Willard, '14.....	C. E.	Seattle
Starr, Truman, '14.....	C. E.	Auburn
Steuding, Paul H., '14.....	C. E.	Walla Walla
Stiley, Joseph Francis, '13.....	C. E.	Elizabeth, N. J.
Stillson, George Hamilton, '13..	Ch. E.	Keith
Stocking, Frank M., '14.....	C. E.	Olympia
Stoppelmann, Fred H., '14.....	E. E.	South Bend
Strandberg, George Robert, '11..	C. E.	Seattle
Stuen, Ole, '12.....	E. E.	Seattle
Sullivan, George Arthur, '14....	E. E.	Seattle
Summersett, John, '11.....	M. E.	Chehalis
Suver, Elmer, '14.....	E. E.	Ellensburg
Swanson, Sigurd, '14.....	C. E.	Port Ludlow
Swartz, Albert William, '13.....	C. E.	Granice Falls
Swartz, Leo, '13.....	C. E.	Granite Falls
Sylliaassen, Melvin Oliver, '13..	C. E.	Seattle
Talbert, William E., '14.....	C. E.	Wilberforce, O.
Tallman, Edward, Jr., '14.....	C. E.	Walla Walla
Tanner, Bertrand M., '12.....	C. E.	Idaho Falls, Idaho
Tegtmeyer, Arthur Woodruff, '14..	C. E.	Sunnyside
Telley, Branson Boyd, '14.....	E. E.	Seattle
Therkelsen, Eric, '11.....	E. E.	Portage
Thompson, George H., '14.....	M. E.	Seattle
Thompson, William, '14.....	C. E.	Stellacoom
Thwing, Edward Payson, '14....	E. E.	Seattle
Tiedje, Henry Felix, '12.....	C. E.	Bellingham
Titus, Leo G., '11.....	C. E.	Seattle
Tottory, Satoshi, '13.....	E. E.	Seattle
Tremper, Bailey, '13.....	Ch. E.	Seattle
Tripple, George, '13.....	E. E.	Seattle
Tuel, Clyde Lee, '14.....	E. E.	Sumner
Uplap, Govind Pirap, '14.....	Ch. E.	Sholapwe, India
Upper, Ewart Steele, '14.....	E. E.	Orillia
Upton, William Burr, '13.....	C. E.	Seattle
Vaille, Frank Waldo, Jr., '14....	C. E.	Seattle
Veldee, Conrad, '13.....	M. E.	Bremerton
Veldee, William J., '14.....	M. E.	Bremerton

Viele, Morris M., '13.....C. E.	Orillia
Vinton, Edward L., '13.....C. E.	Portland, Ore.
Waddington, Earl C., '11.....E. E.	Seattle
Wages, Charles, '14.....E. E.	Olympia
Waite, Cleminof, '12.....C. E.	Vancouver
Waller, Harold H., '13.....C. E.	Seattle
Walsh, Gerard Roland, '13.....C. E.	Tacoma
Walsh, William J., '14.....C. E.	Tacoma
Warford, Russell Norman, '14..Ch. E.	Phillipsburg, N. J.
Warner, Edgar Leslie, '14.....E. E.	Weiser, Idaho
Wassard, Aagi Christian, '14....C. E.	Tacoma
Watanuki, Toyaharu, '12.....E. E.	Fuknoka, Japan
Way, William Floyd, '12.....C. E.	Seattle
Wegener, Ralph Hawthorne, '13.C. E.	Tacoma
Wheeler, Leon Herbert, '13.....M. E.	Ellensburg
Whims, Floyd James, '13.....Ch. E.	Seattle
White, Chris, '12.....C. E.	Anacortes
Whiting, Dewitt Lyn, '12.....M. E.	Seattle
Whitman, William Charles, '14..C. E.	Victoria, B. C.
Wilkenson, Bernard Walker, '12.E. E.	North Yakima
Will, Cameron G., '13.....C. E.	Seattle
Williams, Charles Harvey, '11...C. E.	Centralia
Williams, Lawrence Johnson, '12C. E.	Seattle
Winquest, Arthur Franklin, '13.E. E.	Seattle
Wisner, Raymond Rex, '12.....E. E.	Seattle
Witherspoon, Burton Harris, '12.C. E.	Shawnee, Okla.
Woodin, Mark Stevens, '13.....C. E.	Seattle
Wooster, Harry W., '13.....C. E.	Low Gap
Wuttkey, Edward Christian, '14.C. E.	Norwich, Conn.
Zimmerman, Henry Eugene, '14.C. E.	Everett

SPECIAL STUDENTS.

Ball, Doric Tristan Jemison....C. E.	Port Angeles
Beebe, Walter Blaine.....M. E.	Seattle
Crell, Julius J.....C. E.	Seattle
Donaldson, James .....M. E.	Seattle
Durham, William Worth.....M. E.	Seattle
Frease, Lloyd Roland.....C. E.	Seattle
Gooderham, John Wesley.....E. E.	Seattle
Graves, Lloyd Oriel.....C. E.	North Yakima
Hess, John Ivan.....C. E.	Seattle

Hjorth, Lawrence Rasmus.....	C. E.	Bellingham
Huelsdonk, Adolph	E. E.	Seattle
Izhuroff, Basil Alexandravich...	E. E.	Kortkeros, Russia
Linog, Ole.....	E. E.	Seattle
Little, Harry Walton.....	M. E.	Port Townsend
Mumby, William Edward.....	C. E.	Seattle
Nakamura, Masawo K.....	M. E.	Shimokitagata, Japan
Rassner, Louis	E. E.	Seattle
Rosenkranz, John Max.....	M. E.	Chicago, Ill.
Rothenhoefer, Louis	E. E.	Seattle
Rowley, Earl Pierre.....	C. E.	Everett
Trenwith, James H.....	E. E.	Seattle
Vandiver, John Joseph.....	C. E.	Okanogan
Whaley, Fred Guard.....	C. E.	Spokane

COLLEGE OF FORESTRY.

ABBREVIATIONS

CLASSES

'11 Senior	Sp. Special Student
'12 Junior	Ext. Extension Student
'13 Sophomore	S. C. Short Course Student
'14 Freshman	

*Name of Student and Rank**Home Address*

Anderson, Clarence, '12.....	Hoquiam
Barton, George Rex, '14.....	Harlem, Mont.
Baumgartner, M. Earl, '13.....	Seattle
Beeler, Warren, '14.....	Norfolk, Nebr.
Bell, Cecil P., '14.....	Eugene, Ore.
Bonney, Parker Samuel, '12.....	Vancouver, B. C.
Brinkley, Joseph Arthur, '11.....	Linnens, Mo.
Cahill, William S., '13.....	Chicago, Ill.
Callahan, James A., '14.....	Salem, Mass.
Caywood, Noal F., '13.....	Everett
Chloupek, Edward Harry, '11.....	Manitowoc, Wis.
Cook, Burton Augustin, '13.....	Tacoma
Crone, Albert Royal, '14.....	Dupuyer, Mont.
Durland, Charles Alsop, '14.....	Norfolk, Nebr.
Eberle, Sidney Sohns, '14.....	Vancouver
Elich, Walter Ludwig, '12.....	Seattle

Erb, Edgar Morrison, '14.....	Seattle
Escher, Wiley Earnest, '13.....	Souden, Iowa
Field, Newton, '13.....	Stehekin
Fifield, Elbridge Gerry, '14.....	Everett
Fisher, David M., '14.....	Seattle
Ford, Leo Robert, '14.....	Port Blakeley
Galloway, Floyd L., '14.....	Seattle
Gibson, Edward B., '13.....	Seattle
Gilbert, George Wright, '13.....	Seattle
Godsave, Alfred Viele, '14.....	Pasadena, Calif.
Graham, Paul, '12.....	Alamosa, Colo.
Greider, Claude E., '13.....	Spokane
Gröndal, Bror L., '12.....	Lindsborg, Kans.
Gustafson, Robert Raymond, '12.....	Seattle
Hancock, Virgil Kinney, '13.....	Coupeville
Hansen, Gilbert Olaf, '14.....	Ellensburg
Hanzlik, Edward John '11.....	Chicago, Ill.
Harpham, Edward Everett, '14.....	Roseburg, Ore.
Harris, Ardenvoir, '14.....	Wenatchee
Hoseley, Rex Adrian, '14.....	Boise, Idaho
Howard, Henry C., '14.....	Seattle
Hutton, George Wilson, '13.....	Portland, Ore.
James, Arthur Freeman, '13.....	Tacoma
Jeffers, John Robinson, '12.....	Seattle
Kalbach, Taylor P., '13.....	Oskaloosa, Iowa
Keith, Clarence Benjamin, '11.....	Seattle
Kern, Vernon Carlos, '14.....	Mansfield, O.
Klobucher, Frank, '14.....	Spokane
Larson, Louis Karl, '13.....	Spokane
Leve, Walter Hanson, '11.....	Seattle
MacDougall, Joseph Bruce, '14.....	Seattle
Macauley, Norman Gladstone, '13.....	Deming
Martin, George Hamilton, Jr., '13.....	Spokane
Meyer, Edmund Thorwald, '14.....	Seattle
Million, Ten, '13.....	Seattle
Monks, Howard Irvin, '14.....	Bonnors Ferry, Idaho
Morgan, Joseph George Gregory, '12.....	Seattle
Morris, Gladstone Van Dyke, '14.....	Seattle
Mueller, Moritz, '13.....	Seattle
Murnen, Edgar John, '13.....	Tacoma
Ottestad, Justin Walter, '12.....	Blaine

Pebbley, John Newton, '14.....	Deming
Redman, Kenneth, '13.....	Seattle
Renier, Earl S., '14.....	Bremerton
Robinson, Ben W., '14.....	Blaine
Roy, BijoyKumar, '14.....	Calcutta, India
Roys, Allyn G., '13.....	Saginaw, Mich.
Schoeller, Jacob Diehl, '13.....	Seattle
Schoenfeld, William, '12.....	Seattle
Smalley, Robert, '14.....	Seattle
Smith, Grant William, '14.....	Arlington
Smith, H. Martin, '14.....	Seattle
Stuart, Phillip Almon, '14.....	Seattle
Sutherland, D'Loss, '14.....	Spokane
Sutton, Wayne Campbell, '14.....	Seattle
Thompson, Cedric Richardson, '14.....	Seattle
Treen, Lewis Angevine, Jr., '11.....	Seattle
Waite, Percy, '14.....	Seattle
Watson, Russell, '13.....	St. Paul, Minn.
Wellington, Leland Stanford, '13.....	Seattle
Williams, W. H. Garfield, '14.....	Port Blakeley
Wolf, Arthur Philip, '13.....	Seattle
Woods, Carroll R., '14.....	Seattle
Wright, Newell L., '13.....	Bellingham

UNCLASSIFIED.

Anderson, James Ora Forest, S. C.....	Forks
DeVoe, Harry, S. C.....	Glenwood
Eastman, Albion W., S. C.....	Kettle Falls
Fenton, Everett Willard, S. C.....	Seattle
Graham, Frank Alexander, S. C.....	Chinaflat, Calif.
Greene, Robert A., S. C.....	Seattle
Gumaer, Robert M., S. C.....	Ketchikan, Alaska
Irving, Joseph, Jr., S. C.....	Everett
Johnson, Ham C., S. C.....	Washington, D. C.
Kerby, Eduard S., S. C.....	Medford, Ore.
Kloe, Arthur Edwin, S. C.....	Seattle
Kuokka, Daniel, S. C.....	Portland, Ore.
Landes, Charles, Ext.....	Seattle
Laubengayer, Walter Carl, S. C.....	Ann Arbor, Mich.
Lauritzen, Carl, S. C.....	Wilbur
Lewis, Daniel Marien, S. C.....	Randle

Lickel, Harvey Jacob, S. C.....	Salem, Ore.
Lundin, John William, Sp.....	Seattle
McCormick, John M., S. C.....	Seattle
Marble, Frank Augustus, S. C.....	Seattle
Matz, Fred August, S. C.....	Centralia
Nelson, Tarence Adolph, S. C.....	Racine, Wis.
Phillips, John William, S. C.....	Seattle
Ramey, Rush, S. C.....	Ukiah, Ore.
Reid, John Allan, S. C.....	Trinity Centre, Calif
Robertson, Erasmus E., S. C.....	Castle Rock
Sethe, Fritz, S. C.....	Randle
Sethe, William, S. C.....	Randle
Simmons, Grover C., S. C.....	Republic
Skaar, Chris N., S. C.....	Home Valley
Skaar, Eclert T., S. C.....	Home Valley
Smith, Jay Alton, S. C.....	Seattle
Smith, Kan, Sp.....	Sumpter, Ore.
Spengler, Frederick A., S. C.....	St. Louis, Mo.
Thompson, Ray H., S. C.....	Spokane
Williams, E. George, S. C.....	Castle Rock
Wittrock, John H., S. C.....	Kerby, Ore.
Worthington, Clara, Ext.....	Sanford, Fla.

SCHOOL OF LAW.

ABBREVIATIONS

CLASSES

'13 First Year
'12 Second Year
'11 Third Year

Sp. Special Student
N. Night Student

*Name of Student and Rank**Home Address*

Angevine, Fred Rufus, '12.	Missoula, Mont.
Armstrong, Robert W., '13.	Seattle
Arney, J. Ward, '13.	Boise, Idaho
Arnold, Jesse Garfield, '12.	Portland, Ore.
Baisden, Leo Bernard, '13.	Seattle
Barto, Joseph, '13.	Seattle
Beebe, Eugene H., '13.	Seattle
Biggle, Lester A., '11.	Seattle
Black, Lloyd Llewellyn, '12.	Everett
Blaisdell, Christopher Carroll, '13.	East Franklin, Me.
Bouton, William C., '13.	Vancouver
Boyle, Frank Edward, '11.	Seattle
Bozarth, Claude A., '13.	Woodland
Bresnan, Maurice Daniel, '13.	Earlington
Brownson, John Joseph, '13.	Dubuque, Iowa
Buck, Samuel Rea, '12.	Seattle
Burns, Edgar Floyd, '12.	Spokane
Caithness, Chester James, '13.	Everett
Calderhead, Samuel J., '13.	Seattle
Cameron, Hayden S., '13.	Seattle
Campbell, Arthur Clinton, '13.	Chelan
Campbell, Arthur Eugene, '12.	Richmond Beach
Carroll, Jay F., '13.	Seattle
Carroll, Levi Bailey, '13.	Seattle
Chabot, Edward Francis, '12.	Walla Walla
Chevalley, Leon, Jr., '12.	Mt. Vernon
Clark, James Francis, '12.	Coupeville
Clark, Dalton Frank, '13.	Seattle
Coghlan, William S., '12.	Friday Harbor
Cole, Thomas Stevenson, '13.	Juneau, Alaska
Colvin, Howard Milton, '12.	Alva, Okla.
Cook, Arthur Arnold, '11.	Tacoma
Coyle, William J., '12.	Seattle
Davidson, Philip A., '13.	Seattle

Davis, H. V., '12.....	Spokane
Denney, Robert Grant, '12.....	Everett
Donahue, William James, '11.....	Snyder, Okla.
Donley, Levi Boyd, '13.....	Marcus
Donnelly, Edward Peter, '13.....	Seattle
Dowd, Van M., '13.....	Tacoma
Dunbar, John Howard, '13.....	Olympia
Fielstad, Jacob Conrad, '13.....	Springfield, Minn.
Fitzgerald, Charles Reynolds, '13.....	Salt Lake City, Utah
Fitzgerald, Edward R., '13.....	Oakville
Flint, Charles Olivet, '12.....	Port Townsend
Frater, John A., '13.....	Seattle
Fullen, Donald D., '12.....	Seattle
Garland, Francis Marion, '12.....	Bremerton
Gray, Charles Raymond, '12.....	Higgins, Tex.
Griffin, Van Christenberry, '12.....	Tuscaloosa, Ala.
Grimm, Huber Edwin, '12.....	Centralia
Grimm, Warren O., '12.....	Centralia
Gross, Carl Wilhelm, '13.....	Seattle
Hamilton, Fred Ellis, '13.....	Seattle
Harmeling, Henry, '13.....	Vashon
Harri, Fritz F., '12.....	Manhattan, Kans.
Harrington, Gerald Francis, '13.....	O'Neill, Nebr.
Harris, William Herbert, '13.....	Vancouver
Hartson, Nelson Thomas, '12.....	Tacoma
Harvey, Vere Walter, '13.....	Walla Walla
Hawkins, Benjamin Harrison, '13.....	Seattle
Heilig, Reed Whitaker, '12.....	Fairbanks, Alaska
Hemphill, J. Wylie, '11.....	Seattle
Hergert, Otis Boutwell, '12.....	Seattle
Hichingbottom, Fred Hubertus, '12.....	Seattle
Hickey, W. J., '12.....	Norfolk, Va.
Hilen, Andrew Reuben, '12.....	Auburn
Hoover, Glenn Edwin, '12.....	Hoquiam
Horr, Ralph A., '11.....	Kent
Hughes, Charles D. T., '13.....	Blaine
Hughes, Mervin Garfield, '11.....	Seattle
Husby, Peter, '12.....	Stanwood
Hyslop, Logan Douglas, '13.....	Wampa, Idaho
Johnson, James E., '13.....	Seattle
Jones, Harry Burnell, '12.....	North Yakima

Jones, Harry Leo, '12.	Arlington
Keenan, Edmund M., '13.	Seattle
Kelley, William Thomas, '12.	Seattle
Kennedy, Palmer, '12.	Tacoma
Knutson, Knute J., '12.	Mankato, Minn.
Lambuth, Benjamin Letcher, '13.	Seattle
Levinson, Montie, '13.	Seattle
Lewis, Joseph Reynolds, '13.	Seattle
Lohman, Augustus William, '11.	Seattle
Lowe, Roy E., '12.	Spokane
McCallum, James David, '13.	Seattle
McCleverty, Adelbert D., '11.	Seattle
McCoy, Edward Marion, '13.	Port Angeles
McGarry, Arthur Joseph, '12.	Seattle
McKinnon, Charles Malcome, '11.	Seattle
McPhee, George Ronald, '11.	Seattle
Mackey, Russell A., '12.	Seattle
March, John Gordon, '12.	Tacoma
Marsh, Clyde W., '13.	Seattle
Marshall, John Egbert, '12.	Deming
May, Peng Hai, '12.	Canton, China
Meacham, Eugene M., '13.	Seattle
Molin, Louis Aleck, '12.	Everett
Moncrieff, Arthur J., '13.	Seattle
Mucklestone, Melville, '12.	Seattle
Murphy, Thomas F., '12.	Montevideo, Minn.
Murray, Ernest Kenneth, '13.	Roy
Nafe, Arthur Edward, '12.	Seattle
Newton, Clifford Watson, '13.	Everett
Norris, Carl H., '12.	Seattle
Ohnick, Ben S., '13.	Seattle
Palmer, Ewen Harold, '11.	Maquoketa, Iowa
Pardoe, Wallace F., '12.	Stroud, Okla.
Pear, George Brown, '12.	Las Animas, Colo.
Phillips, Nathan Cressy, Jr., '13.	Seattle
Pierce, Ahira Edwin, '12.	Seattle
Prater, James William, '13.	Ellensburg
Price, John Chauncey, '13.	Vancouver
Reser, George Yancy, '11.	Walla Walla
Robbins, Roby Columbus, '13.	Seattle
Ross, Royal Knox, '13.	Puyallup

Royal, Ralph Harlan, '12	Skagway
Schively, Hugh Pitcairn, '13	Olympia
Schwartz, Morris, J., '12	Bellingham
Severyns, William Bartholomew, '12	Prosser
Shepherd, James H., '13	Adrian, Mich.
Shotwell, Lyman, Ray, '13	Seattle
Sieler, Herbert Henry, '12	Spokane
Simpson, Arthur Neal, '13	Walla Walla
Skinner, (Mrs.) Mary Budd, '13	Seattle
Smith, Roy Wilmath, '13	Seattle
Snyder, Raymond Johns, '13	Lehigh, Pa.
Spurck, William, Jr., '12	Seattle
Stephens, Ewing W., '12	Spokane
Stevens, Albion Donald, '12	Seattle
Stewart, Harold H., '12	Seattle
Stewart, Roy Vincent, '13	Seattle
Stuchell, Lester William, '13	Everett
Sturgis, James H., '12	Pendleton, Ore.
Sugg, Elmer L., '13	Vancouver
Summers, Lane, '12	Seattle
Sutherland, George John Alexander, '12	South Bellingham
Swale, Thomas Nelings, '13	Everett
Tammany, Patrick M., '11	Seattle
Teats, Ralph, '11	Tacoma
Thompson, Alexander McKnight, '11	Seattle
Titus, William, '13	Seattle
Tupper, Myron Weldon, '12	Snohomish
Turner, Edwin George, '13	Manila, P. I.
Wand, Walter Andrew, '12	Seattle
Warner, Chester, '13	Harper
Warner, Ellis Edwin, '12	Sultan
Waugh, Elmer Ambrose, '12	Spokane
Wetrick, Frederick J., '12	Juneau, Alaska
Williams, Warner E., '13	Seattle
Wilson, Alfred Peter, '12	Oakville
Wilson, Horace Allen, '13	Portland, Ore.
Wingfield, Wallace, Lee, '13	Seattle
Winn, Grover Clark, '12	Seattle
Wiseman, Adolph Henry, '12	Seattle
Wonn, Fred W., '13	Platteville, Wis.
Wright, Samuel Aaron, '12	Seattle

UNCLASSIFIED STUDENTS.

Ashen, Alexander James, N.....	Seattle
Bannon, Arthur C., N.....	Seattle
Barkwill, Frank McConnell, N.....	Seattle
Benson, Carl Godfrey, N.....	Seattle
Bogardus, Irving Corbiere, N.....	Seattle
Brown, Arthur Copeland, N.....	Seattle
Buck, Corrill, N.....	Seattle
Cook, Walter Raleigh, N.....	Seattle
Corkery, Robert Emmerson, Sp.....	Seattle
Courtney, J. Ira, Sp.....	Seattle
Cruzen, P. Gavin, Sp.....	Boise Idaho
Cummings, Frances E. Leake, N.....	Seattle
Currie, Charles R., N.....	Ionla, Mich.
Currier, C. L., N.....	Seattle
Dakan, Carl S., N.....	Stauberry, Mo.
Davis, Brisbin N. L., N.....	Seattle
Davis, E. Eugene, Sp.....	Seattle
Deane, Charles H., N.....	Seattle
Doherty, John Gastin, Sp.....	Seattle
Dworshack, Henry, Sp.....	Seattle
Eastland, Thorwald Walter, N.....	Bay Ridge, N. Y.
Everly, Myra Lois (M. D.), N.....	Seattle
Gere, Clarence Lewellyn, N.....	Seattle
Gilbreath, James A., N.....	Dayton
Hammond, Thomas G., N.....	Wellsville, O.
Hess, Emory Earl, N.....	Seattle
Jones, Charlotte Frederica, N.....	Seattle
Kelly, Mary H., N.....	Seattle
Klinefelter, George Wesley, N.....	Seattle
Lindley, William Fisher, N.....	Seattle
Lumbard, Henry Griffith, Sp.....	Seattle
McCash, Lester R., N.....	Seattle
Marchetti, Rogers, N.....	Seattle
Milice, Charles, N.....	Seattle
Mooers, Clifford Herman, N.....	Seattle
Nelson, Walter E., N.....	Seattle
O'Brien, Edward D., N.....	Seattle
O'Meara, Mary G., N.....	Seattle
Rank, Adolph Louis, N.....	Seattle
Reichert, Karl Alexis, N.....	Seattle

Smith, Arthur Jay, N.....	Seattle
Stauber, Amea H., N.....	Seattle
Todd, John F., Sp.....	Santa Cruz, Calif.
Williams, Solon Dickerson, N.....	Seattle
Wood, Wallace P., N.....	Seattle

COLLEGE OF MINES.

ABBREVIATIONS

CLASSES

'11 Senior	'14 Freshman
'12 Junior	Sp. Special Student
'13 Sophomore	S. C. Short Course Student

<i>Name of Student and Rank</i>	<i>Home Address</i>
Armstrong, Gilbert Seymour, '14.....	Seattle
Awoki, Monroe Tetsigi, '12.....	Ogaki, Japan
Baumann, Henry N., Jr., '11.....	Seattle
Berg, J. Edward, '13.....	Orillia
Bergman, Rynard, '14.....	Chelan
Bissell, Robert Wilson, '12.....	Pittsburg, Pa.
Bisson, Francis, Jr., '13.....	South Prairie
Bridgeman, Eathan Allen, Jr., '13.....	Seattle
Burgert, Wilbur Clarence, '13.....	Seattle
Canton, William Reynolds, '11.....	Waterville
Carr, Delbert Earl, '12.....	Portland, Ore.
Clark, George William, '14.....	Sedro Woolley
Cogswell, Louis Harold, '12.....	Seattle
Cole, Henry Ambrose, '12.....	Seattle
Cole, Robert Joseph, '14.....	Seattle
Covington, Claude W., '14.....	Seattle
Crary, Horace H., '12.....	Canisteo, N. Y.
Crone, Homer B., '12.....	Seattle
Darnell, John Monroe, '12.....	Denver, Colo.
Davis, LeRoy Jefferson, '12.....	Seattle
Dennis, Gail, '14.....	Seattle
Denny, Edward Harold, '11.....	Seattle
Denton, Pierre E., '14.....	Tacoma
Diether, Louis Meyer, '12.....	Seattle
Dobson, Chris G., '13.....	Seattle
Drylle, Thomas Frame, '14.....	Issaquah
Dunbar, Walter Clifford, '11.....	Grandview

Fotheringham, Thomas Humber, '14.....	Seattle
Gleason, Villeroy, '14.....	Seattle
Halferdahl, Arthur, '13.....	Seattle
Hallock, George Oakley, '12.....	Seattle
Hazelet, Calvin Cheever, '14.....	Cordova, Alaska
Heuss, Edward Charles, '11.....	Seattle
Hill, Frank Ablest, Jr., '14.....	Seattle
Hoffstrom, E. C., '14.....	Seattle
Huber, Dale Galloway, '14.....	Seattle
Hurd, Charles Sumner, '14.....	Mt. Vernon
Jenkins, Albert Charles, '12.....	Seattle
Johnson, Donald Grover, '14.....	Seattle
Johnson, Guy Jonas, '12.....	Spokane
Johnson, John Dow, '14.....	Valparaiso, Ind.
Lemon, Ralph Charles, '14.....	Centralia
Lewis, Clinton R., '12.....	Georgetown
Lockwood, Everett Wellington, '12.....	Waterville
McDonald, James Michael, '12.....	Seattle
McKay, William O., '13.....	Seattle
McKinley, David A., '13.....	Spokane
McPhee, Alexander John, '11.....	Spokane
Meany, George Edward, '13.....	Colfax
Murphy, Joseph Gratton, '14.....	Seattle
Nelson, Victor, '14.....	Seattle
Nicholson, Stuart Henry, '14.....	Big Lumber, Mont.
Peters, James Raymond, '13.....	Seattle
Phipps, Claude Edgerton, '14.....	Seattle
Pike, Roscoe Warner, '14.....	Seattle
Porter, Fred S., '14.....	Seattle
Presley, BeVan, '14.....	Seattle
Putnam, Guy Leland, '14.....	Seattle
Roberts, George Franklin, '12.....	Seattle
Roberts, Mason Henry, '13.....	Portland, Ore.
Ross, Will A., '13.....	Portland, Ore.
Sanderson, Thomas A., '13.....	Seattle
Searing, Oliver P., '12.....	Jacksonville, Fla.
Smith, Warren S., '12.....	Berlin
Spenger, Fred Jacob, '14.....	Bellingham
Swarva, George Lewis, '11.....	Seattle
Sweeney, Edward Lavary, '14.....	Tacoma
Thomason, Errol Llewellyn, '12.....	Seattle

Waterhouse, Robert Dakin, '14.....Waterville
 Welch, George B., '13.....Muskego, Wis.
 Westover, Ralph, '14.....Seattle
 Will, Edward Clark, '14.....Seattle
 Wilson, Alfred S., '13.....Seattle
 Wright, Lawrence B., '14.....Snohomish

UNCLASSIFIED.

Antisell, Toner, S. C.....Seattle
 Batz, Johanna, S. C.....Rawhide, Nev.
 Collins, Frank Elmer, S. C.....Salmo, B. C.
 Cornwall, William, S. C.....Index
 Derrig, Patrick Edward, S. C.....Valdez, Alaska
 Dunlap, Daniel D., S. C.....Bremerton
 Fenton, F. M., S. C.....Oakland, Calif.
 Goodell, Luther Trowbridge, Sp.....Seattle
 Hall, William C., S. C.....Seattle
 Harris, Thomas Daniel, S. C.....Breckenridge, Colo.
 Jagerson, Frank E., S. C.....Seattle
 Jones, Walter Scott, S. C.....Albany, N. Y.
 Latimer, William Kenneth, S. C.....Gordon Head, B. C.
 Long, Leon Dudley, Sp.....Seattle
 McCoy, Fred, S. C.....Seattle
 Marshall, Spalding A., Sp.....Spokane
 Nasmyth, J. H., S. C.....Sumner
 Norris, William Lee, S. C.....Seattle
 Owen, Evan J., S. C.....Seattle
 Robinson, Kenneth Sargent, S. C.....Seattle
 Scott, O. P., S. C.....Seattle
 Sherman, Sidney, S. C.....Seattle
 Tatro, Clarence Alfred, S. C.....Seattle
 Vogel, Edward, S. C.....Riga, Russia
 Wickstrom, Carl, S. C.....Ballard
 Witherill, John Ray, S. C.....Seattle
 Youngs, Lockwood G., S. C.....Seward, Alaska

The following have received certificates from the Mine Rescue Training Station at Seattle, Washington, and have attended lectures given by Dean Roberts, of the School of Mines:

Louis J. Cross.....	Coal Miner.....	Renton, Wn.....	S. E. Co.
J. B. Delaurenti...	Coal Miner.....	Renton, Wn.....	S. E. Co.
W. H. Berringer...	Mine Foreman.....	Bayne, Wn.....	O. C. Co.
C. F. Helfinger...	Fire Boss.....	Taylor, Wn.....	D. R. C. & C.
M. A. Morgan.....	Fire Boss.....	Ravensdale, Wn....	N. W. I. Co.
F. F. Dahl.....	Mine Foreman.....	Blk. Diamond, Wn..	P. C. C. Co.
E. McGilley.....	Mine Foreman.....	Cle Elum, Wn.....	N. W. I. Co.
Geo. Morris.....	Haulage Foreman...	Roslyn, Wn.....	N. W. I. Co.
M. Walters.....	Mine Foreman.....	Taylor, Wn.....	D-R.C.C.Co.
Thos. Day.....	Fire Boss.....	Ravensdale, Wn....	N. W. I. Co.
Geo. Williams.....	Fire Boss.....	Carbonado, Wn.....	C. H. C. Co.
Wm. C. Shaw.....	Fire Boss.....	Roslyn, Wn.....	R. F. Co.
Chas. McKowan...	Coal Miner.....	Renton, Wn.....	S. E. Co.
David Lunden.....	Fire Boss.....	Blk. Diamond, Wn..	P. C. C. Co.
Ed. Richards.....	Fire Boss.....	Roslyn, Wn.....	N. W. I. Co.
A. G. Lindsay.....	Haulage Foreman...	Roslyn, Wn.....	N. W. I. Co.
T. S. Wallace.....	Haulage Foreman...	Roslyn, Wn.....	R. F. Co.
Rob't Price.....	Mine Foreman.....	Carbonado, Wn....	C. H. C. Co.
Thos. Morgan.....	Mine Inspector.....	Nanaimo, B. C.....	
Evan Evans.....	Mine Inspector.....	Cranbrook, B. C...	
John Newton.....	Mine Inspector.....	Cumberland, B. C...	
Rob't Strachan...	Mine Inspector.....	Hosmer, B. C.....	
J. J. Corey.....	Rescue Foreman....	Seattle, Wn.....	B. of M.
J. M. Anderson...	Rescue Foreman....	Billings, Mont....	B. of M.
R. C. McClary.....	Coal Miner.....	Seattle, Wn.....	
E. H. Sultor.....	Coal Miner.....		
David Taylor.....	Coal Miner.....	Nanaimo, B. C.....	
A. Talford.....	Coal Miner.....	Billings, Mont....	
James Hardman...	Coal Miner.....	Koplah, Wn.....	
D. J. Thomas.....	Fire Boss.....	Burnett, Wn.....	Pac. C. C. Co.

U. OF W. STUDENTS (MINING)

L. H. Cogswell	Geo. Swarva
H. H. Crary	D. E. Carr
E. L. Thomason	A. C. Halferdahl
F. G. Roberts	J. E. Berg
O. R. Searling	L. T. Goodell
J. C. Dobson	

COLLEGE OF PHARMACY

ABBREVIATIONS

CLASSES

'11 Senior

'12 Junior

'13 Sophomore

'14 Freshman

*Name of Student and Rank**Home Address*

Baker, Carl, '13.....	Centralia
Ball, Alice Augusta, '14.....	Seattle
Blum, Katherine Elizabeth, '14.....	Seattle
Bonebrake, Allen Crede, '14.....	Goldendale
Brotherton, Francys Gildart, '13.....	Tacoma
Brown, Burton A., '12.....	Seattle
Burkholder, Ethel, '11.....	Seattle
Burns, Will, '14.....	Woodland
Carr, Elsie Hawley, '13.....	Monesano
Clementson, Charles Clifford, '11.....	Seattle
Conner, Ray B., '12.....	Everett
Corpron, C. Fred, '11.....	Seattle
Crogstad, Emma Christine, '14.....	Mt. Vernon
Culver, Sheldon Eugene, '12.....	Milan, Mich.
Dawson, Stowell, '14.....	Olympia
Eager, Benjamin Franklin, '14.....	Louisville, Ky.
Farmosonis, John, '14.....	Tripoli, Greece
Fryar, Richard G., '14.....	Sumner
Ghormley, Thomas Henderson, '14.....	Knoxville, Tenn.
Gilbertson, Louis Steven, '13.....	Snohomish
Gilluly, Frank, '12.....	Seattle
Goodrich, Forest Jackson, '13.....	Seattle
Hillis, Hazel Virginia, '14.....	Seattle
Hindman, Frances Ruth, '12.....	Baker City, Ore.
Jacquot, Frank Irwin, '14.....	Tacoma
Johnson, Josephine, '12.....	Seattle
Kline, L. M., '14.....	Seattle
Laizure, (Mrs.) Mabel Bever, '12.....	Seattle
Levinson, Irving Meyer, '12.....	Seattle
Mason, Harrison, '13.....	Seattle
Massey, Mildred, '13.....	Des Moines, Wash.
Meler, Harry Allison, '13.....	Portland, Ore.
Platt, Earl M., '13.....	Seattle
Ridgway, Hubert Ralph, '12.....	Seattle

Rogers, C. Loyle, '13.....	Centralia
Rogers, Jennie, '13.....	Waterville
Scace, Guy G., '12.....	Walville
Scatcherd, Roy, '11.....	Seattle
Sivear, Fred George, '14.....	Tacoma
Sligar, Leroy Ellison, '14.....	Tacoma
Storch, Bess E., '12.....	Seattle
Thompson, Albert Chamberlain, '13.....	Seattle
Thompson, Peter, '12.....	Seattle
Van Winter, Rex Oliver, '14.....	Seattle
Veldee, Milton, '13.....	Bremerton
Wanamaker, Gladys Leah, '11.....	Seattle
Ward, Homer W., '14.....	Centralia

SPECIAL STUDENTS

Anderson, Arthur	Lake City, Minn.
Brophy, James Bernard.....	Tacoma
Fern, Homer Benson.....	Stevenson
Gloor, (Mrs.) Sophie.....	Seattle
Herman, R. Russell.....	Seattle
Jones, Pearl	Seattle
Kempinsky, Harold A.....	Seattle
Kinsel, Edward C.....	Seattle
Levin, David	Philadelphia, Pa.
McCartney, John E.....	Seattle
McCluskey, Joseph Albert.....	Seattle
McTague, Edward J.....	Seattle
Mansfield, William Walter.....	Monroe
Mizuno, Kynsaburo	Fuku Shima, Japan
Paul, Anna	Seattle
Protopapas, Christ O.....	Seattle
Russell, Lillian Blanche.....	Seattle
Short, Stuart	Tacoma
Siegel, Harry J.....	Seattle
Steele, Lorena	Seattle
Stern, Simon	Seattle
Stevenson, Blanche	Seattle
Walker, Robert Monroe.....	Renton
Wolfe, Roy F.....	Clearmont, Mo.

SUMMER SESSION REGISTRATION, 1910

<i>Name</i>	<i>Home Address</i>
Adams, Victor	Bellingham
Albitz, Alice Blanche	Seattle
Allen, Mary E.	Roslyn
Allen, Ruth Abigail	Seattle
Ames, Nellie Mabel	Seattle
Anderson, Pearle Elma	Spokane
Ashenfelter, Mabel Ann	Spokane
Athay, Roland Milton	Lawrence, Kans.
Athen, Sara Jane	Seattle
Avery, Edna Irene	Tacoma
Ayres, Jessie Cameron	Seattle
Bacon, Mary Albertine	Seattle
Bailey, Maude Aleen	Seattle
Ball, Myrtle Maitland	Tacoma
Barber, Mary Mabel	Seattle
Barker, George Augustus	Spokane
Barlow, Cleo Lane	Spokane
Barton, Arthur Willis	Seattle
Bennett, Edward Allen	Seattle
Bennett, Frank Gordon	Grandview
Bennett, Gertrude	Oregon, Mo.
Bennett, G. Vernon	Seattle
Benson, Beatrice	Seattle
Bergan, Clara Amanda	Everett
Berry, Benjamin Alexander	Seattle
Berry, Emma	Sioux City, Iowa
Besse, Beulah Benton	Carthage, Mo.
Black, Florence Lucille	Lawrence, Kans.
Black, Frances Inex	Lawrence, Kans.
Blakiston, John H.	Seattle
Bleker, Carl	Brooklyn, N. Y.
Blonde, Mary Clara	Renton
Blough, Allie	Ballard
Boddy, Pearl M.	Seattle
Bohn, Mary H.	Chicago, Ill.
Boissonnault, Frank	Everett
Boyington, C. Jay	Port Townsend
Brayton, Fannie Elizabeth	Seattle

Breen, Anna	Glens Falls, N. Y.
Brill, Geneva Virginia.....	Seattle
Brinck, Stephane M.....	Anacortes
Brooks, Roxa Helene.....	Lewiston, Idaho
Brown, Lulu Albia.....	Vancouver, B. C.
Brown, Vaughn	Bellingham
Bunch, Agnes	Seattle
Burns, Omar Allen.....	Seattle
Burt, Nellie Louisa.....	Seattle
Burton, Jennie L.....	Seattle
Butler, Beatrice M.....	Chicago, Ill.
Cadwell, Sarah Ella.....	Colorado City, Colo.
Carnine, Edna Adeline	Spokane
Challis, Bertha M.....	Seattle
Clark, Ben Maurice.....	Mt. Vernon
Clark, Elizabeth Freeman.....	Spokane
Clark, Levi	Blaine
Clark, Orah Dee.....	Seattle
Clark, Pearl	Seattle
Clark, Virginia Hoffman.....	Mt. Vernon
Cleaves, Harold Edwin	Seattle
Cobb, Tina Marie.....	Tekoa
Coffinberry, Pearle Sibyl.....	Seattle
Cogswell, Caroline Dustin.....	Seattle
Collins, Elizabeth	Kirkland
Conklin, Mabelle	Seattle
Couture, Agnes	Litchfield, Minn.
Couture, Theresa Anna.....	Litchfield, Minn.
Crosno, May Frances.....	Seattle
Crozier, Jno. Louis	Ellensburg
Dalgity, Ruby F. L.....	Seattle
Dall, Jeanette MacKenzie	Seattle
Dalquest, Emma Christine	Everett
Davies, Estella Annie.....	Van Asselt
Ditto, Ervin L.....	Seattle
Drake, Nellie Gertrude.....	Seattle
Dudley, Florence E.....	Puyallup
Dunmore, Laura Blanche.....	Seattle
Dungan, Violet Wilhelmina.....	Seattle
Dustin, Lillian Dale.....	Seattle
Echternach, Helen	Seattle

Edmondson, Charles Howard.....	Topeka, Kan.
Edwards, Elva Salome.....	Port Townsend
Elliott, Muriel Gertrude.....	Seattle
Emmett, Helene Ethel.....	Bagley, Iowa
Enegren, Lecile Leffingwell.....	Seattle
Engeland, Eunice.....	Seattle
Erickson, George Leonard.....	Seattle
Ericson, Lars John.....	Seattle
Eshelman, Wallace Clair.....	Seattle
Everett, Ethel.....	Custer
Everett, John S.....	Seattle
Everett, Martha.....	Everett
Foster, Amos.....	Quincy
Fraser, Annie Ermatinger.....	Victoria, B. C.
Frazier, Lena S.....	Woodland
French, Albert N.....	Lynden
Gahagan, Lillian May.....	Puyallup
Gamble, Maude.....	Snohomish
Gere, Clarence Lewellyn.....	Seattle
Giblin, Chester Earl.....	Hoquiam
Gist, Arthur S.....	Seattle
Gladden, Orvis Custis.....	Seattle
Glasgow, Grace.....	Seattle
Glass, O. F.....	Sultan
Gordon, Blanche Gertrude.....	Bellevue
Graham, Lizetta.....	Seattle
Green, Wyman R.....	Lawrence, Kan.
Grindrod, Ione.....	Ellensburg
Hackshaw, Blanche Lydia.....	Seattle
Hagerty, Nellie.....	Seattle
Hallstrom, Maud Evangeline.....	Marquette, Mich.
Hamlin, Alma.....	So. Bellingham
Haney, Mrs. Alena Botten.....	Seattle
Hanike, Huldah B.....	Bellingham
Harkins, Marjorie.....	Seattle
Harlow, Bessie Pauline.....	Bremerton
Harnish, Charlotte Loew.....	Parkersburg, W. Va.
Harrington, Josephine Marie.....	Seattle
Harris, Wm. Henry.....	Seattle
Hartman, Frank A.....	Seattle
Hatfield, Melvin.....	Nooksack

Heidel, Wilhelmina Esther.....	Hillsboro, Ore.
Henline, Oalo	Arkalon, Kans.
Herbsman, J. C.....	Seattle
Herring, John Peabody.....	Seattle
Heydenburk, Edith Belle.....	Bay City, Mich.
Hively, Mary Margaret.....	Seattle
Hoig, Anna Clinton	Puyallup
Hooper, Kitty Elizabeth.....	Sunnyside
Hooton, Ada Margaret.....	Tacoma
Houlahan, Francis Tamblyn.....	Seattle
Howe, Ellen Ford	Seattle
Hrusha, Victoria	Calman, Iowa
Ingersoll, Edna Ione.....	Seattle
Ireland, Rose Hosley	Seattle
Irvine, Helen E.....	Seattle
Iverson, Anna	Stanwood
Jarvis, Bruce Wilber.....	Davenport
Jerde, Inger Carolina.....	Spokane
Johnson, Lawrence	Braymer, Mo.
Johnson, Oscar	Couer d'Alene, Idaho
Jones, Effie Dora.....	North Yakima
Jones, Pearl Ellen.....	Seattle
Joslin, Effie Rubarda	Seattle
Joslin, Ethel Roberta.....	Seattle
Kahan, Sarah Edna.....	Seattle
Karrer, Matilda W.....	Roslyn
Kendall, Leon Mum.....	Seattle
Kenny, Kathryn	Seattle
Kenyon, Katherine M.....	Spokane
Keyes, Harman Edward.....	Seattle
Keyes, Ruth Mary.....	Laurelhurst
Kibbe, Alice Lovina.....	Elma
Kincaid, Airdie	Seattle
Knudsen, Ragna	Seattle
Kniseley, John Mitchell.....	Seattle
Lain, Marion Arminda	Bellingham
Lamphere, Adelaide	Palouse
Lane, Ray W.	Startup
Langtry, Florence W.....	Seattle
Larsell, Olaf	Tacoma
Lee, Jessie Louisa	Seattle

Leeman, Verna Lulu.....	Seattle
Lewis, Herbert H.	Georgetown
Liddell, Grace Isadora.....	Cashmere
Lindborg, Arthur Emanuel.....	Portland, Ore.
Litchman, Mary Meyer	Seattle
Livingston, Lala Cerena A.....	Pullman
McCarney, Margaret	Seattle
McClain, Bovia	Seattle
McConangley, Marlon	Kalama
McCroskey, Leo Forest.....	Lebam
McDonald, Kate	Seattle
McMurry, Mabel Margaret	Anacortes
MacNaughton, Corabel	Seattle
McQuilkin, Margaret	LaPorte City, Iowa
Mack, F. D.....	St. Paul, Minn.
Mackey, Annie	Kent
Mackintosh, John James.....	Mt. Vernon
Marlow, Junia Elsie	Seattle
Mather, Alvah B.....	Waupaca, Wis.
Mathieu, Mae	Seattle
Maxam, Elsie	Tacoma
Miller, Gertrude Evelyn	Seattle
Miller, Herbert Rhinhart.....	Seattle
Miller, Mrs. Lydia A.....	Vancouver
Millican, Alfred Clay	Seattle
Mitchell, Gordon	Kennydale
Montgomery, John Raymond.....	Bellingham
Mundstock, Mina	Olympia
Murphy, Joseph Grattan.....	Seattle
Nash, Nellie J.	Aberdeen, S. D.
Neill, Frank William.....	Seattle
Newcomber, Cora Agnes.....	Warrensburg, Mo.
Norris, Nona Alvira	Lansing, Mich.
Norris, Sadie Alice Sargent.....	Seattle
Oakley, Enola Inez.....	Seattle
O'Donnell, Gretchen Marion	Seattle
Olsan, William D.....	Elma
Osterud, Hjalman Laurits	Seattle
Paff, Lillian	McKinney, N. D.
Parish, William Francis.....	Seattle
Park, Lical	Seattle

Parr, Myrtle I.....	Seattle
Partridge, Clara Gertrude	Bay City, Mich.
Patterson, Olive Gertrude.....	Seattle
Peaslee, Emilie Stewart.....	Seattle
Peters, Rupert	Kansas City, Mo.
Peterson, Fred Thorvald.....	San Francisco, Cal.
Pierce, Alice	Hudson, S. Dak.
Pierce, Lois	Hudson, S. Dak.
Porter, Clara E.....	Seattle
Post Frances E.....	Syracuse, N. Y.
Potter, Jonathan B.....	Ellensburg
Pratt, Ida Margaret	Seattle
Priest, Mrs. Jessie G. Nutting.....	Auburndale, Fla.
Proulx, Camillia Eglantine.....	Seattle
Rensing, Herman	Castle Rock
Rice, Frances	Seattle
Ritchie, Rowland Henry	Emporia, Kans.
Robinson, Ephraim Thomas.....	Seattle
Rogers, Anna M.	Bangor, Maine
Roos, Alfred Raphael	Bellingham
Rosenberg, David H.....	Seattle
Rowell, Elizabeth	Seattle
Rowse, Nona Boles	Seattle
Runner, Joseph James.....	Seattle
Russell, Lillian Blanche.....	Seattle
Ryder, Hazel Frances	Seattle
Sanders, Claude	Seattle
Sater, Julia Mollie.....	Seattle
Sawyer, Dalza	Menominee, Mich.
Sawyer, Miriam Jefferson	Colorado Springs, Colo.
Scholl, George Warren.....	Seattle
Shafer, Carl Gordon	Los Angeles, Cal.
Sharp, Ida Grace.....	Kent
Shave, Ethel	Seattle
Sheldon, Althea Morgan.....	New Plymouth, Ida.
Sherwood, Homer Deming.....	Seattle
Shirky, Emily Frances	Norborne, Mo.
Shirling, Albert E.....	Kansas City, Mo.
Shoudy, Emma	Seattle
Shumaker, Varney V.....	Skykomish
Sifton, Edith	Seattle

Sims, Ethel	Seattle
Slater, Mabel E.....	Bellingham
Smith, Cora Lynn.....	Okanogan
Smith, Fern	Seattle
Smith, Jessie Prentiss.....	Point Roberts
Smith, Ray T.....	Bellingham
Spencer, Blanche	Seattle
Spinning, O. Beatrice	Seattle
Stanbra, Daisy Pearl.....	Bellingham
Staup, Mrs. Minnie G.....	Seattle
Steele, William Henderson.....	Gresham, Ore.
Sterrett, Nellie Belle	Seattle
Stetson, Fred Lea	Seattle
Stowell, Almira May.....	Seattle
Streator, Gertrude Inez.....	Seattle
Sturley, Ruth Emeline.....	Tacoma
Sutherland, Esther Helena	Seattle
Sutton, Coleen Chloe.....	Port Orchard
Swedberg, Mrs. Anna M.....	Seattle
Taylor, Laura	Tacoma
Tenneson, Alice Melvin	Portland, Ore.
Thayer, Warrena Elva.....	Olympia
Thomle, Kristine M.	Stanwood
Thomle, Ragnhild D.....	Stanwood
Thompson, Cedric R.....	Seattle
Thomson, Eva May	Junction City, Ore.
Tibbits, Cecelia Louisa.....	Juneau, Alaska
Towne, Joshia M.....	Seattle
Tremper, Louis Adolph	Lester
Truesdell, Inda Nelly.....	Vancouver
Van de Vanter, Louise May.....	O'Brien
Varga, Francis	Leon, Iowa
Vinup, Clara M.	North Yakima
Volnagel, Chris	Seattle
Wadsworth, Phoebe Ray.....	Hibbing, Minn.
Walín, Ada C.....	Seattle
Warren, Anna Pixlie	Seattle
Way, Evelyn Dorothy	Seattle
Wedel, Peter J.....	Newton, Kans.
Wein, Clara G.....	Seattle
Wellman, Homer Dudley	New York City

Westervelt, Margaret	Seattle
Wetmore, Mary	Allegan, Mich.
Wheeler, Chetta Mae	Smithfield, Ohio
Wheeler, Gladys Fidele.....	Seattle
Wheelon, C. Homer	Seattle
Whitfield, Willmot G.....	Seattle
Willard, Ida Estella	Seattle
Williams, Roger Ellis	North Bend
Wilson, Maud	Seattle
Wiseman, Adolph Henry.....	Seattle
Woodin, William Leslie.....	Bellingham
Wold, Sylvia	Seattle
Wray, Harriette	Winnebago, Ill.
Wright, Parke A.....	Lynden
Yerkes, Jennie	Seattle

SUMMARY OF ENROLLMENT

BY COLLEGES AND SCHOOLS

Graduate School	65
College of Arts and Sciences	1,245
College of Engineering	392
Chemical Engineering	25
Civil Engineering	192
Electrical Engineering	126
Mechanical Engineering	49
College of Forestry	87
School of Law	206
College of Mines	76
College of Pharmacy	71
Foresters' Short Course (Three-months' Course).....	31
Miners' Short Course (Three-months' Course).....	27

 2,200

BY CLASSES

Graduate Students	65
Seniors	188
Juniors	324
Sophomores	512
Freshmen	801
Unclassified, Arts and Sciences	152
Unclassified, Engineering	23
Unclassified, Forestry	39
Unclassified, Law	45
Unclassified, Mining	27
Unclassified, Pharmacy	24

 2,200

Summer Session of 1910	303
------------------------------	-----

 2,503

Deduct Summer Students now attending University.....	76
--	----

 Net total for the year 2,427

INDEX.

ACCREDITED SCHOOLS—	<i>Page</i>
Admission from	98
List of	99
ADMISSION—	
As special students	101
To advanced undergraduate standing	99
To freshman class	86
College of Arts and Sciences	86
College of Engineering and School of Mines	87
From accredited schools	98
College of Forestry	87
School of Law	87
College of Mines	87
College of Pharmacy	87
To graduate standing	100
ALUMNI ASSOCIATION	50
ARTS AND LAW COURSE	114
ASSAYING—	
Laboratory deposit	42
ASSEMBLY ADDRESSES	57
ASSOCIATIONS AND CLUBS	50
Alumni Association	50
Associated students	50
Chemistry Club	50
Christian Associations	51
Classical Club	51
County and State Clubs	52
Debating Clubs	52
Deutscher Verein	52
Forest Club	53
French Club	53
Historical Society	56
Lincoln Literary Society	52
Mathematical Club	53
Musical organizations	54
Philological Association	54
Political Science Club	55
Sigma Xi	56

ASTRONOMY—	<i>Page</i>
Department of	115
Entrance requirements	88
Laboratory deposit	42
BEQUESTS	40
BOARD AND ROOM.....	41
BOTANY—	
Department of	117
Entrance requirements	89
Laboratories	70
Laboratory deposits	42
BUILDINGS AND GROUNDS.....	59
BUREAU OF TESTING.....	80
CHEMICAL ENGINEERING—	
Course in	232
Department of	232
CHEMISTRY—	
Department of	122
Entrance requirements	89
Laboratories	70
Laboratory deposits	42
CIVIL ENGINEERING—	
Course in	236
Department of	236
Laboratory deposits.....	42
CLUBS—see Associations and Clubs.	
COLLEGE OF ARTS AND SCIENCES.....	106
Admission to	86
Courses in	110
Prescribed subjects in.....	110
COLLEGE OF ENGINEERING.....	213
Admission to	221
Courses of study in.....	224
Degrees in	223
COLLEGE OF FORESTRY.....	250
Admission to	253
COLLEGE OF MINES.....	275
Admission to	276
Courses in	281
COLLEGE OF PHARMACY.....	293
Admission to	296
Course of study.....	300
COMBINED ARTS AND LAW COURSE.....	114

INDEX

393

	<i>Page</i>
COMMITTEES OF THE FACULTY.....	85
DEAN OF WOMEN.....	45
DEGREES	102
With honors	102
Granted in 1910.....	816
DIPLOMA FEE	44
DIRECTORY OF OFFICERS.....	309
DORMITORIES	41,61
EDUCATION—	
Department of	128
ELECTIVES, SCHEME OF.....	87
ELECTRICAL ENGINEERING—	
Course in	242
Department of	242
Laboratory deposits	42
ELECTRICAL ENGINEERING LABORATORIES.....	73
ENDOWMENTS AND SUPPORT.....	89-49
ENGLISH—	
Department of	133
Entrance requirements	89
ENVIRONS OF UNIVERSITY.....	89
EXAMINATIONS	10
FACULTY AND OTHER OFFICERS.....	10
FACULTY COMMITTEES	85
FELLOWSHIPS	45, 46
FORESTRY—	
Laboratories	77
Laboratory deposit	42
College of	250
FRENCH—	
Department of	139
Entrance requirements	92
GEOLOGY—	
Department of	143
Laboratories	78
Laboratory deposits	42
GERMAN—	
Department of	147
Entrance requirements	92

	<i>Page</i>
GIFTS—see Scholarships, Prizes and Gifts.....	45-6
GOVERNMENT OF UNIVERSITY.....	39
GRADES, SYSTEM OF.....	103
GRADUATE SCHOOL	306
GREEK—	
Department of	152
Entrance requirements	92
GROUND AND BUILDINGS.....	59
HEAT, LIGHT AND POWER PLANT.....	62
HISTORICAL SKETCH	37
HISTORY—	
Department of	155
Entrance requirements	93
HOME ECONOMICS—	
Department of	162
Laboratory deposit	42
Admission to department.....	162
Teachers' course in.....	165
ITALIAN—	
Department of	166
JOURNALISM—	
Department of	166
Laboratory deposit	42
LABORATORIES	70
LABORATORY DEPOSITS	42
LATIN—	
Department of	171
Entrance requirements	95
LAW—see School of Law.	
LIBRARY—	
Location and contents.....	63
Staff	63
LIFE DIPLOMAS	103
MATHEMATICS—	
Department of	177
Entrance requirements	96
MECHANICAL ENGINEERING—	
Course in	171
Department of	231
Laboratories	75

	<i>Page</i>
MEDICAL PREPARATORY COURSE.....	114
METALLURGY	283
Laboratories	82
Laboratory deposit	43
MILITARY SCIENCE AND TACTICS—	
Department of	183
MINE RESCUE TRAINING STATION.....	278
MINES LABORATORIES	81
MINING—see College of Mines.	
MUSEUM	65
Botany and Forestry collection.....	68
Education collection	68
Ethnology collection	67
Geology collection	66
Historical sketch	65
Zoology collection	65
MUSIC—	
Department of	184
OBSERVATORY	85
OFFICERS OF ADMINISTRATION.....	10
OFFICERS OF ADMINISTRATION AND INSTRUCTION, DIRECTORY OF	309
ORIENTAL HISTORY AND LITERATURE—	
Department of	184
ORGANIZATION OF THE UNIVERSITY.....	105
PHARMACY AND MATERIA MEDICA LABORATORIES.....	70
Laboratory deposits	42
PHARMACY—	
College of	293
PHILOSOPHY—	
Department of	188
PHYSICAL TRAINING—	
Department of	192
PHYSICS—	
Department of	196
Entrance requirements	97
Laboratories	70
Laboratory deposit	42
POLITICAL AND SOCIAL SCIENCE—	
Department of	201
POWER PLANT	62

	<i>Page</i>
PREPARATION FOR ADMISSION TO FRESHMAN CLASS.....	88
PREPARATORY MEDICAL COURSE.....	114
PRIZES—see Scholarships and Prizes.....	45
PSYCHOLOGY—	
Laboratory	70
Laboratory deposit	42
PUBLIC SPEAKING AND DEBATE.....	207
REGENTS, BOARD OF.....	8
REGISTER OF STUDENTS.....	323
REGISTRATION	100
SCANDINAVIAN LANGUAGES—	
Department of	210
SCHOLARSHIPS, PRIZES AND GIFTS.....	45-8
John Walter Ackerson scholarship.....	45
Anonymous scholarship	45
Alfred Battle prize.....	46
Philo Sherman Bennett prize.....	46
Big Red Apple scholarship.....	45
R. F. Blaine prize.....	46
Alden J. Blethen prize.....	46
Thomas Burke prizes.....	47
Kerl prize	48
Washington Bankers' Association prize.....	48
Vivian W. Carkeek prize.....	47
L. J. Corkery prize.....	47
Loretta Denny fellowships.....	47
R. C. Erskine prize.....	48
Funk & Wagnalls prize.....	48
Jacob Furth prize.....	48
Charles E. and Belle F. Remsberg gift.....	50
Seattle Bar Association gift.....	48
Senior Scholars	45
SCHOLARSHIPS AND PRIZES AWARDED FOR 1911.....	321
SCHOOL OF LAW.....	266
Admission to	267
Combined course	268
Course of study.....	271
Degrees	270
SHOP WORK—	
Laboratory deposit	44
SPANISH—	
Department of	211
STUDENT EXPENSES	41

INDEX

397

	<i>Page</i>
STUDENT HELP	44
STUDENT ORGANIZATIONS—see Associations and Clubs.	
SUMMER SESSION	307
TEACHER'S DIPLOMA—see Normal Diploma.	
TUITION	41
UNIVERSITY TEACHING DIPLOMA.....	102
ZOOLOGY—	
Department of	218
Entrance requirements	98
Laboratories	84
Laboratory deposit	44