

CATALOGUE
For 1911-12 and
ANNOUNCEMENTS
For 1912-13
OF THE
UNIVERSITY OF WASHINGTON



SEATTLE
WASHINGTON

OLYMPIA, WASHINGTON :
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1912

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UNIVERSITY CALENDAR

1911-12

Campus day	May 10
Junior day	May 18
Memorial day (holiday)	May 30
Semester examinations close	June 7
Baccalaureate Sunday	June 9
President's reception	June 10
Alumni day	June 11
Commencement	June 12

SUMMER SESSION

Registration day	June 24
Recitations begin	June 25
Session closes	Aug. 2

1912-13

FIRST SEMESTER

Examinations for admission....	Friday and Saturday, Sept. 13, 14
Registration days.....	Monday, Tuesday, Sept. 16, 17
Recitations begin.....	Wednesday, Sept. 18
Thanksgiving vacation.....	{ Wednesday, Nov. 27, 6 p. m., to Monday, Dec. 2, 8 a. m.
Christmas vacation.....	{ Friday, Dec. 20, 6 p. m., to Monday, Jan. 6, 8 a. m.
Semester examinations. {	Monday, Tuesday, Wednesday, Thurs- day, Friday, Jan. 27, 28, 29, 30, 31.

SECOND SEMESTER

Registration day.....	Monday, Feb. 3
Recitations begin.....	Tuesday, Feb. 4
Washington's birthday (holiday).....	Saturday, Feb. 22
Spring vacation.....	{ Friday, April 4, 6 p. m., to Monday, April 14, 8 a. m.
Campus day.....	Friday, May 2
Junior day.....	Saturday, May 10
Memorial day (holiday).....	Friday, May 30
Semester examinations.....	Monday, June 9, to Friday, June 13
Baccalaureate Sunday.....	June 15
President's reception.....	Monday, June 15
Alumni day.....	Tuesday, June 17
Commencement.....	Wednesday, June 18

THE BOARD OF REGENTS

HON. JOHN C. HIGGINS, President, term expires 1914.....Seattle
HON. CHAS. P. SPOONER, term expires 1914.....Seattle
HON. HOWARD G. COSGROVE, term expires 1915.....Seattle
HON. JOHN A. REA, term expires 1916.....Tacoma
HON. A. L. ROGERS, term expires 1916.....Waterville
HON. F. A. HAZELTINE, term expires 1917.....South Bend
HON. ALEX. F. McEWAN, term expires 1917.....Seattle

WILLIAM MARKHAM, Secretary of the Board.

ADMINISTRATIVE OFFICERS

THE UNIVERSITY

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

A. B., De Pauw University, 1888; A. M., 1891; Ph.D., Johns Hopkins University, 1895; LL. D., De Pauw University, 1911; (Principal, Public Schools, three years; Tutor in Latin, DePauw University, 1886-88; Professor of Latin and Greek and Vice-President, Lewis College, 1888-90; Acting President, 1890-91; Scholar in Latin, Johns Hopkins University, 1893-94; Fellow in Latin, 1894-95; Professor of Latin, Olivet College, 1895-1900; Principal Preparatory Department, 1897-1900;) Professor of Latin, University of Washington, 1900-02; Acting President, 1902-03; 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-.

CAROLINE HAVEN OBER, Professor of Spanish.

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

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.

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.

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.

FREDERICK MORGAN PADELFORD, PH. D., Professor of English.

A. B., Colby College, 1896; A. M., 1899; Ph. D., Yale University, 1899; Scholar in English, Yale University, 1898-98; 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, 1898-99; 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; Chemist, State Dairy and Food Commission, 1909; 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), 1892-98; Instructor in French and Greek, Oahu College (Honolulu), 1898-95; Student in Europe and Johns Hopkins University, 1895-99; Fellow in Romantic Languages, Johns Hopkins University, 1898-99; Instructor (1899-1900) and Assistant Professor (1900-08) of Romanic Languages, Leland Stanford, J., 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, 1898; 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, Proudft & Lantz, and Proudft & 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, 1903-04; 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, 1901-02; Professor of German, University of Washington, 1906-.

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

M. DL., Iowa State Normal, 1893; Ph. B., University of Iowa, 1900; B. S. A., Iowa State College, 1901; M. F., Yale University, 1908; 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, 1898-97; 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, St. 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. PATTEN, 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'S 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, Gäfve 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, 1892-98; 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. Condon, 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. M., Associate Professor of Education.

Graduate Michigan State Normal College, 1898; A. B., University of Michigan, 1904; A. M., University of Washington, 1911; 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, 1904-09; 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-.

JOHN WEINZIERL, 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 at Collaborator, 1908-; Associate Professor of Forestry, University of Washington, 1909-.

*HERBERT CAMPBELL STEVENS, PH. D., Associate Professor of Psychology.

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

ASSISTANT PROFESSORS

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

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-.

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-.

***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, 1898-1890; Superintendent of City Schools, Cebu, P. I., 1901-03; Professor of English, Hanover College, Indiana, 1903-04; Assistant Professor of English, 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 of 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-.

*Absent on leave 1911-12.

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, on leave of absence, 1903-1904; 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 English, University of Washington, 1908-.

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, J., 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-.

OTILIE 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-.

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

B. S. (C. E.), University of Michigan, 1893; Graduate Student in Mathematics, Leland Stanford, J., University, 1905-05; 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, J., University, 1904-05; Instructor in Civil Engineering, Cornell University, 1905-07; Instructor in Mathematics, University of Washington, 1907-11; Assistant Professor, 1911-.

HANS JACOB HOFF, PH. D., Assistant Professor of 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, 1908-11; Assistant Professor, 1911-.

ROBERT EYSTAFIEFF ROSE, PH. D., Assistant Professor of 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, 1908-11; Assistant Professor, 1911-.

ROBERT MAX GARRETT, PH. D., Assistant Professor of English.

B. A., University of Idaho, 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, 1911; Instruct in English, University of Washington, 1909-11; Assistant Professor, 1911-.

JULIUS CHARLES HERBSMAN, A. B., LL. B., Assistant Professor 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, 1909-11; Assistant Professor, 1911-.

EDGAR ALLAN LOEW, B. S., E. E., Assistant Professor of 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, 1909-11; Assistant Professor, 1911-.

ELIAS TREAT CLARK, M. F., Assistant Professor of Forestry.

Ph. B., Yale University, 1907; M. F., 1908; with U. S. Forest Service, 1908-11; Deputy Forest Supervisor, Snoqualmie National Forest, 1910-11; Superintendent Construction Department, Standard Railway and Timber Co., Spring and Summer, 1911; Assistant Professor of Forestry, University of Washington, 1911-.

EDWARD GODFREY COX, PH. D., Assistant Professor of English.

A. B., Wabash College, 1899; A. M., Cornell University, 1901; Ph. D., Cornell University, 1906; Student at the School of Irish Learning, Dublin, Summers of 1906, 1907, 1909; Student at the Celtic Training College, Tourmakeady, Summer of 1907; Instructor in English, Cornell University, 1906-11; Assistant Professor of English, University of Washington, 1911.

JOSEPH DANIELS, M. S. S., Assistant Professor of Mining Engineering and Metallurgy.

S. B., Massachusetts Institute of Technology, 1905; M. S., Lehigh University, 1908; Engineer with Dominion Coal Co., Nova Scotia, 1905-06; Instructor in Mining Engineering, Lehigh University, 1907, Assistant Professor, 1908, Associate Professor, 1911; Assistant Professor of Mining Engineering and Metallurgy, University of Washington, 1911.

EDGAR SIMPSON SHERIDAN, A. B., Assistant Professor in charge of the Department of Journalism.

A. B., De Pauw University, 1885; St. Louis Republic, 1886-87; Indianapolis Journal, 1888; Indianapolis Sentinel, 1889; Chicago Mail, 1890; Chicago Record, 1891-96; Chicago Tribune, 1897-1908; Associated Press, 1909-11; Assistant Professor of Journalism, University of Washington, 1911.

STEVENSON SMITH, PH. D., Assistant Professor of Orthogenics.

A. B., University of Pennsylvania, 1904; Ph. D., 1909; Graduate Student, Heidelberg, 1905; Assistant in Psychology, Columbia University, 1905-06; Professor of Psychology, Hampden-Sidney College, 1906-11; Director Psychological Clinic, Columbia University, Summer Sessions, 1910 and 1911; Professor of Education, Summer Session, 1911; Assistant Professor of Orthogenics, University of Washington, 1911.

ELI VICTOR SMITH, PH. D., Assistant Professor of Zoology.

Ph. B., Illinois Wesleyan University, 1907; A. M., University of Washington, 1909; Ph. D., Northwestern University, 1911; Teaching Fellow in Zoology, Northwestern University, 1909-11; Assistant Professor of Zoology, University of Washington, 1911.

GEORGE WALLACE UMPHREY, PH. D., Assistant Professor of Spanish.

A. B., University of Toronto, 1899; A. M., Harvard, 1901; Ph. D., Harvard, 1905; Teacher, Ontario Normal College, 1899-1900; Graduate School, Harvard, 1900-01; Teacher of French and German, Whitty Collegiate Institute, 1901-03; Fellow of the French Ministry of Public Instruction, Paris, John Harvard Fellow, Study and Travel in Spain, 1903-04; Edward Austin Fellow, Harvard, 1904-05; Instructor and Assistant Professor of Romance Languages, University of Cincinnati, 1905-11; Teacher of French and Spanish in the Summer School of the University of Tennessee, 1907; Assistant Professor of Spanish, University of Washington, 1911.

CLARENCE LEON CLARKE, PH. B., Acting Assistant Professor Education.

Ph. B., Alfred University, 1906; Graduate Student, University of Chicago, 1906; Fellow, University of Chicago, 1906-08; Professor of Philosophy and Education, Alfred University, 1908; Acting Assistant Professor of Education, University of Washington, 1911.

FRANK CHARLES SCHROEDER, C. E., Acting Assistant Professor of Civil Engineering.

B. S. (C. E.), University of Wisconsin, 1907; C. E., University of Wisconsin, 1910; Apprentice and Draftsman, American Bridge Co., Pencoed, Pa., 1901-03; Draftsman and Designer, Philadelphia Turntable Co., Philadelphia, Pa., 1905; Draftsman and Inspector, Bridge and Building Department, C. M. & St. P. Ry., Chicago, Ill., 1907-09; Mechanical Engineer, Strauss Bascule and Concrete Bridge Co., Chicago, Ill., 1910; Bridge Designer, Engineering Dept., C. M. & St. P. Ry., Chicago, Ill., 1910-11; Acting Assistant Professor of Civil Engineering, University of Washington, 1911.

INSTRUCTORS

*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, 1902-08; 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-.

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-.

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

A. B., University of Washington, 1904; Rhodes Scholar, Oxford, England, 1904-1907; Instructor in German, University of Washington, 1907-09; 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 shop 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-.

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-.

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-.

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-.

WALTER BELL WHITTLESEY, A. B., Instructor in French.

A. B., University of Washington, 1907; Graduate Assistant in French and Spanish, University of Washington, 1907-09; Instructor in French, University of Washington, 1909-.

ALBERT HASKIN DEWEY, Ph. G., B. S., Instructor in Pharmacy.

Ph. G., University of Washington, 1907; B. S., University of Washington, 1909; M. S., 1911; Assistant in Chemistry, 1907-08; Graduate Assistant in Materia Medica and Pharmacy, 1908-09; 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-.

H. BURTIS BENNETT, Ph. B., Instructor in Economics.

Ph. B., Cornell College, 1901; Graduate Student, Columbia University, School of Political Science, 1901-04; Student, University of Minnesota, Law School, 1904-05; 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, 1901-04; 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-.

LARS OLAF 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-.

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-.

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 & 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, 1895-1895; 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-.

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, 1905-09; 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-.

HORACE HARDY 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-.

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 Robbins 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, 1909; 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-.

THERESA SCHMID MCMAHON, Ph. D., Instructor in Political and Social Science.

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; Instructor in Political and Social Science, 1911-.

AGNES FAY MORGAN, S. B., S. M., Instructor 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, 1909-10; Graduate Assistant in Chemistry, University of Washington, 1910-11; Instructor, 1911-.

NEWELL WHEELER SAWYER, A. M., Instructor in English.

Ph. B., Dickinson College, 1908; M. A., University of Pennsylvania, 1909; Graduate Assistant in English, University of Washington, 1910-11; Instructor, 1911-.

ELLA LOUISE BARCOCK, B. S., Instructor in Domestic Art.

B. S., Columbia University, 1911; Teacher in Public Schools, Manistee, Michigan, 1890-95, 1898-1903; Student, University of Wisconsin, 1896-98; Domestic Science Diploma, Mechanics Institute (Rochester), 1905; Supervisor, Domestic Science and Art, Racine, Wis., 1905-10; Student, Teachers College, Columbia University, 1910-11; Instructor in Domestic Art, University of Washington, 1911-.

ANNIE DALE BIDDLE, Ph. D., Instructor in Mathematics.

A. B., University of California, 1908; Ph. D., 1911; Instructor in Mathematics, University of Washington, 1911-.

VICTOR LOVITT OAKES CHITTICK, A. M., Instructor in English.

A. B., Acadia University, 1905; A. M., 1906; A. M., Harvard University, 1908; Graduate Student on part time, Columbia University, 1908-10; English Fellow, Columbia University, 1910-11; English Master, King's Collegiate School, Windsor, N. S., 1905-07; Teacher, Ethical Culture School, New York City, 1908-10; Instructor in English, University of Washington, 1911.

ERNEST OTTO ECKLEMAN, PH. D., Instructor in German.

A. B., Northwestern University (Watertown, Wis.), 1897; B. L., University of Wisconsin, 1898; Ph. D., University of Heidelberg, 1906; Teacher of German and Greek, Carroll College, 1898-1900; Scholar in German Philology, University of Wisconsin, 1900-01; Fellow, 1901-02; Ottendorfer Memorial Fellow, New York University, 1902-03; Winter Semester, University of Munich; Summer Semester, University of Prague; Instructor in German, Smith College, 1903-05; Instructor in German, Dartmouth College, 1906-08; Instructor in German, University of Illinois, 1908-09; Student, University of Chicago, Summer Quarters 1908 and 1909; Student, Cambridge, Mass., 1909-11; Instructor in German, University of Washington, 1911.

CHARLES LOUIS HELMLINGE, B. PH., Instructor in French.

B. Ph., German Wallace College (Berea), 1911; Teacher, Cincinnati School of Languages, 1898-1902; Teacher, Woodward High School, Cincinnati, 1902-03; Teacher, Cincinnati University School, 1903-09, 1910-11; Student, University of Madrid, 1909-10; Instructor in French, University of Washington, 1911.

JOHN WILLIAM HOTSON, A. M., Instructor in Botany.

A. B., McMaster University, 1901; A. M., 1902; Graduate Student, University of Chicago, 1902 (summer and fall), Cornell University, 1903 (winter), Teachers College, Columbia University, 1903 (spring), Clark University, 1903 (summer); Lecturer in Botany, Ontario Agricultural College, Guelph, 1903-04; Principal, Macdonald Consolidated Schools, Guelph, 1904-06; Graduate Student, University of Chicago, 1906-07; Fellow in Botany, Harvard University, 1907-08; Assistant Professor of Botany, Pomona College, 1908-10; Graduate Student, Harvard University, 1910-11; Instructor in Botany, University of Washington, 1911.

RALPH HASWELL LUTZ, PH. D., Instructor in History.

A. B., Leland Stanford, J., University, 1906; LL. B., University of Washington, 1907; Ph. D., University of Heidelberg, 1910; Graduate Student, University of California, Summer Semester, 1906; Student, University of Bonn and University of Heidelberg, 1907-10; Instructor in History, University of Washington, 1911.

LEWIS IRVING NBIKIRK, PH. D., Instructor in Mathematics.

B. S., University of Colorado, 1898; M. S., 1901; Ph. D., University of Pennsylvania, 1903; Fellow in Mathematics, University of Pennsylvania, 1901-03; Research Fellow in Mathematics, 1903-05; Instructor in Mathematics, University of Illinois, 1905-11; Instructor in Mathematics, University of Washington, 1911.

CHARLES EDWARD NEWTON, E. M., Instructor in Civil Engineering.

B. S., Michigan College of Mines, 1906; E. M., 1907; Instructor in Mining Engineering, Michigan College of Mines, 1907-08; Practical Work in Mining Engineering in Colorado, Arizona and Mexico, 1908-11; Instructor in Civil Engineering, University of Washington, 1911.

HJALMAR LAURITS OSTERUD, A. M., Instructor in Zoology.

A. B., University of Washington, 1909; A. M., 1910; Graduate Student, Columbia University, 1910-11; Instructor in Zoology, University of Washington, 1911.

ALFRED ERNEST RICHARDS, PH. D., Instructor in English.

A. B., Yale University, 1898; A. M., 1900; Ph. D., University of Munich, 1904; Instructor in English, Gilbert High School, Winsted, Conn., 1900-01; Instructor in German, Lehigh University, 1904-05; Instructor in German, Princeton University, 1905-11; Instructor in English, University of Washington, 1911-.

EVAN TAYLOR SAGE, PH. D., Instructor in Latin and Greek.

A. B., University of Nebraska, 1902; A. M., University of Chicago, 1904; Ph. D., 1908; Graduate Student, University of Chicago, 1903-04; Instructor in Latin, Hillside Home School, Hillside, Wisconsin, 1904-05; Fellow in Latin, University of Chicago, 1905-06; Fellow in Latin on Leave of Absence, University of Chicago, and Member of American School of Classical Studies in Rome, Italy, 1906-07; Instructor in Latin and Greek, University of Idaho, 1907-11; Professor of Latin, Summer Quarter, University of Pittsburg, Summer, 1910; Instructor in Latin and Greek, University of Washington, 1911-.

ATTILIO FILIPPO SBEDICO, PH. D., Instructor in French and Italian.

Licenza Liceale, 1903; A. M., University of Pennsylvania, 1907; Ph. D., 1909; Scholar, 1905-09, and Traveling Fellow in French, University of Pennsylvania, 1906-07; Instructor in the University of Pennsylvania, Summer School, 1908-10; Instructor in Romanic Languages, University of Illinois, 1909-11; Instructor in French and Italian, University of Washington, 1911-.

ABRAHAM WALTER SMITH, B. S., Instructor in Journalism.

B. S., University of Pennsylvania, 1908; Assistant Manager, White Mountain Echo, Bethlehem, N. H., summer 1906; Reporter, Philadelphia Press, 1908-09; Reporter, Philadelphia Evening Telegraph, 1909; Reporter and Copy Reader, Philadelphia Public Ledger, 1910; Copy Reader, Seattle Post-Intelligencer, 1910-; Reporter and Copy Reader, Seattle Times, 1910-11; Instructor in Journalism, University of Washington, 1911-.

GEORGE ROBERT STRANDBERG, Instructor in Civil Engineering.

B. S. (C. E.), University of Washington, 1911; Draftsman, C. M. & P. S. Ry. Terminal Engineer's Office, Summer, 1911; Instructor in Civil Engineering, University of Washington, 1911-.

ERIC THERKELSEN, B. S., Instructor in Mechanical Engineering.

B. S., University of Washington, 1911; Instructor in Mechanical Engineering, 1911-.

HARLAN LEO TRUMBULL, PH. D., Instructor in Chemistry.

A. B., University of Washington, 1907; A. M., *ibid.*, 1908; Ph. D., University of Chicago, 1911; Fellow in Chemistry, University of Chicago, 1908-11; Instructor in Chemistry, University of Washington, 1911-.

WALTER CALVIN WAGNER, M. M. E., Instructor in Electrical Engineering.

B. S. (E. E.), University of Washington, 1907; M. M. E., Cornell University, 1911; Foreman, Dynamo Testing Department, Western Electric Co., Chicago, 1893-1900; Chief Electrician, Northwestern Improvement Co., 1901-02; Assistant Electrical Engineer, Stone & Webster Co. (Seattle), 1907-08; Electrical Engineer and Master Mechanic, Northwestern Improvement Co., 1908-10; Sibley Fellow, Cornell University, 1910-11; Instructor in Electrical Engineering, University of Washington, 1911-.

CHAUNCEY WERNECKE, B. S. (C. E.), Instructor in Civil Engineering.

B. S. (C. E.), University of Washington, 1910; Engineer on construction of Copper River & Northwestern Ry., 1910-11; Instructor in Civil Engineering, University of Washington, 1911-.

JOHN WHITMORE, PH. D., Instructor in Mathematics.

A.B., Yale University, 1886; Ph. D., 1892; Superintendent of Schools, Humboldt, Iowa, 1886-87; Instructor in Physics, University of Minnesota, 1887-89; Graduate Student and Sloane Fellow, Yale University, 1889-92; Instructor in Physics, Yale University, 1892-94; Teacher of Physics, Lynn Classical High School, 1894-98; Graduate Student, Yale University, 1898-1901; Teacher of Physics and Chemistry, Stamford (Conn.) High School, 1901-05; Graduate Student, University of Freiburg (Baden), One Semester, 1905; Professor of Physics, Howard University, 1905-06; Assistant Professor of Physics, Colby College, 1906-07; Acting Professor of Physics, Wells College, 1907-08; Instructor in Physics, Wooster University, 1908-11; Instructor in Mathematics, University of Washington, 1911.

HENRY SLATER WILCOX, A. M., Instructor in Psychology.

B.S., Trinity College (Hartford), 1908; A.M., Harvard University, 1911; H. E. Russell Traveling Fellow, Trinity College, 1908-10; Fellow by Courtesy and Student, Johns Hopkins University, 1908-09; Student, University of Leipzig, 1909-10; Student, University of Berlin, Summer Semester, 1910; Toucey Scholar, Harvard University, 1910-11; Instructor in Psychology, University of Washington, 1911.

CHARLES CHESTER PEARCE, A. B., Instructor in Public Speaking and Debate.

A.B., University of Wisconsin, 1909; Instructor in English (Public Speaking), University of Illinois, 1909-11; Instructor in Public Speaking and Debate, University of Washington, 1911.

HENRY MAURICE SHEFFER, PH. D., Instructor in Philosophy.

A.B., Harvard, 1905; A.M., 1907; Ph. D., 1908; Assistant in Philosophy, 1906-10; Frederick Sheldon Traveling Fellow in Philosophy, 1910-11; Instructor in Philosophy, University of Washington, 1911.

***WILLIAM JAMES MUSGROVE, PH. D.,** Instructor in Psychology.

A.B., University of California, 1905; A.M., Harvard University, 1906; Ph. D., 1911; Assistant in Philosophy, 1907-08 and Summer Sessions, 1908-10; Instructor in Psychology, University of Washington, 1911.

* Resigned, November, 1911.

LECTURERS

JAMES DELMAGE ROSS, Lecturer on Central Power 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.

SHERWOOD C. LINDSAY, Lecturer on Operating Electric Plants.
Load Supervisor for the Seattle Electric Company.

GEORGE BATES HARRINGTON, Lecturer on the Economics of Mining.

B. S., Princeton University, 1902; S. B., in Mining Engineering, Massachusetts Institute of Technology, 1904; practicing Mining Engineer, Mexico, 1904-07; Nevada, 1907-08; Seattle, 1908-; superintendent of coal mining department, Seattle Electric Co., 1909-.

DAVID C. BOTTING, Lecturer on Mine Regulations.
State Coal Mine Inspector of Washington, 1905-.

ASSISTANTS

KATHARINE BERRY JUDSON, A. M., Research Assistant in History.

A. B., Cornell University, 1904; A. M., University of Washington, 1911; Student, New York State Library School, 1904-05; Librarian, Public Library, Kalispell, Montana, 1905-06; Chief of Periodical Department, Seattle Public Library, 1906-11; Loretta Denny Fellow, University of Washington, 1910-11; Research Assistant in History, 1911-.

HELEN MARIE FITCH, A. B., 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, 1910-11; Assistant, 1911-.

FRED W. KENNEDY, Laboratory Assistant in Journalism.

ELMER SHEBRILL, Stock Room Keeper in Chemistry.

M. S. BEECHEM, Assistant in Shop Work.

HARRY J. SIEGEL, Assistant, State Food and Drug Analysis.

GRADUATE ASSISTANTS.

GRACE BOYD, A. B., (Hastings College), Graduate Assistant in Mathematics.

LILLIAN MADISON, A. B. (University of Washington), Graduate Assistant in Mathematics.

HARRY H. HILL, A. B. (University of Wyoming), Graduate Assistant in Chemistry.

SETH C. LANGDON, A. B. (Northwestern University), Graduate Assistant in Chemistry.

CHESTER E. GIBLIN, A. B. (University of Colorado), Graduate Assistant in Physics.

MALCOLM DOUGLAS, PH. B. (Ohio University), Graduate Assistant in History.

EARL L. PACKARD, A. B. (University of Washington), Graduate Assistant in Geology.

BROD L. GRONDAL, A. B. (Bethany College), Graduate Assistant in Forestry.

JOSEPHINE HOEPFNER, A. M. (Washington State College), Graduate Assistant in German.

OTTO PLATH, A. B. (Northwestern College), Graduate Assistant in German.

ADELAIDE FISCHER, A. B. (University of Washington), Graduate Assistant in German.

SEBASTIAN KARRER, A. B. (University of Washington), Graduate Assistant in Physics.

UNDERGRADUATE ASSISTANTS

COWLEY, BESS, Botany; DICKINSON, LILLIAN, Botany; ASHTON, FRED, Chemistry; CLEAVES, HAROLD, Chemistry; COLLIER, HELEN, Chemistry; GOLDSMITH, EDWARD, Chemistry (stockroom); HERRICK, JOHN S., Chemistry; JOHNSON, JOSEPHINE, Chemistry; VELDEE, MILTON, Chemistry (stockroom); SMITH, WARREN, Geology; McDONALD, JAMES M., Mining; WELCH, GEORGE, Mining (stockroom); SMITH, WARREN, Mining; HINDMAN, EDITH T., Pharmacy; CLARENCE, S. ARGO, Philosophy; LORING, MILDRED, Philosophy; SIFFRELL, JAMES E., Physical Training; ELLIOTT, BERTHAM R., Zoology; LAWRENCE, EDNA, Zoology; DRUM, DORA, Library; LACHAPPELLE, OLIVER, Library; PRICE, WILLIAM, Library; ROMNEY, WINIFRED, Library; HANNIBAL, HAROLD, Museum; CHALLICE, BERTHA, Museum.

MUSIC STAFF

IRVING MACKEY GLEN, M. A., Professor of Music and Musical Director.

Graduate, California State Normal School (San Jose), 1890; Graduate, California School of Education and Oratory, 1889; Graduate, Elwood School of Music, 1890; B. A., University of Oregon, 1894; M. A., 1897; Graduate Student, Johns Hopkins University, 1894-96; Professor of English and Latin, McMinnville College, 1897; Professor of Oratory, University of Oregon, 1897-99; Professor of English Language and Literature, 1899-1911; Dean of the School of Music, 1901-11; Professor of Music, University of Washington, 1911.

MRS. IRVING J. CROSS, Instructor in Piano.

Graduate, University of Michigan School of Music, 1896; Instructor in Piano, University of Michigan, 1896-1903; Instructor in Music, University of Washington, 1911.

MORITZ ROSEN, Teacher of Violin.

Graduate, Warsaw Conservatory, Russia.

ADA DEIGHTON HILLING, Teacher of Harmony.

Graduate of Trinity College of Music, London, 1883.

GRACE BLANCHE ZIMMERMAN, A. B., Teacher of Piano.

Graduate, Elgin College of Music, 1902; A. B., University of Washington, 1909.

KATHERINE D. HALL, Teacher of Vocal Music.

A. B., Drury College, 1898.

LUCY K. COLE, Teacher of Public School Music.

Supervisor of Music, City Schools, Seattle.

JAMES I. ST. JOHN, Student Leader of the Band.

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 McDONNELL, 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 Pittsburg, 1908-08; University of Washington Library, 1908.

MABEL MARIE HAWTHORNE, A. B., Assistant Cataloguer.

A. B., Western Reserve University, 1910; Graduate Western Reserve Library School, 1911; University of Washington Library, 1911.

MUSEUM

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-.

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, 1905-06; 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, 1908-09; 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, Benham and Gould.

APPOINTMENTS: Professors Sisson, Lull and major professors.

ASSEMBLY AND PUBLIC EXERCISES: Professors Richardson, Glen and Benson.

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

CATALOGUE: Mr. Stevens, Professors McCaustland, Morris and Milliman.

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: Professors McMahon and Gavett, Messrs. Bennett, Carpenter, 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

The foundation for the establishment of the University of Washington was laid in 1854 when Governor Isaac Ingalls Stevens, in his message to the first legislature, recommended that Congress be memorialized to appropriate land for a university. Two townships were subsequently granted, and in January, 1861, the legislature finally located the Territorial University at Seattle.

On February 22nd (Washington's Birthday) the Reverend Daniel Bagley, John Webster, and Edmund Carr, composing the board of University Commissioners, met and organized for work. Ten acres of land were donated by Hon. Arthur A. Denny, Charles C. Terry and Edward Lander from their adjoining farms, and on May 21, 1861, the cornerstone of the main building was laid and the building completed in specified time.

On November 4th following, the University was opened for students.

ENVIRONS

The University is surrounded by many things of educational value to the students. Seattle affords the advantages of a metropolis. Its excellent library, its parks, public schools, and churches have a wholesome influence upon university life.

The state legislature in 1895 enacted a 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 by and with the advice and consent of the senate. Each regent is appointed for a term of six years.

ENDOWMENTS AND SUPPORT

The University derives its support entirely from the state. 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:

(1) The two townships of land granted by Congress in 1854. There remains of this old grant some three thousand acres.

(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.

(3) In addition to the above the University was further endowed by the state on March 14, 1893, by the segregation of 100,000 acres of lands.

BEQUESTS

In the legislative session of 1897 in the Code of Public Instruction is 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."

STUDENT EXPENSES

TUITION

The tuition is free to all students of the State of Washington in all colleges and schools of the University, except in the School of Law and in the Summer Session. In the School of Law the tuition is \$20.00 a semester, or \$40.00 for the year. In the Summer Session the tuition is \$10.00, as the Summer Session is conducted, to a large extent, independently of state support.

ASSOCIATED STUDENTS FEE

The Associated Students Fee of five dollars is paid by every student on entering the University. See page 36.

LABORATORY DEPOSITS

A laboratory deposit is charged in all laboratories, calculated in amount to cover the cost of the materials used and the expenses of the work incurred by the individual students. Hence the amount of the deposit varies in the different laboratories, varying from \$1.00 to \$15.00 a semester as shown in the announcement for the several departments.

BOARD AND ROOM

(a) In the University Dormitory the room rent (\$12.00 a semester) is payable in advance and no rooms will be reserved unless paid for. Board bills are payable monthly as the bills are rendered. The rooms are furnished with necessary articles of plain furniture, but the student is expected to supply his own bed linen, bedding, mattress, towels, floor rug, and any articles of luxury that may be desired.

A deposit of fifteen dollars, which is returned at the end of the year, must be made with the bursar in advance by all students desiring to live in the dormitory.

(b) Outside the dormitory, in the past, the expense of board

and lodging with private families has ranged from twenty-three to thirty dollars per month.

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.

CADET UNIFORM

The uniform with which the members of the cadet corps are required to provide themselves costs about fourteen 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.

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 have been enabled to do so by securing occupation of various sorts. 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 men who have to make their own expenses. The Dean of Women renders a similar service for women. 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.

DEAN OF WOMEN

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

SCHOLARSHIPS

THE JOHN WALTER ACKERSON SCHOLARSHIP

In memory of the late John Walter Ackerson, a pioneer of Washington, Mrs. S. Louise Ackerson offers a scholarship of one hundred dollars annually to the young woman member of the junior class who may be adjudged most worthy on the basis of scholarship, personal influence and self reliance.

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 on the basis of scholarship in the courses taken in the department, of scholarship in other departments, and of personality.

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 of twenty-four dollars annually is "for the best essay discussing the principles of free government."

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 L. J. CORKERY PRIZE

Mr. L. J. Corkery, of Toledo, Ohio, supplements 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 ALDEN J. BLETHEN PRIZES

Hon. Alden J. Blethen offers annually the sum of one hundred dollars for prizes in declamation. The contests are held at the University each year. They are open to pupils in attendance at any accredited high school 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

Judge Thomas Burke, of Seattle, offers a scholarship of sixty dollars annually to the student in the department of Latin who does the best work in the sophomore year.

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.

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 LORETTA DENNY FELLOWSHIPS

By the will of Sarah Loretta Denny the sum of \$25,000 was bequeathed to this University for the establishment of University fellowships. The income from this fund is at present \$1,250.00, and affords three graduate fellowships of equal amount, which will be awarded by May 1st of each year by the graduate faculty.

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.

E. P. STRANDBERG SCHOLARSHIP

The Society for Preservation of Swedish Language and Culture in America offers annually a scholarship of \$25.00, known as the E. P. Strandberg Scholarship, to be awarded to the student earning the highest credits in the Swedish language and literature.

THE NORWEGIAN NATIONAL LEAGUE SCHOLARSHIP

The Norwegian National League offers a scholarship of \$25.00 to be awarded to the student earning the highest credits in Norwegian language and literature.

THE DANISH-AMERICAN SCHOLARSHIP

The Danish Vice-Consul offers a scholarship of \$25.00, known as The Danish-American Scholarship, to any student of the Scandinavian department who writes the best article in the English language on Danish and Icelandic history.

THE WASHINGTON BANKERS ASSOCIATION PRIZE

The Washington Banker's Association awards 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 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 January 1, 1911.

BAILEY AND BABETTE GATZERT FOUNDATION

A thirty thousand dollar foundation, known as The Bailey and Babette Gatzert Foundation of Child Welfare of the University of Washington, has been established by Sigmund Schwabacher and the executors of the will of the late Abraham Schwabacher. The object of the foundation is to furnish relief for defective children. The foundation represents philanthropic work of the most advanced type.

ASSOCIATIONS AND CLUBS

ALUMNI ASSOCIATION

The officers of the Alumni Association for 1911-1912 are as follows: President, Dr. Don H. Palmer; secretary, Mr. Loren D. Grinstead; treasurer, Mr. James E. Gould.

THE ASSOCIATED STUDENTS

The Associated Students of the University of Washington (incorporated) is an organization of the entire student body. The powers of government are vested by its constitution in an annually elected board of control, upon which three members of the faculty and three alumni also have seats. The board appoints a general manager, who has the financial control of all branches of athletics, musical organizations, and of contests in debate and oratory. The associated student fee of \$5.00 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, the discounts in the co-operative book store, 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.

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.

DEBATING CLUBS

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

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.

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.

THE FOREST CLUB

The Forest Club has for its object the bringing of the students in the School of Forestry into closer relationship, and to render mutual assistance along professional lines.

FRENCH CLUB

Membership in the French Club is open to both students and instructors. Students who have studied French at least two years are invited to attend the meetings.

MATHEMATICAL CLUB

The Junior Mathematical Club is open to every student of the University who is sufficiently interested in mathematics to contribute something toward a program at least once during the year.

The Mathematics Journal and Research Club consists of teachers and advanced students in the department of mathematics.

MUSICAL ORGANIZATIONS

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

The Mozart Club exists for the purpose of furthering the musical interests of the University, of promoting a closer relationship among the members of the musical organizations.

PHILOLOGICAL ASSOCIATION

The Philological Association was organized to encourage scientific investigation in language and literature. Membership is

open to all members of the University who are interested in philology.

POLITICAL SCIENCE CLUB

This club is composed of students and members of the faculty interested in political science.

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 has for its purpose the preserving of the historical documents and records of the Northwest, and of the State of Washington, and to preserve or publish the results of all such investigations.

EQUIPMENT

GROUNDS

The grounds are ample to meet every need of the University. There are three hundred and fifty-five acres, all within the city limits of Seattle, lying between Lakes Union and Washington, with a shore line of over one mile on Lake Washington and about a quarter of a mile on Lake Union.

BUILDINGS

The following is a list of the buildings now in use on the University campus: Administration Building, Auditorium, Astronomical Observatory, Bagley Hall, Denny Hall, Two Dormitories (Lewis Hall for men and Clarke Hall for women), Education Building, Engineering Building, Forestry Building, Forge and Foundry Building, Good Roads Building, Gymnasium, Hydraulic Laboratory, Law Building, Library Building, Mining Building, Museum, Music Building, Power Plant, Science Hall, Mines Rescue Training Station, Armory for the Cadet Battalion, Executive residence, Faculty Club House, Student Men's Club, Women League Building, Engineer's residence, and Electrician's residence.

LIBRARY

There are now 47,793 bound volumes in the library. The library is a designated depository and possesses almost a complete set of United States government publications. The library receives regularly 394 periodicals, including standard magazines and leading technical journals, both American and foreign.

MUSEUM

The several collections composing the University Museum, which is also a state museum, contain numerous materials of general museum interest and much material illustrative of the instruction in anthropology, biology, geology and forestry.

Valuable collections have been given or loaned to the museum; among these are the group of mountain sheep, the gift of Hon. Wm. E. Humphrey; the collection of over 100 mounted fishes, the gift or loans of Mr. Edwin C. Starks; bird collections received from Prof. O. B. Johnson, Mr. L. M. Turner, Mr. H. H. Hindshaw, Dr. Clinton T. Cook and Mr. George G. Cantwell; the large collection of molluscs, the gift of Mr. P. B. Randolph; the collection of shells and crustacea, the property of Prof. O. B. Johnson; and the rare collection of insects secured by Prof. Trevor Kincaid while in Japan and Russia. Many valuable government collections, most of which are subject to withdrawal, are on exhibition, as is also the famous collection made in Alaska by Lieutenant George T. Emmons, a valuable collection on which the University has been allowed an option.

LABORATORIES

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 large laboratories of about 1,200 square feet each; three small laboratories, 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. On the fourth floor is the herbarium.

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

CHEMISTRY LABORATORIES

The chemistry laboratories are housed in a thoroughly modern fireproof building designed after the most approved models, combining the good features of the best chemistry buildings in the country. There are fully equipped separate laboratories devoted to general chemistry, analytical chemistry, food inspection and analysis, organic chemistry, physiological chemistry, industrial chemistry, and pharmaceutical chemistry. All laboratories are equipped with hoods with forced drafts, water, gas, distilled water, air under pressure, and where most needed, with hydrogen sulphide and steam. The industrial or chemical engineering laboratories are equipped with the fundamental types of apparatus

used in manufacturing processes, such as filter press, hydraulic press, stills, grinding apparatus, heating furnaces, and vacuo drying oven.

CIVIL ENGINEERING LABORATORIES

HYDRAULIC. The high pressure equipment consists of small impulse wheels, 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. Larger weirs are placed in streams near the campus, making it possible for regular work to be conducted under ordinary field conditions. Current meters and other auxiliary apparatus are available for both field and laboratory work.

STRUCTURAL MATERIALS. The structural materials testing laboratory contains five universal testing machines with capacities from thirty thousand to two hundred thousand pounds, two impact machines with various hammers ranging in weight from fifty to fifteen hundred pounds, with the necessary auxiliary apparatus for general work.

CEMENT. The equipment for testing hydraulic cement is complete for all the ordinary tests as specified by the American Society of Civil Engineers.

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 U. S. Office of Public Roads.

SURVEYING. The equipment consists of an ample supply of all the necessary instruments for plane and topographic surveying.

ELECTRICAL ENGINEERING LABORATORIES

The dynamo laboratory contains fifteen alternating and thirty direct current generators and motors. The machines are of modern design and have a combined capacity of two hundred and ninety kilowatts in direct current machines and two hundred and ten kilowatts in alternating current machines. Most of the machines are of five and ten-kilowatt capacity. Power from a storage battery of one hundred and thirty cells is available at a separate switchboard in the dynamo laboratory. The University power-house, containing two steam driven units of two hundred and one hundred kilowatts, serves as a commercial laboratory for operating and testing purposes.

Nine smaller rooms are devoted to the following: (a) Instrument making and repairing, (b) grinding room and shop, (c) instrument and stock room, (d) telephone laboratory, (e) electrolysis and special thesis problems, (f) storage battery room, (g) three dark rooms for photometry work. The instrument room contains a large collection of standard indicating and recording meters. The photometry rooms are equipped with Matthews integrating and bench photometers.

FORESTRY LABORATORIES

DENDROLOGY. Individual lockers, compound microscopes, gas and water. An herbarium of fruits, twigs and trunk sections of trees is well under way. **LUMBERING.** Field work at logging camps and sawmills. A complete equipment for exercises in logging engineering; for demonstration, collections of lumber, showing grades, defects, planing mill products, saws, axes, cables and other apparatus used in logging and milling. There are mills and camps about Seattle. **MENSURATION.** Equipment selected to show all principal types of instruments in use. Those particularly adapted to the northwest provided in quantities sufficient for all practice work by students in cruising, and volume, growth and yield studies. **SILVICULTURE.** Greenhouse space and a forest tree nursery are provided on the campus. The forests about Seattle offer wide opportunities for other practical studies and demonstrations. **TIMBER PHYSICS.** The magnificently equipped Government Timber Testing Laboratory, operated in co-operation with the University, is used. **WOOD TECHNOLOGY.** Same room as Dendrology Laboratory. Individual lockers, gas, water, Leitz compound microscopes, and a complete equipment for micro-technique and for studies of the various technical qualities of woods. Extensive collections of domestic and foreign commercial timbers and microscopic preparations. **WOOD PRESERVATION AND UTILIZATION.** A modern open tank preservation plant. Three large commercial treating plants and many plants utilizing secondary forest products are available for study in Seattle. **LECTURE ROOMS.** Supplied with Leitz lantern for episcopic, diascopic, and microscopic projection.

GEOLOGY LABORATORIES

The geology laboratories, four in number, are in Science hall, two on the first floor, and two occupying the well-lighted basement rooms at the southwest end of the building, consisting of a laboratory for general geology, physiography and climatology, supplied with a seismograph for assistance in the study of earthquake phenomena. It is the Bosch-Omori type, very sensitive, recording distant earthquakes of small intensity. 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.

The mineralogy laboratory has been especially designed, and is supplied with eight tables made with tile tops and provided with gas fixtures. A laboratory for map modeling and erosion work is provided in connection with the courses in physiography and general geology. A room is fitted with lathes, diamond saw, and grinding plates run by electric motor for preparation of rock slides for petrographic study.

MECHANICAL ENGINEERING LABORATORIES

The steam and experimental laboratory is fully equipped with steam apparatus, including engines aggregating 900 H. P., of simple and compound, high speed and Corliss types; steam turbine; jet and surface condensers; injector; centrifugal pump; steam calorimeters; indicators; calibrating appliances; gas engine; compressed air machinery for two stage compression and Westinghouse full train equipment; fuel testing facilities, including Mahler Bomb, Junkers and other calorimeters, with accessories for determining heating value and analyses of solid liquid and gaseous fuels.

There is a thoroughly modern woodworking shop, machine shop, foundry and forge shop. The woodshop is equipped with benches, lathes, band saws, circular saws, planer, and trimmer. The Forge and Foundry are equipped with down-draft forges, power hammer, punch and shears, cupola, moulding machines, shakers, rattler, riddles, brass furnace, core oven, and traveling crane. Machine shop is equipped with small and large lathes, drill press, milling machine, planer, shaper, metal saw, grinding machine and complete equipment for bench and vise work.

MINES AND METALLURGY LABORATORIES

The Mines building contains the stamp milling, concentrating and coal washing plant, the mining laboratory, and the metallurgy laboratory. The United States Mine Rescue Training Station occupies a separate building nearby. The "smokeroom," fitted with track and car, overcast airway, doghole, and smudge floors, is the largest of its kind in the country. Several sets of the Draeger oxygen apparatus and pulmoter are kept on hand for practice as well as for use in mine rescue work.

PHARMACY AND MATERIA MEDICA LABORATORIES

The rooms devoted to pharmacy and materia medica are located in Bagley Hall. A room accommodating thirty-two students working at one time is used for manufacturing pharmacy. Work in prescription practice receives special attention in a room constructed as 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.

PHYSICS

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

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

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 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 equipment of the laboratory includes: Five Koenig forks; an Edelmanns Galton whistle sonometer; two organ pipes; bellows and rubber windbag for actuating pipes; Ellis harmonical, and other minor instruments for acoustical work; colored papers, Herings 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.

ZOOLOGY LABORATORIES

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

OBSERVATORY

The observatory is housed in a substantial sandstone structure which provides space for the equatorial instruments, the transit, and for computing purposes. The instruments include a six-inch refracting telescope and accessories; a Bamberg transit, Riefle clock, Bond chronometer, a barometer, sextants, etc. The minor equipment is sufficient for performing the usual experiments in laboratory and lecture work in astronomy.

ADMISSION AND GRADUATION

ADMISSION TO THE FRESHMAN CLASS

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

Applicants for admission to the freshman class 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 all applicants; from two to four more are prescribed for entrance to each college or group; the rest are elective from the list of optional subjects. Applicants for admission to the first year law class must, in addition to the above, present one year's work in the College of Arts and Sciences, or its equivalent. (Beginning September, 1913, two years of work in Arts and Sciences will be required for admission to Law.)

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.

NOTE.—For further requirements for admission to the Department of Music, see Bulletin of the College of Arts and Sciences, page 102.

(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. A foreign language, 2 units.

(e) School of Law. Same requirements as specified for any college and the completion of 34 hours in the College of Arts and Sciences. (After 1912-13, two years in Arts and Sciences will be required.)

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

OPTIONAL SUBJECTS.

Agriculture, 1 or $\frac{1}{2}$ unit.‡

Astronomy, $\frac{1}{2}$ unit.

*Bookkeeping, $\frac{1}{2}$ unit.‡

Botany, $\frac{1}{2}$ or 1 unit.

Chemistry, 1 unit.

Civics, $\frac{1}{2}$ unit.

*Commercial Arithmetic, $\frac{1}{2}$ unit.‡

*Commercial Law, $\frac{1}{2}$ unit.‡

Drawing, $\frac{1}{2}$ or 1 unit.

Economics, $\frac{1}{2}$ unit.

*Economic Geography, $\frac{1}{2}$ unit.‡

French, 1, 2 or 3 units.

†Geology, $\frac{1}{2}$ or 1 unit.

German, 1, 2, 3 or 4 units.

Greek, 1, 2, 3 or 4 units.

History, 1, 2 or 3 units.

*Home Economics, 1 or 2 units.‡

Latin, 2, 3 or 4 units.

†Physical Geography, $\frac{1}{2}$ or 1 unit.

†Physiology, $\frac{1}{2}$ or 1 unit.

*Shop Work, 1 or 2 units.

Solid Geometry, $\frac{1}{2}$ unit.

Spanish, 1 or 2 units.

Trigonometry, $\frac{1}{2}$ unit.

Zoology, $\frac{1}{2}$ or 1 unit.

*The aggregate amount presented in the following subjects, *viz.*: Bookkeeping, Commercial Arithmetic, Commercial Law, Drawing, 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.—A graduate of an accredited school may be admitted to the freshman class conditioned in 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. In satisfying entrance requirements by college courses, eight college credits are counted as the equivalent of one entrance unit.

CREDENTIALS

Credentials showing that the applicant has satisfactorily fulfilled the requirements for admission and is recommended by the principal of his school must be presented before the applicant can register. High school diplomas cannot be used for this purpose. Every prospective student is requested to procure from the Recorder a blank certificate of recommendation, have it filled out and signed by his principal, and return it to the Recorder as early in the summer as possible.

Students expecting to enter the University in September, 1912, should see that their credentials are filed in the Recorder's office not later than August 20th.

ENTRANCE EXAMINATIONS

Examinations for entrance are held at the University on Friday and Saturday preceding the opening of each semester. Persons desiring to take these examinations at other times or places should correspond with the Recorder regarding the matter.

REGISTRATION

Both old and new students will be registered on the first and second days of the first semester, Monday and Tuesday, September 16 and 17, 1912.

Re-registration for the second semester will take place during the month of January.

Registration, for entering students only, will occur on the first day of the second semester, Monday, February 3, 1913.

A penalty of \$1.00 is imposed for registration, or change of election, after the regular registration days.

ADMISSION FROM ACCREDITED SCHOOLS

Graduates of accredited high schools are admitted without examination upon the recommendation of the principal and the presentation 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

I. PUBLIC HIGH SCHOOLS

Aberdeen, Anacortes, Arlington, Asotin, Auburn, Bellingham (North), Bellingham (South), Blaine, Bremerton-Charlestown, Bothell, Buckley, Burlington Union, Burton Union, Camas, Castle Rock, Centralia, Chehalis, Cheney, Clarkston, Colfax, Colville,

Couppville, Davenport, Dayton, Edmonds, Ellensburg, Elma, Endicott, Enumclaw, Everett, Garfield, Goldendale, Grandview, Granite Falls, Harrington, Hillyard, Hoquiam, Kelso, Kennewick, Kent, Kirkland, La Conner, Latah, Lind, Lynden, Marysville, Monroe, Montesano, Mt. Vernon, Newport, North Yakima, Odessa, Olympia, Outlook, Palouse, Pasco (provisionally accredited), Pomeroy, Port Angeles, Port Townsend, Prosser, Pullman, Puyallup, Richland, Ritzville, Rosalia, Roslyn, Seattle—Broadway, Lincoln, Ballard, Queen Anne; Sedro Woolley, Shelton, Snohomish, South Bend, Spokane, Sprague, Sumas, Sumner, Sunnyside, Tacoma, Toppenish (provisionally accredited), Tekoa, Vancouver, Watsburg, Walla Walla, Waterville, Wenatchee, Wilbur, Winlock.

II. OTHER SECONDARY SCHOOLS

Adelphia College, Seattle (Academic Department); Brunot Hall, Spokane; Holy Names Academy, Seattle; Seattle Seminary, Seattle; University of Puget Sound (Preparatory Department), Tacoma.

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 receive 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 AS SPECIAL STUDENTS

All courses offered by the University are organized for regular students, that is, students who have had the equivalent of a good high school education and have fully met the entrance requirements. *Special students* are admitted to such courses as they may be found capable of undertaking. The following are the

regulations governing the admission and handling of special students in the various schools of the University:

1. In all colleges and schools of the University, except the College of Pharmacy, special students must be at least twenty-one years of age. Special students in the College of Pharmacy must be at least twenty years of age.

2. Special students must present (in credits or by examination) full preparation for the particular courses they wish to pursue.

3. Applicants for special standing shall submit in writing a detailed statement of previous educational work and practical experience, together with an outline of the proposed work in the University and the reasons for wishing the special course. This shall be accompanied by an outline of any educational or other work which the candidate proposes to carry on outside of the University. Said outside work shall not consume more than one-fourth of the student's scholastic hours.

4. 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.

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.

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.

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.

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.

REGULATIONS FOR WITHDRAWAL

1. Before October 15 or March 1 of the respective semester, a student may withdraw from a given class with the written consent of his class adviser.

2. Before November 15 or April 1 of the respective semester,

a student may withdraw from a given class with the written consent of his class adviser and instructor.

3. After November 15 or April 1 of the respective semester, a student may withdraw from a given class with the written consent of his class adviser and instructor; provided, however, that if his work has not been satisfactory to the instructor, the instructor must give the student an "E" on the semester grade. It is further provided, that if any withdrawal will reduce the student's hours below twelve, such withdrawal cannot be made till the Dean gives his written approval.

4. Any student who registers for a given course must ultimately complete that course, or if that be impossible, must complete the same number of hours in some other approved subject, in addition to the total number of hours otherwise required for graduation. (Students who may be properly withdrawn with the consent of the class adviser alone shall not be affected by this rule, but it shall not exempt any student from the necessity of completing his required courses.)

SCHOLARSHIP STANDING

(a) Any student who, in any semester, is reported as doing unsatisfactory work in more than one-half of his registered hours will be dropped from the University for the remainder of that semester and for the following semester.

(b) Any student who, in any semester, is reported as doing unsatisfactory work in more than one-quarter of his registered hours will be placed on probation for the remainder of that semester and for the following semester. During the full probationary period the student must pass in twelve hours; or in all his hours, if he is registered for less than twelve.

Monthly reports are made to the Recorder, by all instructors, of students whose work for the preceding four weeks has been unsatisfactory.

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.

In the College of Arts and Sciences, the examinations held at the end of the first semester are merely qualifying (except for students of other colleges or schools of the University, who are taking courses in the College of Arts and Sciences); i. e., students failing to pass them are not allowed to take the year examinations, which are given in June and cover the work of both semesters.

The following provision will go into effect in 1912-13: "In addition to the regular year examinations in other subjects, senior students in the College of Arts and Sciences shall take examinations in all the work of their major subject and in all the subjects in their group which they have taken in their junior and senior years.

DEGREES

The courses leading to baccalaureate degrees in the College of Arts and Sciences, 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.) and bachelor of science (B. S.); in the College of Engineering, bachelor of science (B. S.); in the College of Mines, bachelor of science (B. S.); in the College of Forestry, bachelor of science in forestry (B. 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.).

GRADUATE DEGREES

Courses adapted to the needs of students who wish to earn the M. A. degree are offered in nearly all departments of the College of Arts and Sciences. In one department, Chemistry, courses are offered leading to the Ph. D. degree. Courses leading to the degree of M. S. are offered in the College of Engineering, the College of Mines and the College of Forestry. For further information concerning the requirements for graduate degrees, see the special bulletin of the college or school in which the courses are offered.

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 NORMAL 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 with the department from time to time as to their work for the diploma and their 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 twelve hours in the Department of Education, including either course 1 or course 2 (History or Principles, 4 hours each) and eight hours selected from the following courses: 1, 3, 4, 6, 7, 8. The department reserves the right to adjust these requirements to the needs of individual cases.

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.

SYSTEM OF GRADES

1. The following is the system of grades*:

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

(An incomplete is given only for excusable delinquencies.)

2. Candidates for the bachelor's degrees in the College of Arts and Sciences must receive grades of A, B, or C in three-fourths of the credits required for their respective degrees. This rule becomes operative in June, 1913, and does not apply to grades given before the year 1910-11.

*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.

SUMMARY OF ENROLLMENT

BY COLLEGES AND SCHOOLS

Graduate School	80
College of Arts and Sciences.....	1,403
College of Engineering.....	366
Chemical Engineering	35
Civil Engineering	151
Electrical Engineering	115
Mechanical Engineering	65
College of Forestry.....	71
School of Law.....	214
College of Mines.....	68
College of Pharmacy.....	82
Foresters' Short Course (three-months' course).....	37
Miners' Short Course (three-months' course).....	20
Total.....	2,341

BY CLASSES

Graduate Students	80
Seniors and Third Year Law.....	211
Juniors and Second Year Law.....	254
Sophomores and First Year Law.....	549
Freshmen	739
Special, Arts and Sciences.....	106
Special, Engineering	34
Special, Forestry	7
Special, Law	66
Special, Mining	5
Special, Pharmacy	28
Foresters' Short Course.....	37
Miners' Short Course.....	20
Extension, Arts and Sciences.....	205
	2,341
Summer Session of 1911.....	373
	2,714
Deduct Summer Students now attending University.....	82
Total.....	2,632

COLLEGE OF ARTS AND SCIENCES

THE FACULTY

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

ARTHUR SEWALL 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 PADELFORD, 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.

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

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

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

DAVID NYVALL, A. B., Gaelic College, Professor of Scandinavian Languages.

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

IRVING M. GLEN, A. M., Oregon, Professor of Music.

HERBERT GALEN LULL, A. M., Washington, Associate Professor of Education.

- HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.
- JAMES EDWARD GOULD, A. M., Harvard, Associate Professor of Mathematics.
- JOHN WEINZIRL, Ph. D., Wisconsin, Associate Professor of Bacteriology.
- HERMAN CAMPBELL STEVENS, Ph. D., Cornell, Associate Professor of Psychology.
- THOMAS K. SIDEY, Ph. D., Chicago, Assistant Professor of Latin and Greek.
- ALLEN ROGERS BENHAM, Ph. D., Yale, Assistant Professor of English.
- 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 English.
- WILLIAM MAURICE DEHN, Ph. D., Illinois, Assistant Professor of Physiological Chemistry and Toxicology.
- OTTO PATZER, Ph. D., Wisconsin, Assistant Professor of French.
- VERNON LOUIS PARRINGTON, A. B., Harvard, Assistant Professor of English.
- 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.
- JOSEPH KINMONT HART, Ph. D., Chicago, Assistant Professor of Education.
- OTILIE G. BOETZKES, A. M., Washington, Assistant Professor of German.
- GEORGE IRVING GAVETT, B. S., Michigan, Assistant Professor of Mathematics.
- HANS JACOB HOFF, Ph. D., Illinois, Assistant Professor of German.
- ROBERT EVSTAFIEFF ROSE, Ph. D., Leipzig, Assistant Professor of Chemistry.
- ROBERT MAX GARRETT, Ph. D., Munich, Assistant Professor of English.
- JULIUS C. HERBSMAN, LL. B., Illinois, Assistant Professor in charge of Department of Public Speaking and Debate.
- EDWARD GODFREY COX, Ph. D., Cornell, Assistant Professor of English.
- EDGAR SIMPSON SHERIDAN, A. B., De Pauw, Assistant Professor in charge of the Department of Journalism.

- STEVENSON SMITH, Ph. D., Pennsylvania, Assistant Professor of Orthogenics.
- E. VICTOR SMITH, Ph. D., Northwestern, Assistant Professor of Zoology.
- GEORGE WALLACE UMPHREY, Ph. D., Harvard, Assistant Professor of Spanish.
- CLARENCE L. CLARKE, A. B., Alfred, Acting Assistant Professor of Education.
- HENRY LOUIS BRAKEL, A. M., Washington, Instructor in Physics.
- CHARLES MUNRO 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.
- JOEL MARCUS JOHANSON, A. B., Washington, Instructor in English.
- WILLIAM VERNON LOVITT, Ph. M., Chicago, Instructor in Mathematics.
- CHARLES EDWIN WEAVER, Ph. D., California, Instructor in Geology.
- PAUL EMIL WEITHAASE, A. M., Bucknell, Instructor in German.
- WALTER B. WHITTLESEY, A. M., Washington, Instructor in French.
- ALLEN FULLER CARPENTER, A. M., Nebraska, Instructor in Mathematics.
- LARS OLAI GRONDAHL, Ph. D., Johns Hopkins, Instructor in Physics.
- SARAH MATILDA HUMMEL A. B., Illinois, Instructor in charge of the Department of Home Economics.
- JESSIE BEE MERRICK, B. S., Columbia, Instructor in Physical Training for Women.
- RAYMOND BURNETTE PEASE, A. M., Harvard, Instructor in English.
- GEORGE BURTON RIGG, A. B., Washington, Instructor in Botany.
- H. BURTIS BENNETT, A. B., Cornell College, Instructor in Economics.
- HORACE H. LESTER, A. B., Minnesota, Instructor in Physics.
- THERESA S. McMAHON, Ph. D., Wisconsin, Instructor in Political and Social Science.
- AGNES FAY MORGAN, S. M., Chicago, Instructor in Chemistry.
- NEWELL WHEELER SAWYER, A. M., Pennsylvania, Instructor in English.
- ELLA LOUISE BABCOCK, B. S., Columbia, Instructor in Domestic Art.
- ANNIE DALE BIDDLE, Ph. D., California, Instructor in Mathematics.
- VICTOR LOVITT OAKES CHITTICK, A. M., Harvard, Instructor in English.
- ERNEST OTTO ECKELMAN, Ph. D., Heidelberg, Instructor in German.
- CHARLES LEWIS HELMLINGE, B. Ph., German Wallace College, Instructor in French.

- JOHN WILLIAM HOTSON, A. M., McMaster, Instructor in Botany.
RALPH HASWELL LUTZ, Ph. D., Heidelberg, Instructor in History.
LEWIS IRVING NEIKIRK, Ph. D., Pennsylvania, Instructor in Mathematics.
HJALMAR LAURITS OSTERUD, A. M., Washington, Instructor in Zoology.
ALFRED ERNEST RICHARDS, Ph. D., Munich, Instructor in English.
EVAN TAYLOR SAGE, Ph. D., Chicago, Instructor in Latin and Greek.
ATTILIO FILIPPO SBEDICO, Ph. D., Pennsylvania, Instructor in French and Italian.
ABRAM WALTER SMITH, B. S., Pennsylvania, Instructor in Journalism.
HARLAN LEO TRUMBULL, Ph. D., Chicago, Instructor in Chemistry.
JOHN WHITMORE, Ph. D., Yale, Instructor in Mathematics.
HENRY SLATER WILCOX, A. M., Harvard, Instructor in Psychology.
CHARLES CHESTER PEARCE, A. B., Wisconsin, Instructor in Public Speaking and Debate.
HENRY MORRIS SHEFFER, Ph. D., Harvard, Instructor in Philosophy.
MRS. IRVING J. CROSS, Instructor in Piano.
FRANK B. COOPER, A. B., Lecturer on Education.
KATHERINE BERRY JUDSON, A. M., Washington, Research Assistant in History.
HELEN MARIE FITCH, A. B., Wisconsin, Assistant in Physical Training.
THOMAS S. BELL, Lecturer on International Law.

GRADUATE ASSISTANTS

- GRACE BOYD, A. B., Hastings College, Mathematics.
LILLIAN MADISON, A. B., Washington, Mathematics.
HARRY H. HILL, A. B., Wyoming, Chemistry.
SETH C. LANGDON, A. B., Northwestern, Chemistry.
C. E. GIBLIN, A. B., Colorado, Physics.
MALCOLM DOUGLAS, A. B., Ohio, History.
EARL L. PACKARD, A. B., Washington, Geology.
JOSEPHINE HOEPPNER, A. M., Washington State College, German.
OTTO PLATH, A. B., Northwestern College, German.
ADELAIDE FISCHER, A. B., Washington, German.
MEKKIN SVEINSON, A. B., Washington, French.

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, (see General Information, page 44, Note 1), 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. (See General Information, page 44.)

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 groups of the College of Arts and Sciences:

GROUP 1.		GROUP 2.		GROUP 3.
SUB-GROUP 1. CLASSICAL.	SUB-GROUP 2. MODERN LAN- GUAGE— LITERATURE.	MATHEMATICS AND SCIENCE.		PHILOSOPHICAL.
†Foreign lan- guage, 4 units, at least 2 units being Latin.	Foreign lan- guage, 4 units.	A foreign lan- guage, 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.

†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.

III. Admission to special courses and departments: (a) Journalism: Same as for any of the above groups. (b) Home Economics: See department of Home Economics, page 89. (c) Music: See department of Music, page 102.

NOTE 1.—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.

NOTE 2.—A student who is clear for admission to any group in the College of Arts and Sciences is clear for admission to every group, but such a student must ultimately take in the group in which he graduates all the subjects prescribed for admission to that group.

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.	English	Astronomy	Botany	History, Political Science.	Philosophy Education.
Latin Language and Literature.	French	Physics	Zoology.		
	German	Chemistry	Geology		
	Italian	Mathematics.			
	Public Speaking and Debate				
	Spanish				
	Scandinavian.				

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. page 57.
2. He must complete the number of credits specified in each of the following subjects:

a. Ancient Language and Literature.....	18 credits	✓
b. Modern foreign Language.....	18 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	✓
k. Hygiene	1 credit	✓
l. Library and Curriculum Instruction.....	1 credit	✓

NOTE.—Freshmen are required to take one hour a week each semester in hygiene. One credit for the year's work.

Freshmen are required also to take one hour a week the first semester in instruction in the use of the library and the use of

*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.

books; one hour a week the second semester in instruction on the choice of studies and the choice of a vocation. One credit for the year's work.

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.

NOTES: 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.

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.

†If taken later than the time indicated here these subjects will count but half credit.

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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	Foreign Lang. . . 8
Latin 8	History 8	Astron., Chem., or Physics† 8	Bot., Geol., or Zoology 8	History 8
Mathematics 4	Mathematics 4	Mathematics 4	Mathematics 4	Mathematics 4
Hygiene 2	Hygiene 2	Hygiene 2	Hygiene 2	Hygiene 2
Library and Curriculum . . 2	Library and Curriculum . . 2	Library and Curriculum . . 2	Library and Curriculum . . 2	Library and Curriculum . . 2
Phys. Training . . 4	Phys. Training . . 4	Phys. Training . . 4	Phys. Training . . 4	Phys. Training . . 4
<i>Sophomore</i>	<i>Sophomore</i>	<i>Sophomore</i>	<i>Sophomore</i>	<i>Sophomore</i>
Latin 8	Anc. Language . . . 8	For. Language . . . 8	Mod. For. Lang. . . 8	For. Language . . . 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	Astron., Chem. or Physics 8	Science 8
Phys. Training . . 4	Phys. Training . . 4	Phys. Training . . 4	Phys. Training . . 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 Sociology 8	Anc. Lang. or Lit. 8	Science 8
Philosophy 8	Science 8	Elective 8	Philosophy 8	Electives 16
Biol. Science . . . 8	Elective 8	Elective 8	Science 8	
<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	Pol. Econ. 8	Electives 16
Electives 16		Electives 16	Electives 16	

†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, 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 Arts and Sciences, credits for the corresponding course }
 { in the College of Engineering shall cease to apply. }

COLLEGE 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 bachelor of arts 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 bachelor of arts degree.

SCHOOL OF LAW

Agency, 2 credits
 Constitutional law, 4 credits
 Contracts, 6 credits
 General business law, 2 credits
 Equity, 2 credits
 Persons, 2 credits
 Property, 4 credits

From the above subjects a total of twelve credits may be counted toward the bachelor of arts degree by a student majoring in the Philosophical Group; a total of six credits may be so counted by a student majoring in any other group.

CURRICULUM PREPARATORY TO MEDICINE

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.

SIX-YEAR ARTS AND LAW CURRICULUM

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 Science work. At the end of three years after the student has earned 98 credits, including 8 credits in military drill or physical training and including all of the required work, together with a major, he may for the fourth year register in the law school for the first year's work in law. He must, however, earn in the College of Arts and Sciences additional credits sufficient to make the total credits amount to 104. 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 Arts and Sciences by the end of the third year so that they can enter the Law work clear in the fourth year.

Students from other institutions entering this university with advanced standing may take advantage of this combined course, provided they are registered in the College of Arts and Sciences for at least one full year of work, and earn at least thirty 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

PROFESSOR MORITZ, ASSOCIATE PROFESSOR GOULD.

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., S.....	None
1a, 2a	Laboratory Astronomy ...	1, 2	2	Fr., S.....	None
1b, 2b	Mathematical Astronomy..	1, 2	2	Fr., S.....	Math. 1
3, 4	Engineering Astronomy ...	1, 2	2	Jr., Sr.	Math. 4 or 4b
5	Least Squares	1	2	Jr., Sr., Gr.	Math. 4 or 4b
6	Elements of Geodesy.....	2	2	Jr., Sr., Gr.	Ast. 4, 5 and Math. 4 or 4b
7, 8	Analytical Mechanics	1, 2	2	Jr., Sr., Gr.	Math. 4 or 4b
9, 10	Advanced Astronomy	1, 2	4 or 6	Jr., Sr., Gr.	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. Sem. 1-2, Cr. 2. Lectures recitations, and observation. The six-inch telescope in the observatory will be used for illustrative purposes. One dollar deposit per semester.
Associate Professor GOULD

1a, 2a. LABORATORY ASTRONOMY. Sem. 1-2, Cr. 2. This course must be accompanied or preceded by course 1 and 2. One dollar deposit per semester.
Associate Professor GOULD

1b, 2b. MATHEMATICAL ASTRONOMY. Sem. 1-2, Cr. 2. This course is planned primarily for students majoring in mathematics, physics, and chemistry, and accompanies courses 1, 2 in place of courses 1a, 2a.
Associate Professor GOULD

3, 4. ENGINEERING ASTRONOMY. Sem. 1, Cr. 2. Spherical trigonometry and applications to astronomy. Theory and use of sextant and theodolite.

Sem. 2, Cr. 2. Actual determination of azimuth, latitude, and longitude by means of the sextant and theodolite.

Associate Professor GOULD

5. LEAST SQUARES Sem. 1, Cr. 2. The best methods for the adjustment of measurements and observations.

Associate Professor GOULD

6. ELEMENTS OF GEODESY. Sem. 2, Cr. 2. Must be preceded or accompanied by astronomy 4.
Associate Professor GOULD

7, 8. ANALYTICAL MECHANICS. Sem. 1-2, Cr. 2. Mathematical treatment of the laws of force and motion.

Associate Professor GOULD

9, 10. ADVANCED ASTRONOMY. Sem. 1-2, Cr. 2-4 or 6. 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.

(b) THEORETICAL ASTRONOMY. The elements of celestial mechanics.
Associate Professor GOULD

BOTANY

PROFESSOR FRYE, ASSOCIATE PROFESSOR WEINZIRL, INSTRUCTORS
RIGG, HOTSON.

REQUIREMENTS OF THE DEPARTMENT

1. For a major: courses 1, 2 or 10, 5, 6; or else 1, 2, 3 and 4, or 7 and 8, 27, 28, 29, 30. In either case the total credits in the department must be at least 24.

2. For the required science in the College of Arts and Sciences: only courses 1, 2, 3, 4, 5, 6, 9, 10 will be accepted.

SUGGESTED SELECTIONS

- a. For those preparing to teach botany: 1, 10, 5, 6, 9, 15, 35, 36.
b. For pharmacy students: 7, 8, 13, 14.
c. For forestry students: 1, 10, 11, 12, 15, 16.
d. For home economics students: 1, 2, 18.
e. For those desiring to become bacteriologists in private or public laboratories: 7, 8, 20, 27, 28, 29, 30.
f. For medical students: 7, 8, 20, 27, 28, 29, 30.
g. For engineers, 22.
h. For students desiring to enter seed laboratories: 1, 10, 15, 17.

COURSES

No.	Title	Prerequisities	Credits per Semester	Offered to	Deposit per Semester
1, 2	Elementary Botany .....	.....	4	All.....	\$3.00
3a, 3a	Public Hygiene .....	.....	1	All.....	
3, 4	Elem. Hygienic Bact.....	.....	4	S., Jr., Sr. ..	\$5.00
4b	Home Sanitation	3.....	3	S., Jr., Sr. ..	\$2.50
5, 6	Cryptogamic Botany	See course	4	All.....	\$3.00
7, 8	Gen. and Med. Bact.....	See course	4	Jr., Sr., Gr.	\$5.00
9	Ecology	See course	4	All.....	\$3.00
10	Systematic Botany	See course	4	All.....	\$3.00
11	General Botany	1, 2 or 10 ..	4	For. students	\$3.00
12	Morph. of Spermatophytes...	11.....	4	For. students	\$3.00
13, 14	Pharmacy Botany .....	.....	4	Pham. st'd'ts	\$3.00
15	Plant Physiology	See course	4	Jr., Sr., Gr.	\$3.00
16	Forest Pathology	1, 2 or 10, 5, or 11..	4	Jr., Sr., Gr.	\$3.00
17	Seeds	1 or 2.....	4	Jr., Sr., Gr.	\$3.00
18	Foods	1 or 2.....	4	All.....	\$3.00
20	Plant Histology	6.....	4	Jr., Sr., Gr.	\$3.00
21	Immunology	8.....	1	Sr., Gr.....	
22	Engineer's Bacteriology .....	.....	2	Sr.....	\$3.00
25, 26	Elementary Agriculture	1, 2 or 10 ..	4	Jr., Sr., Gr.	\$3.00
27, 28	Bact. Anal. and Diag.....	4 or 8.....	2	Sr., Gr.....	\$5.00
29, 30	Sanitary Problems	4 or 8.....	2	Sr., Gr.....	
31, 32	Research in Bacteriology.....	4 or 8.....	*	Sr., Gr.....	*
33, 34	Research in Botany.....	2 or 10, 6.	*	Jr., Sr., Gr.	*
35, 36	Teacher's Course .....	.....	2	Jr., Sr., Gr.	
37, 38	Journal Club .....	.....	1	Jr., Sr., Gr.	

* To be arranged.

1. **ELEMENTARY BOTANY.** Sem. 1, Cr. 4. The structure and functions of flowering plants.

Instructors Rigg, Hotson and assistants.

2. **ELEMENTARY BOTANY.** Sem. 2, Cr. 4. Types of plants. Open to students entering second semester.

Instructors Rigg, Hotson and assistants.

3, 4. **ELEMENTARY AND HYGIENIC BACTERIOLOGY.** Sem. 1-2, Cr. 2. Methods of growing and studying bacteria, their structure, functions, and distribution.

Associate Professor WEINZIRL

3a. **PUBLIC HYGIENE.** Sem. 1-2, Cr. 1 per yr. Sixteen lectures.

Associate Professor WEINZIRL

4b. **HOME SANITATION.** Sem. 2, Cr. 4. Continuation of course 3, primarily for home economics students. Bacteria in relation to disease.

Associate Professor WEINZIRL

5, 6. **CRYPTOGAMIC BOTANY.** Sem. 1-2, Cr. 4. Types of great groups of plants. Steps in plant evolution. Adaptation to environment. Prerequisites: Botany 1 and 2, or Zoology 1 and 2.

Professor FRYE

7, 8. **GENERAL AND MEDICAL BACTERIOLOGY.** Sem. 1-2, Cr. 4. The structure, functions and distribution of the bacteria. Second semester given to disease bacteria. Prerequisites: Chemistry 1 year, botany 1 year, zoology 1 year.

Associate Professor WEINZIRL

9. **ECOLOGY.** Sem. 1, Cr. 4. Adaptation to environment. Prerequisite: Botany 1 and 2, except for teachers and seniors.

Professor FRYE

10. **SYSTEMATIC BOTANY.** Sem. 2, Cr. 4. Classification. Analysis of higher plants. Field trips. For foresters and for others who expect to take Botany 5 or 11. Prerequisite: Botany 1, except for teachers and seniors.

11. **GENERAL BOTANY.** Sem. 1, Cr. 4. Sketch of plant evolution. For forestry students.

Mr. Hotson

12. **MORPHOLOGY OF SPERMATOPHYTES.** Sem. 2, Cr. 4. Stem structure. Lectures on adaptation to environment. Intended for forestry students.

Mr. Hotson

13, 14. **PHARMACY BOTANY.** Sem. 1-2, Cr. 4. Gross structure of vegetative and reproductive organs of seed plants. Brief study of spore plants. Microscopy of powdered drugs.

Mr. Rigg

15. **PLANT PHYSIOLOGY.** Sem. 1, Cr. 4. Lectures and laboratory work. Prerequisites: Botany 1, 2, Chemistry 1, 2.

Professor FRYE

16. **FOREST PATHOLOGY.** Sem. 2, Cr. 4. Diseases of trees.

Mr. Hotson

17. **SEEDS.** Sem. 1, Cr. 4. Structure and physiology.

Mr. Rigg

18. **FOODS.** Sem. 2, Cr. 4. The microscopy of plant foods and of their adulterants. Micro-chemical reagents.

Mr. Rigg

20. PLANT HISTOLOGY. Sem. 2, Cr. 4. Preparation of slides for compound microscope. Study of plant tissues.

Professor FRYE

21. IMMUNOLOGY. Sem. 1, Cr. 1.

Associate Professor WEINZIRL

22. BACTERIOLOGY FOR ENGINEERS. Sem. 2, Cr. 2. General course. Application to sewage disposal and water supplies.

Associate Professor WEINZIRL

25, 26. ELEMENTARY AGRICULTURE FOR TEACHERS. Sem. 1-2, Cr. 4.

Mr. HOTSON

27, 28. BACTERIOLOGICAL ANALYSIS AND DIAGNOSIS. Sem. 1-2, Cr. 2.

Associate Professor WEINZIRL

29, 30. SANITARY PROBLEMS AND DIAGNOSTIC METHODS. Sem. 1-2, Cr. 2. Lectures accompanying with courses 27 and 28 constitute a full year's work, and may be taken separately.

Associate Professor WEINZIRL

31, 32. RESEARCH IN BACTERIOLOGY. Sem. 1-2, Cr. —. Open to qualified students, after consultation, either for satisfying thesis requirements or for credit only.

Associate Professor WEINZIRL

33, 34. BOTANICAL RESEARCH. Sem. 1-2, Cr. —. Open to qualified students, after consultation, either for satisfying thesis requirements or for credit only.

Professor FRYE and instructors.

35, 36. TEACHERS' COURSE. Sem. 1-2, Cr. 2. Two hours. Recitations and practice in teaching.

37, 38. JOURNAL CLUB. Sem. 1-2, Cr. 1. One hour. Reviews and discussions of current botanical literature.

Professor FRYE

CHEMISTRY

PROFESSOR BYERS, ASSOCIATE PROFESSOR BENSON, ASSISTANT PROFESSORS DEHN, ROSE, INSTRUCTORS TRUMBULL, MORGAN, GRADUATE ASSISTANTS HILL, LANGDON, DEAN JOHNSON, 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.

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	.....	Entering 2d Sem., Short Session Miners	None
3, 4	Organic Chemistry	1, 2	4	S., Jr., Sr. ...	1, 2 or equiv.
3c	Organic Chemistry	1	5	S. Women....	1c, 2c
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	S. and Jr.....	1, 2
8b, 8b	Qualitative Analysis	1, 2	4	S.....	1, 2
9, 9	Quantitative Analysis	1, 2	4	S. and Jr.....	9 and 4
10, 11	Food Analysis	1, 2	4	Sr. and Gr. ...	9 and 4
12	Industrial Chem. O. E....	1	3	S.....	1, 2
13	Industrial Chem. E. E....	1	3	S.....	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
23	Physical Chemistry	1	4	Sr. and Gr. ...	9 & Physics 2
23	Electro Chemistry	2	4	Sr. and Gr. ...	9 & Physics 2
25	Seminar, Organic	2	2	Sr. and Gr. ...	4, 9, 6 or 23
26	Research	1, 2	.....	Gr.....	
27	Chemical Theory	2	2	Gr.....	4, 9, 6 or 22
28	Adv. Organic Prep.....	1, 2	4	Gr.....	4, 9, 6 or 22

1, 2. GENERAL CHEMISTRY. Sem. 1-2, Cr. 4. 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. Sem. 1-2, Cr. 4. Primarily for engineers, but is open to all students who have had a year's work in chemistry in an accredited high school. Two lectures and six laboratory hours per week. The text-books used are Smith's General Chemistry, Smith's Laboratory Manual and Byers and Knight's Qualitative Analysis.

Professor BYERS, Dr. TRUMBULL and Assistants

1b. GENERAL CHEMISTRY. Sem. 2, Cr. 4. To meet need of students entering at the beginning of the second semester, the course 1a, 2a is repeated.

Assistant Professor ROSE

2b. GENERAL CHEMISTRY. Sem. 1, Cr. 4. Continuation of 1b of second semester.

Assistant Professor ROSE

1c, 2c. GENERAL CHEMISTRY. Sem. 1-2, Cr. 4. For students of domestic science and women of the College of Arts and Sciences. Two lectures and six laboratory hours per week.

Assistant Professor ROSE

1d. PROSPECTOR'S COURSE. Sem. 1-2, Cr. 4. For miners who may enter January 1, and will continue to April 1. Does not require previous knowledge of chemistry, and will be merged into a course of qualitative analysis. Brownlee text-book required.

Associate Professor BENSON

3, 4. ORGANIC CHEMISTRY. Sem. 1-2, Cr. 4. Lecture course. Laboratory work on the preparation and testing of representative compounds. Bernthsen-Sudborough's text used in connection with Sudborough-James's laboratory manual as laboratory guide.

Assistant Professor DEHN

3c. ORGANIC CHEMISTRY. Sem. 1, Cr. 4. A lecture and laboratory course for the women of the department of domestic science and adapted to the students of the College of Arts and Sciences who wish to make a more rapid survey of the subject than is furnished by courses 3, 4.

Professor BYERS

5, 6. ADVANCED ORGANIC CHEMISTRY. Sem. 1-2, Cr. 4. Chemistry of volatile oils, dyestuffs, alkaloids and sugars. Special laboratory work can be arranged.

Assistant Professor ROSE

7. ORGANIC ANALYSIS AND GLASS BLOWING. Sem. 1-2, Cr. 2-4. A laboratory course of either two or four hours. Individual instruction.

Assistant Professor DEHN

8. ADVANCED QUALITATIVE ANALYSIS. Sem. 1, Cr. 4. Lectures on theory of solution as applied to analytical work. Laboratory work on the analysis of alloys and minerals. Two lectures and six laboratory hours per week.

Professor BYERS

8b. ELEMENTARY QUALITATIVE ANALYSIS. Sem. 1-2, Cr. 4. Chemistry 1, 2, is followed by a course in qualitative analysis. Two lectures and six laboratory hours per week. Text-book: Byers and Knight.

Assistant Professor DEHN

8b. ELEMENTARY QUALITATIVE ANALYSIS. Sem. 2, Cr. 4. Repetition of 5b of first semester. For pharmacy students.

Assistant Professor DEHN

9. QUANTITATIVE ANALYSIS. Sem. 1-2, Cr. 4. Gravimetric and volumetric analysis. Olsen's Quantitative Analysis. Twelve laboratory hours and one recitation per week.

Associate Professor BENSON

10. FATS AND OILS. Sem. 1, Cr. 4. Laboratory, three afternoons per week.

Professor JOHNSON

11. FOOD ANALYSIS. Sem. 2, Cr. 4. Laboratory three afternoons per week.

Professor JOHNSON

12. INDUSTRIAL CHEMISTRY. Sem. 1, Cr. 3. For civil engineers. Chemistry of the materials of engineering. Two lectures and one laboratory afternoon.

Associate Professor BENSON

13. INDUSTRIAL CHEMISTRY. Sem. 1, Cr. 3. For mechanical and electrical engineers. Deals with the chemistry of materials of engineering. Two lectures and one laboratory period.

Associate Professor BENSON

14. **CHEMICAL TECHNOLOGY.** Sem. 2, Cr. 4. Required of chemical engineers and elective for students who have had quantitative chemistry. Detailed study of the industries of the Northwest. Two lectures and two laboratory periods per week.
Associate Professor BENSON

15. **WATER ANALYSIS.** Sem. 1, Cr. 4. One lecture and twelve hours laboratory work per week in the analysis of water for both industrial and sanitary purposes.
Associate Professor BENSON

16. **GAS AND FUEL ANALYSIS.** Sem. 2, Cr. 4. 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 weeks. Associate Professor BENSON

17. **SOILS AND FERTILIZERS.** Sem. 2, Cr. 2. A lecture course dealing with the soils of Washington and the methods of soil enrichment.
Associate Professor BENSON

18. **ROAD OILS AND TARS.** Sem. 2, Cr. 2. 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 lecture and three hours laboratory tests.
Associate Professor BENSON

19. **URINARY ANALYSIS.** Sem. 2, Cr. 2. Laboratory work only. Practical methods of analysis of normal and pathological urines. Especially for students entering upon the study of medicine.
Assistant Professor DEHN

20, 21. **PHYSIOLOGICAL CHEMISTRY.** Sem. 1, Cr. 4. 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.
Assistant Professor DEHN

20a. **PHYSIOLOGICAL CHEMISTRY.** Sem. 2, Cr. 4. Essentially the same course at 20. For students in pharmacy.
Assistant Professor DEHN

22. **PHYSICAL CHEMISTRY.** Sem. 1, Cr. 4. An elementary lecture course dealing with fundamental theories of chemistry based upon physical measurements. Three lectures and one laboratory period per week.
Dr. TRUMBULL

23. **ELECTRO CHEMISTRY.** Sem. 2, Cr. 4. 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.
Professor BYERS and Dr. TRUMBULL

24. **INORGANIC PREPARATIONS.** Sem. 2, Cr. —. Methods of preparation of important inorganic compounds. Designed to illustrate special chemical principles. Twelve laboratory hours per week.
Professor BYERS

25. **SEMINAR, ORGANIC.** Sem. 2, Cr. 2. The work consists of readings, reports of discussions based upon the chemical literature and designed to give practice in the use of the journals.
Assistant Professor DEHN

26. **INVESTIGATION.** Sem. 1-2, Cr. —. Any student who has completed at least three years' work in chemistry may 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 an advanced degree.

27. **CHEMICAL THEORY.** Sem. 2, Cr. 2. 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 fundamental laws and theories.
Professor BYERS

28. **ADVANCED ORGANIC PREPARATIONS.** Sem. 1-2, Cr. 4. A course prerequisite to organic research.
Assistant Professor DEHN

EDUCATION

PROFESSOR SISSON, ASSOCIATE PROFESSOR LULL,* ASSISTANT PROFESSORS HART, SMITH, ACTING ASSISTANT PROFESSOR CLARKE, LECTURERS SUPERINTENDENT COOPER, DEAN AUSTIN.

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, see University Teachers' Diplomas, page 50.

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	Educational Psychology ...	1	4	Sr., Gr.	
8	Psychology of Instruction..	2	2	Sr., Gr.	

* Absent on leave 1911-12.

COURSES—Continued

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
9	Psychology and Education of Exceptional Children..	1	4	Sr., Gr.....	
10	School Supervision	1	4	Sr., Gr.....	
11	Administration in U. S.....	1	2	Sr., Gr.....	
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.....	
21, 22	Seminar; Administration ..	1, 2	2 or 4	Sr., Gr.....	
23, 24	Epochs in Educ. History..	1, 2	2	Jr., Sr.....	
26	Education in U. S.....	2	4	Sr., Gr.....	
28	Vocational Education	2	2	Sr., Gr.....	Educ. 7
31, 32	Primary School	1, 2	1	Jr., Sr.....	
35, 36	Seminar; Educ. Psych.....	1, 2	2	Sr., Gr.....	Educ. 7
37, 38	Individual Research	1, 2	(to be arranged)		

1. **PRINCIPLES OF EDUCATION.** Sem. 1-2, Cr. 4. Analyses of present problems in education; interpretative principles; lines of suggested solutions; relations to present conditions; directions of progress.
Assistant Professor HART

2. **HISTORY OF EDUCATION.** Sem. 1-2, Cr. 4. A survey of forces, institutions, theories and practices in the past and present.

3, 4. **OBSERVATION AND TEACHING.** Sem. 1-2, Cr. 4. Supervision and criticism. Students without teaching experience are advised to elect this course.
Assistant Professor HART

5. **SCHOOL GROUNDS, BUILDINGS AND EQUIPMENT.** Sem. 1, Cr. 4. A constructive study of the new school.
Assistant Professor HART

6. **THE HIGH SCHOOL.** Sem. 2, Cr. 4. Historical development; course of study; student activities; social life and organization.
Associate Professor LULL

7. **EDUCATIONAL PSYCHOLOGY.** Sem. 1, Cr. 4. The social processes in educational psychology as distinguished from the intellectual processes.
Assistant Professor HART

8. **PSYCHOLOGY OF INSTRUCTION.** Sem. 2, Cr. 4. Those psychological elements which have direct application to teaching problems.
Associate Professor LULL

9. **PSYCHOLOGY AND EDUCATION OF BACKWARD AND DEFECTIVE CHILDREN.** Sem. 1, Cr. 4. Causes, diagnosis and treatment of mental retardation and deviation in children.
Assistant Professor SMITH

10. **SCHOOL SUPERVISION AND MANAGEMENT.** Sem. 1, Cr. 4. For those who are preparing for supervision, principalships or teaching positions.
Associate Professor LULL

11. **ADMINISTRATION OF EDUCATION IN THE UNITED STATES.** Sem. 1, Cr. 2. The important problems of educational administration in the United States, national, state and local.
Associate Professor LULL

12. FOREIGN SCHOOL SYSTEMS. Sem. 2, Cr. 4. Attention is given mainly to Germany, England, France and Switzerland. (Not given in 1912-13.)

13, 14. CURRENT EDUCATIONAL THOUGHT. Sem. 1, Cr. 2. (Not given in 1912-13.)

15, 16. EDUCATIONAL CLASSICS. Sem. 1-2, Cr. 2. The educational writings of great thinkers.

17. THE ELEMENTARY SCHOOL. Sem. 1, Cr. 4. For students preparing to teach in the elementary grades and also for those preparing for superintendencies and principalships of elementary schools.
Associate Professor LULL

18. SOCIAL ASPECTS OF EDUCATION. Sem. 2, Cr. 2. The life of the community as the background of all the work of the school.
Assistant Professor HART

21, 22. SEMINAR IN ADMINISTRATION. Sem. 1-2. Time and credit to be arranged.
Associate Professor LULL

23, 24. EPOCHS IN EDUCATIONAL HISTORY. Sem. 1-2, Cr. 2. First semester, Hebrew education. Second semester, early Christian education.
Assistant Professor HART

26. HISTORY OF EDUCATION IN THE UNITED STATES. Sem. 2, Cr. 4. From 1647 to the present; a study of the growth of elementary, secondary and to some extent higher education.
Associate Professor LULL

28. PROBLEMS IN VOCATIONAL EDUCATION. Sem. 2, Cr. 2.
Assistant Professor HART

31, 32. THE PRIMARY SCHOOL. Sem. 1-2, Cr. 1. Lectures, discussions and visits to schools.
Dean ISABELLA AUSTIN

35, 36. SEMINAR. ADVANCED PROBLEMS IN EDUCATIONAL PSYCHOLOGY. Sem. 1-2, Cr. 2.
Assistant Professor HART

37, 38. INDIVIDUAL PROBLEMS. Both Semesters. All instructors in the department will direct advanced students in individual reading and research.

ENGLISH

PROFESSOR PADELFORD, ASSISTANT PROFESSORS BENHAM, MILLIMAN, FARRINGTON, GARRETT, COX, INSTRUCTORS DARBY, PEASE, JOHANSON, SAWYER, RICHARDS, CHITTICK.

REQUIREMENTS OF THE DEPARTMENT

For a major: Either courses 7, 8 or courses 33, 34.

For a teacher's certificate: The same as for a major together with courses 35, 36.

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, 2	English Composition	1, 2	4	All.....	See note A
1a, 1b	English Composition	1, 2	2	Engineers	See note B
A, B	Recent Eng. Literature.....	1, 2	2	All.....	Intended for Fr., Soph. See note C
3, 4	Introd. to Eng. Lit.....	1, 2	4	Soph.	
5	Shakespeare	1	4	Fr., S.....	
6	Victorian Essayists	2	4	Fr., S.....	
7, 8	Historical Eng. Gram.....	1, 2	2	S., Jr., Sr. ..	See note D
9	Technique of Verse.....	1	2	S., Jr., Sr. ..	
10	XIX Cent. Prose Styles...	2	2	S., Jr., Sr. ..	
11, 12	Advanced Composition ...	1, 2	2	S., Jr., Sr. ..	
13, 14	Georgian and Vic. Poets.	1, 2	4	Jr., Sr.	
15, 16	XIX Cent. Lit.....	1, 2	4	Jr., Sr.	
17, 18	Shakespearean Drama	1, 2	4	Jr., Sr.	
19, 20	American Literature	1, 2	4	Jr., Sr., Gr.	See note E
21	Chaucer	1	2	Jr., Sr., Gr.	
22	Eng. Lit. 1400-1579.....	2	2	Jr., Sr., Gr.	
23, 24	Social Ideals in Eng. Lit.	1, 2	4	Jr., Sr., Gr.	
25, 26	The English Novel.....	1, 2	4	Jr., Sr.	
27, 28	Amer. Lit. since 1870.....	1, 2	2	Jr., Sr.	See note E
29	Emerson and Hawthorne.	1	2	S., Jr., Sr. ..	
30	Longfellow and Lowell....	2	2	S., Jr., Sr. ..	
31, 32	XVIII Cent. Literature....	1, 2	2	Jr., Sr.	
33, 34	Old and Middle English...	1, 2	3	Jr., Sr., Gr.	See note D
35, 36	Teacher's Course	1, 2	3	Jr., Sr.	See note F
37, 37	Hist. Eng. Literature....	1, 2	4	Gr.	
38, 38	Seminar—Spenser	1, 2	1-4	Gr.	
39, 39	Aristotle's Poetics	1, 2	2	Gr.	
40, 40	Celtic	1, 2	2	All.....	

Note A.—Required of freshmen in the College of Arts and Sciences. If taken later than the freshman year only half credit will be given. Those who pass Course 1 with a grade of A may be excused from Course 2.

Note B.—Required of freshmen in the Schools of Mines, Forestry and Pharmacy, and in the College of Engineering.

Note C.—Course 4 must be elected by those who take Course 3.

Note D.—See the requirement for a major and for a teacher's certificate.

Note E.—Requires consent of the instructor.

Note F.—Candidates will be required to pass a satisfactory examination in the outline history of English literature.

1, 2. FRESHMAN COMPOSITION. Sem. 1-2, Cr. 4. The principles of rhetoric, with theme writing. Fifteen sections. All instructors.

1a, 1b. FRESHMAN COMPOSITION. Sem. 1-2, Cr. 2. For students of engineering. Eight sections.

A, B. RECENT LITERATURE. Sem. 1-2, Cr. 4. Stevenson, Shaw, Ibsen and others. Mr. CHITTICK

3, 4. AN INTRODUCTION TO ENGLISH LITERATURE. Sem. 1-2, Cr.

4. An historical review from the beginning. Given in two sections, one for men and one for women.

Mr. DARBY and Mr. JOHANSON

5. SHAKESPEARE. Sem. 1, Cr. 4. Four plays. Given in two sections, one for men and one for women.

Assistant Professor Cox, Mr. PEASE, and Mr. SAWYER

6. VICTORIAN ESSAYISTS. Sem. 2, Cr. 4. Carlyle, Newman, Arnold and Ruskin. Given in two sections, one for men and one for women.

Assistant Professor COX, Mr. PEASE, and Mr. SAWYER

7, 8. HISTORICAL ENGLISH GRAMMAR. Sem. 1-2, Cr. 2. The history of English as a spoken and written language. Designed for those who expect to teach English.

Assistant Professor BENHAM

9. TECHNIQUE OF ENGLISH VERSE. Sem. 1, Cr. 2. An introduction to XIX century poetry, with practice in the writing of verse.

Assistant Professor PARRINGTON

10. RECENT ENGLISH PROSE STYLES. Sem. 2, Cr. 2. An introduction to modern English prose, with practice in composition.

Assistant Professor PARRINGTON

11, 12. ADVANCED COMPOSITION. Sem. 1-2, Cr. 2. Studies in structure and style.

Assistant Professor MILLIMAN

13. THE GEORGIAN POETS. Sem. 1, Cr. 4. The English romantic movement. Wordsworth, Shelley, Keats. Open to women only.

Professor PADELFORD

14. THE VICTORIAN POETS. Sem. 2, Cr. 4. English poetry since 1830, with special attention to Browning. Open to women only.

Professor PADELFORD

15, 16. NINETEENTH CENTURY LITERATURE. Sem. 1-2, Cr. 4. Open to men only.

Assistant Professor COX

17, 18. THE SHAKESPEAREAN DRAMA. Sem. 1-2, Cr. 4. A reading of all the plays supplemented by lectures. Given in two sections, one for men and one for women.

Mr. DARBY and Dr. RICHARDS

19. AMERICAN LITERATURE. Sem. 1, Cr. 4. The literary production of America before 1820.

Assistant Professor PARRINGTON

20. AMERICAN LITERATURE. Sem. 1, Cr. 4. Nineteenth century American culture as revealed in the literature.

Assistant Professor PARRINGTON

21. CHAUCER AND HIS CONTEMPORARIES. Sem. 1, Cr. 2. Emphasis is laid on the literary rather than the linguistic characteristics of the period.

Mr. CHITTICK

22. ENGLISH LITERATURE FROM 1400 TO 1579. Sem. 2, Cr. 2. The late mediaeval and early renaissance literary production.

Mr. CHITTICK

23, 24. SOCIAL IDEALS IN ENGLISH LITERATURE. Sem. 1-2, Cr. 4. A study of model commonwealths, and of such other literature as illustrates the growth of English social and economic thought.

Assistant Professor BENHAM

25, 26. THE ENGLISH NOVEL. Sem. 1-2, Cr. 4. The historical evolution of English fiction.

Assistant Professor MILLIMAN

27, 28. AMERICAN LITERATURE SINCE 1870. Sem. 1-2, Cr. 2. A study of current literary ideals.

Assistant Professor PARRINGTON

29. EMERSON AND HAWTHORNE. Sem. 1, Cr. 2.
Assistant Professor MILLIMAN
30. LONGFELLOW AND LOWELL. Sem. 2, Cr. 2.
Assistant Professor MILLIMAN
- 31, 32. ENGLISH LITERATURE IN THE XVIII CENTURY. Sem. 1-2, Cr. 2. The later development of classicism, and the beginning of the romantic reaction.
Mr. DARBY
- 33, 34. OLD AND MIDDLE ENGLISH. Sem. 1-2, Cr. 3.
Assistant Professor GARRETT
- 35, 36. TEACHER'S COURSE. Sem. 1-2, Cr. 3.
Assistant Professor GARRETT
37. HISTORY OF ENGLISH LITERATURE. Sem. 1, Cr. 4. The development of English literature with special attention to sources.
Assistant Professor BENHAM
38. SEMINAR. Sem. 1-2, Cr. 1-4. Spenser.
Professor PADELFOED
39. ARISTOTLE'S POETICS. Sem. 1-2, Cr. 2. An introduction to literary criticism.
Assistant Professor COX
40. CELTIC. Sem. 1-2, Cr. 2. A beginning course in modern Irish with readings in translation from the Old Irish heroic literature.
Assistant Professor COX

FRENCH

PROFESSOR FREIN, ASSISTANT PROFESSOR PATZER, INSTRUCTORS WHITTLESEY, HELMLINGE, SBEDICO, ASSISTANTS.

REQUIREMENTS OF THE DEPARTMENT

Courses 5, 6 and 7, 8 are required of majors and of all who wish to be recommended as teachers.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Elementary	1, 2	4*	All.....	None
1	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
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
7a	Classical French	2	4	All.....	4
8a	Classical French	1	4	All.....	7
9	French Drama	1	4	All.....	8
10	Hist. Fr. Lit. XIX Cent....	2	4	All.....	8
11	Lyric Poetry .....	†.....	.....	.....	.....
12	Hist. Fr. Lit. 1500-1800....	†.....	.....	.....	.....
13	Teacher's Course	2	2	Major Seniors	.....
14, 15	Old French Reading	1, 2	4	Gr. ....	.....
16, 17	Hist. of Old Fr. Lit.....	1, 2	2	Gr. ....	.....
18, 19	French Historical Gram....	1, 2	2	Gr. ....	.....

COURSES—Continued

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
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 9; not given in 1912-13.

‡ Alternate years with Course 10; not given in 1912-13.

FOR UNDERGRADUATES

1, 2. **ELEMENTARY.** Sem. 1-2, Cr. 4. Fraser and Squair's French Grammar, part I; Halévy, L'Abbé Constantin; Labiche et Martin, Voyage de M. Perrichon; Mérimée, Colomba. Students entering for the second semester with one year of French in the high school may take course 2.

Assistant Professor PATZER and Instructors

1. **ELEMENTARY.** Sem. 2, Cr. 4. Repetition of course 1 during second semester.

Graduate Assistant

2, 3. **ADVANCED FIRST YEAR.** Sem. 1-2, Cr. 4. Open to those who have had one semester of French in the University or one year in high school. Those who have had three semesters of French in the high school may enter the class at the beginning of the second semester.

Mr. WHITTLESEY

3, 4. **READING AND SYNTAX.** Sem. 1-2, Cr. 4. One section of the class devotes the entire time to reading. Those who intend to major in French should enter one of the sections taking syntax. Fraser and Squair's French Grammar, part II.

Assistant Professor PATZER and instructors

4. **READING AND SYNTAX.** Sem. 1, Cr. 4. For those who have had French 3 in the University, or four semesters in high school.

Mr. HELMLINGE

5, 6. **COMPOSITION AND CONVERSATION.** Sem. 1-2, Cr. 4.

Assistant Professor PATZER and Mr. HELMLINGE

7, 8. **CLASSICAL FRENCH.** Sem. 1-2, Cr. 4. Reading of the masterpieces of Corneille, Molière, Racine, Boileau, LaFontaine, LaBruyère, La Rochefoucauld.

Assistant Professor PATZER and instructors

7a, 8a. **CLASSICAL FRENCH.** Sem. 1-2, Cr. 4. For those who finish course 4 in February, and those who enter at that time with three years of French in high school.

Mr. HELMLINGE

9. **THE FRENCH DRAMA.** Sem. 1, Cr. 4. History of French drama.

Professor FREIN

(Given in alternate years with course 11; will be given in 1912-13).

10. HISTORY OF THE FRENCH LITERATURE OF THE NINETEENTH CENTURY. Sem. 2, Cr. 4. Lectures in French; assigned reading. Professor FREIN

(Given in alternate years with course 12; will be given in 1912-13).

11. LYRIC POETRY. Sem. 1, Cr.* Short history of French lyric poetry. Canfield's French Lyrics. Professor FREIN

(Given in alternate years with course 9; not given in 1912-13.)

12. HISTORY OF FRENCH LITERATURE FROM THE RENAISSANCE TO THE ROMANTIC MOVEMENT. Sem. Cr.* Lectures in French, and assigned reading from the important authors. Notes not required to be written in French. Professor FREIN

(Given in alternate years with course 10; not given in 1912-13.)

13. TEACHER'S COURSE. Sem. 2, Cr. 2. Professor FREIN

14, 15. OLD FRENCH READING. Sem. 1-2, Cr. 4. Elements of French grammar, and translations from Old French into modern French of the texts in Bartsch, Chrestomathie de l'Ancien Français. Professor FREIN

16, 17. HISTORY OF OLD FRENCH LITERATURE. Sem. 1-2, Cr. 2. Open only to those who have a reading knowledge of Old French. Those who have had course 14 will ordinarily be prepared to follow the work. Course given in French. Professor FREIN

18, 19. FRENCH HISTORICAL GRAMMAR. Sem. 1-2, Cr. 2. Lectures on Old French phonology and morphology.

Professor FREIN

GEOLOGY

PROFESSOR LANDES, ASSISTANT PROFESSOR SAUNDERS, INSTRUCTOR
WEAVER, LECTURER SALISBURY.

REQUIREMENTS OF THE DEPARTMENT

(a) For the required 8 credits in biological science in the College of Arts and Sciences: Courses 1 and 2, or 3 and 4.

(b) For a major: 24 credits in geology 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.

*To be arranged.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites	Lab. Deposit
1	General Geology	1	4	Fr. S.	None	\$1.00
2	General Geology	2	4	Fr. S.	1	\$1.00
1a	Geology for Eng. and Mining Students ..	1	4	S. Jr.	None	\$1.00
1b	Geology for Eng. and Mining Students ..	2	4	S. Jr.	None	\$1.00
1c	Geology for Forestry Students	2	4	Fr. S.	None	\$1.00
3	Climatology	1	4	Fr. S. Jr.	None	\$1.00
4	Physiography	2	4	Fr. S. Jr.	None	\$1.00
5	Common Minerals and Rocks	1	3	S. Jr.	{ H.S. or Univ. Chem. }	\$1.00
6	Glacial Geology	1	2	S. Jr.	2 or 4	
7	Continental Evolution ..	2	2	S. Jr.	2 or 4	
8	Physiography of the United States	1	2	S. Jr.	2 or 4	
9	Desc. and Determ. Mineralogy	2	4	S. Jr.	1 yr. of Chem. 2 or 4	\$2.00
10	Adv. General Geology ..	2	3	S. Jr. Sr. ..	See statement	
11	General Paleontology ..	2	2	S. Jr. Sr. ..	{ 2 and either 5 or 9	
12	Vulcanism and Metamorphism ..	1	2	Jr. Sr. Gr. ..	9	\$2.00
13	Optical Crystallog.	1	4	Jr. Sr. Gr. ..	2 or 4	
14	Geol. of Washington	1	2	Jr. Sr. Gr. ..	2 or 4	
15	Economic Geography of Washington	2	2	Jr. Sr. Gr. ..	2 or 4	
16	Petrography	2	4	Jr. Sr. Gr. ..	9 and 13	\$2.00
17	Economic Geology ..	2	4	Jr. Sr. Gr. ..	2 or 1a, with 9 and 16	
18	Paleontology	1	4	Jr. Sr. Gr. ..	2 or 1a	
19, 20	Field Work	1 and 2		Jr. Sr. Gr. ..	2 years' work	
21, 22	Adv. Petrography ..	1 and 2		Sr. Gr.	16	
23, 24	Adv. Paleontology ..	1 and 2		Sr. Gr.	18	
25, 26	Research Work	1 and 2		Sr. Gr.	See statement	
A	Forestry Geology ..	.....		.....	See statement	
B	Prospector's Geology and Mineralogy ..	.....		.....	See statement	

1, 2. GENERAL GEOLOGY. Sem. 1-2, Cr. 4. Three recitations and one laboratory period per week.

Assistant Professor SAUNDERS and Assistants

1a. GEOLOGY FOR ENGINEERING AND MINING STUDENTS. Sem. 1, Cr. 4. Professor LANDES

1b. GEOLOGY FOR ENGINEERING AND MINING STUDENTS. Sem. 2, Cr. 4. Mr. _____

1c. GEOLOGY FOR FORESTRY STUDENTS. Sem. 2, Cr. 4.

Professor LANDES

3. CLIMATOLOGY. Sem. 1, Cr. 4. Three recitations and one laboratory period per week. A general consideration of the climatic elements of the atmosphere.

Assistant Professor SAUNDERS and Mr. SALISBURY.

4. PHYSIOGRAPHY. Sem. 2, Cr. 4. Three recitations and one laboratory period per week. A study of the surface features of

the earth with special reference to their origin, development, classification, and relation to geologic structure.

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. COMMON MINERALS AND ROCKS. Sem. 1, Cr. 3. Two recitations and one laboratory period. Chiefly for students in the College of Arts and Sciences. Mr. ———

6. GLACIAL GEOLOGY. Sem. 1, Cr. 2. Two lectures or recitations per week. The characteristics of glaciers and the geological work that they accomplish. Mr. ———

7. CONTINENTAL EVOLUTION. Sem. 2, Cr. 2. Two lectures or recitations per week. Studies in the geological history of sedimentation, volcanic activity, the major earth movements, and geographic changes in the development of the North American continent. Dr. WEAVER

8. PHYSIOGRAPHY OF THE UNITED STATES. Sem. 1, Cr. 2. Two lectures or recitations per week. The development of the physiographic features of the United States and the influence these features have exerted on the history and commercial growth of the country. Assistant Professor SAUNDERS

9. DESCRIPTIVE AND DETERMINATIVE MINERALOGY. Sem. 2, Cr. 4. Two recitations and two laboratory periods per week. For engineering and mining students. Mr. ———

10. ADVANCED GENERAL GEOLOGY. Sem. 2, Cr. 3. Three lectures or recitations per week. The development of geology as a science; its relation to the other sciences; the present lines of growth and research. Professor LANDES

11. GENERAL PALEONTOLOGY. Sem. 2, Cr. 2. Two lectures or recitations per week. A brief survey of the former animal and plant life of the earth. Chiefly for students in the College of Arts and Sciences. Some knowledge of general geology is a prerequisite. Dr. WEAVER

12. VULCANISM AND METAMORPHISM. Sem. 1, Cr. 2. Two lectures or recitations per week. A general discussion of the theories and principles of volcanic phenomena and of metamorphism. Dr. WEAVER

13. OPTICAL CRYSTALLOGRAPHY. Sem. 1, Cr. 4. Two recitations and two laboratory periods per week. Dr. WEAVER

14. GEOLOGY OF WASHINGTON. Sem. 1, Cr. 2. Two lectures or recitations per week. Professor LANDES

15. ECONOMIC GEOGRAPHY OF WASHINGTON. Sem. 2, Cr. 2. Two lectures or recitations per week. Professor LANDES

16. PETROGRAPHY. Sem. 2, Cr. 4. Two recitations and two laboratory periods per week. A study of the distinguishing characteristics of the different groups and species of rocks with practice in their determination by modern petrographical methods. Dr. WEAVER

17. **ECONOMIC GEOLOGY.** Sem. 2, Cr. 4. Four recitations per week. Professor LANDES

18. **PALEONTOLOGY.** Sem. 1, Cr. 4. Three recitations and one laboratory period per week. Chiefly for students in geology and mining. Dr. WEAVER

19, 20. **FIELD WORK.** Sem. 1-2, Cr.* Hours and credits to be arranged. Professors LANDES, SAUNDERS and Dr. WEAVER

21, 22. **ADVANCED PETROGRAPHY.** Sem. 1-2, Cr.* Hours and credits to be arranged. Dr. WEAVER

23, 24. **ADVANCED PALEONTOLOGY.** Sem. 1-2, Cr.* Hours and credits to be arranged. Dr. WEAVER

25, 26. **RESEARCH WORK.** Sem. 1-2, Cr.* Hours and credits to be arranged. Professors LANDES, SAUNDERS and Dr. 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 the College of Forestry.

Assistant Professor SAUNDERS.

B. **PROSPECTOR'S GEOLOGY AND MINERALOGY.** This course is given in January, February and March to the students in the short course for mining men offered by the College of Mines.

Dr. WEAVER

GERMAN

PROFESSOR MEISNEST, ASSISTANT PROFESSORS BOETZKES, HOFF, INSTRUCTORS WEITHAASE, ECKELMAN, GRADUATE ASSISTANTS PLATH, FISCHER, HOEPPNER.

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 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 page 37, General Catalogue.

* To be arranged.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	First Year	1, 2	4	All.....	None
1a	First Year	1, 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	2	All.....	See statement
13a	Conversation—Comp.	2	4	All.....	" "
15, 16	Hist. Ger. Lit.—Lyrics...	1, 2	4	All.....	" "
17, 18	Lessing—Faust	1, 2	4	All.....	" "
19, 20	Teacher's Course	1	4	All.....	" "
21, 22*	Storm and Stress.....	1, 2	2-4	Gr.....	See instructor
23, 24*	Romantic School	1, 2	2-4	Gr.....	" "
25, 26	Nineteenth Century	1, 2	2-4	Gr.....	" "
31, 32	Middle High German.....	1, 2	2	Gr.....	" "
33, 34*	Old High Ger.—Gothic....	1, 2	2	Gr.....	" "

* Omitted in 1912-13.

FOR UNDERGRADUATES

1, 2. **FIRST YEAR.** Sem. 1-2, Cr. 4. 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.

Assistant Professor HOFF, Dr. ECKELMAN and Instructors

1a. **FIRST YEAR.** Sem. 2, Cr. 4. The same as course 1. For beginners. Two semesters must be completed before credit is allowed.

2a, 3a. **ADVANCED FIRST YEAR.** Sem. 1-2, Cr. 4. Continuation of grammar and reading of simple prose with practice in pronunciation, speaking and writing. Equivalents of 2 and 3.

Assistants PLATH and FISCHER

3, 4. **SECOND YEAR.** Sem. 1-2, Cr. 4. Modern prose, narrative and dramatic, and at least one drama by Schiller or Lessing during the second semester.

Assistant Professor BOETZKES, Mr. WEITHAASE and Miss FISCHER

3s, 4s. **SECOND YEAR.** Sem. 1-2, Cr. 4. Modern prose, review of grammar, composition and conversation. Introduction to sci-

entific German and review of grammar and composition continued.
For students specializing in science and engineering.

MISS HOEPPNER

4a, 5a. ADVANCED SECOND YEAR. Sem. 1-2, Cr. 4. Modern prose and dramas. Dr. ECKELMAN and Mr. WEITHAASE

5. SCHILLER. Sem. 1-2, Cr. 4. Maria Stuart or Die Braut von Messina and Wallenstein.

Assistant Professors BOETZKES, Dr. HOFF and Dr. ECKELMAN

6. GOETHE. Sem. 1-2, Cr. 4. Goetz von Berlichingen, Egmont and Iphigenie.

Assistant Professors BOETZKES, HOFF, and Dr. ECKELMAN

7, 8. MODERN GERMAN DRAMAS. Sem. 1-2, Cr. 2. Grillparzer, Hebbel, Sudermann and Hauptmann. (Omitted in 1912-13).

Mr. WEITHAASE

9, 10. MODERN GERMAN NOVELS. Sem. 1-2, Cr. 2. Freytag, Scheffel, Hauff, Ludwig and Sudermann.

Mr. WEITHAASE

11, 12. SCIENTIFIC GERMAN. Sem. 1-2, Cr. 2. Advanced scientific prose and special monographs.

Mr. WEITHAASE

13, 14. GERMAN CONVERSATION AND COMPOSITION. Sem. 1-2, Cr. 4. 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.

Assistant Professors BOETZKES, HOFF and Mr. WEITHAASE

FOR UNDERGRADUATES AND GRADUATES

15. HISTORY OF GERMAN LITERATURE. Sem. 1, Cr. 4. Selected readings, reports and lectures. A general survey for students specializing in German. Thomas's German Anthology and Priest's History of German Literature.

Dr. ECKELMAN

16. GERMAN LYRICS AND BALLADS. Sem. 2, Cr. 4. Most characteristic German lyrics and ballads of Goethe, Schiller, Heine, Uhland, Geibel, and others. Von Klenze's Deutsche Gedichte.

Dr. ECKELMAN

17. LESSING. Sem. 1, Cr. 4. Emilia Galotti, Nathan der Weise and Hamburgische Dramaturgie or Laokoon.

Professor MEISNEST

18. GOETHE'S FAUST. Sem. 2, Cr. 4. Parts I and II.

Professor MEISNEST

19. TEACHER'S COURSE. Sem. 1, Cr. 4. Professor MEISNEST

FOR GRADUATES

(All graduate courses are conducted in German).

21, 22. STORM AND STRESS PERIOD. Sem. 1-2, Cr. 2-4. (Omitted in 1912-13). Professor MEISNEST

23, 24. ROMANTIC SCHOOL. Sem. 1-2, Cr. 2-4. (Omitted in 1912-13). Professor MEISNEST

25, 26. NINETEENTH CENTURY. Sem. 1-2, Cr. 2-4. The drama and novel. Primarily Kleist, Grillparzer, Hebbel, Ludwig, Raabe,

Keller, Storm, C. F. Meyer. Assigned readings, reports and lectures.
Dr. ECKELMAN

31, 32. MIDDLE HIGH GERMAN. Sem. 1-2, Cr. 2. Grammar and selected readings. Comparison of mediaeval with modern German. Paul's Mittelehochdeutsche Grammatik. Niebelungenlied, Gottfried's Tristan and Isolde and selections from Walter von der Vogelweide.
Assistant Professor HOFF

33. GOTHIC. Sem. 1, Cr. 2. (Omitted in 1912-13.)
Assistant Professor HOFF

34. OLD HIGH GERMAN. Sem. 2, Cr. 2. (Omitted in 1912-13.)
Assistant Professor HOFF

GREEK

PROFESSOR HAGGETT, INSTRUCTORS DENSMORE, SAGE

REQUIREMENTS OF THE DEPARTMENT

For a major, at least 24 credits chosen from courses 3 to 12. The requirement of one year ancient languages or literature (see page 57) may be satisfied by any one of the following:

- a. Greek 1, 2 or 3, 4.
- b. Latin A, B or 1, 2.
- c. Greek civilization and Greek literature (Greek 13, 14).
- d. Greek civilization and Roman civilization (Greek 13 and Latin 12).
- e. Greek literature and Roman literature (Greek 14 and Latin 14).
- f. Roman civilization and Roman literature (Latin 11 and 13).
- g. Oriental literature—Persian and Indian (see department of Oriental Literature, page 106).

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Elementary Greek*	1	4	Fr., S.....	1
2	Xenophon	2	4	Fr., S.....	2
3	Homer	1	4	S., Jr., Gr...	
4	Plato	2	4	S., 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, 2	4	S., Jr., Sr. ..	
15	Greek History	1	4	All.....	

* No credit for first semester alone.

1. **ELEMENTARY GREEK.** Sem. 1, Cr. 4.
Mr. DENSMORE and Mr. SAGE
 2. **XENOPHON.** Sem. 2, Cr. 4. Anabasis, Books I and II.
Mr. DENSMORE and Mr. SAGE
 3. **HOMER.** Sem. 1, Cr. 4. Selections from the Odyssey.
Professor HAGGETT
 4. **PLATO.** Sem. 2, Cr. 4. Apology, Crito, and parts of the Phaedo.
Professor HAGGETT
 5. **DRAMATIC POETRY.** Sem. 1, Cr. 2. One play of Euripides and one of Sophocles.
Mr. DENSMORE
 6. **DRAMATIC POETRY.** Sem. 2, Cr. 2. One play of Aeschylus and one of Aristophanes.
Mr. DENSMORE
 7. **LYRIC POETRY.** Sem. 1, Cr. 2. Selections from the elegaic iambic, and melic poets.
Mr. DENSMORE
 8. **ORATORY.** Sem. 2, Cr. 2. Selections from Lysias and Demosthenes.
Mr. DENSMORE
 9. **EPIC POETRY.** Sem. 1, Cr. 2. Rapid reading of selections from Homer and Hesiod.
Mr. DENSMORE
 10. **HISTORICAL PROSE.** Sem. 2, Cr. 2. Selections from Thucydides and Xenophon.
Mr. DENSMORE
- NOTE.—Courses 7, 8 and 9, 10 will be given in alternate years.
11. **ADVANCED READING COURSE.** Sem. 1, Cr. 2. Rapid reading of the entire work (or a considerable portion) of some one author, or extensive work in some one department of Greek literature.
Professor HAGGETT
 12. **ADVANCED READING COURSE.** Sem. 2, Cr. 2. Continuation of course 11.
Professor HAGGETT
 13. **GREEK CIVILIZATION.** Sem. 1, Cr. 4. 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.
Mr. DENSMORE
 14. **GREEK LITERATURE.** Sem. 1-2, Cr. 4. Textbook, 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.
Assistant Professor SIDEX and Mr. DENSMORE
 15. **GREEK HISTORY.** See History 3. Mr. DENSMORE

HISTORY

PROFESSORS MEANY, RICHARDSON, ASSISTANT PROFESSORS McMAHON, MORRIS, INSTRUCTOR LUTZ, RESEARCH ASSISTANT JUDSON, GRADUATE ASSISTANT DOUGLAS.

REQUIREMENTS OF THE DEPARTMENT

THE EIGHT-HOUR REQUIREMENT IN HISTORY may be satisfied by one of the following courses:

1, 2. Mediæval and Modern European History. (Primarily for Freshmen; Juniors and Seniors receive only half credit). It is especially desirable that this course be selected in fulfillment of the history requirement and that it be taken in the Freshman year. 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.

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 1912-13 the prerequisite is mediæval history only.)

For a major at least eight credits 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.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	Med. and Mod. Eur. Hist..	1, 2	4	All.....	None
3	Greek History	1	4	All.....	
4	Roman History	2	4	All.....	
5, 6	English Political History*.	1, 2	4	S. Jr. Sr.	See req'rem'ts
7, 8	History United States*....	1, 2	4	S. Jr. Sr.	
9, 10	Makers of Nation.....	1, 2	2	S. Jr. Sr.	
11, 12	English Const. Historyt...	1, 2	2	Jr. Sr. Gr....	See statement

COURSES—Continued

No.	Title	Semes- ter	Credits per Se- mester	Offered to	Prerequisites
13, 14	France to 1515.....	1, 2	2	Jr. Sr. Gr....	2
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....	1	4	Jr. Sr. Gr....	2
21	French Rev. and Nap. Era	2	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., 1733-1823.....	1	4	Jr. Sr. Gr....	
26	U. S. Hist., 1823-1860.....	2	4	Jr. Sr. Gr....	
27	Civil War and Reconst.....	1	4	Jr. Sr. Gr....	
28	Hist. Nat'l Development...	2	4	Jr. Sr. Gr....	
29	Spain in America.....	1	4	Jr. Sr. Gr....	
30	Development of Pacific.....	2	4	Jr. Sr. Gr....	
31, 32	American Diplomacy.....	1, 2	2	Jr. Sr. Gr....	See statement
33, 34	Northwestern History.....	1, 2	2	Jr. Sr. Gr....	
35	Evol. of China—Before Manchu Conquest.....	1	2	S. Jr. Sr. Gr.	
36	Evol. of China—Modern....	2	2	S. Jr. Sr. Gr.	
37	Evol. of Japan—Feudal....	1	1	S. Jr. Sr. Gr.	
38	Evol. of Japan—Modern....	2	1	S. Jr. Sr. Gr.	
40	Meth. of Teaching Hist....	2	2	Jr. Sr. Gr....	
41, 42	Making of Eng. Const.....	1, 2	2-4	Gr.	See statement
43, 44	England under Tudors§.....				
45, 46	Seminar in Amer. Hist.....	1, 2	2	Gr.	See statement
47, 48	Joint Seminar.....	1, 2	2	Gr.	See statement

* Open to certain classes of Freshmen; see requirements of the department.

† Juniors and Seniors receive only half credit.

‡ See statement. § Omitted, 1912-13.

1, 2. **MEDIEVAL AND MODERN EUROPEAN HISTORY.** Sem. 1-2, Cr. 4. 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.

Assistant Professor MORRIS, Dr. LUTZ, Mr. DOUGLAS

3. **HISTORY OF GREECE.** Sem. 1, Cr. 4. A general survey of Greek history from the earliest times to the Roman conquest, including some account of the eastern sources of the civilization and of the spread of Hellenism.

Mr. DENSMORE

4. **HISTORY OF ROME.** Sem. 2, Cr. 4. A survey of Roman history to the fall of the Western Empire. Attention is given to the development of Roman institutions and law. Mr. DENSMORE

5, 6. **ENGLISH POLITICAL HISTORY,** Sem. 1-2, Cr. 4. A study of the political, social and intellectual development of the English people from the Saxon conquest to the end of the nineteenth century. Economic developments also receive attention.

Professor RICHARDSON

7, 8. **HISTORY OF THE UNITED STATES.** Sem. 1-2, Cr. 4. A general survey with emphasis upon political history. Lectures, text-book, collateral reading and topics.

Assistant Professor McMAHON

9, 10. **MAKERS OF THE NATION.** Sem. 1-2, Cr. 2. Lectures on the lives of leading Americans 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, 12. **ENGLISH CONSTITUTIONAL HISTORY.** Sem. 1-2, Cr. 2. The development of the legal and governmental institutions of the English people to the present time. 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

13, 14. **FRANCE TO 1515.** Sem. 1-2, Cr. 2. (Alternates with 41, 42. Omitted 1912-13.) Assistant Professor MORRIS

15, 16. **THE RENAISSANCE AND REFORMATION.** Sem. 1-2, Cr. 2. The Renaissance and Reformation will be treated primarily as intellectual movements and considered in their relations to the intellectual development of Europe. Professor RICHARDSON

17, 18. **PRUSSIA AND NORTHERN EUROPE.** (Omitted, 1912-13.) Professor RICHARDSON

19, 20. **HISTORY OF FRANCE FROM THE REFORMATION TO THE FRENCH REVOLUTION.** Sem. 1-2, Cr. 2. 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. Professor RICHARDSON

21. **THE FRENCH REVOLUTION AND NAPOLEONIC ERA.** Sem. 1, Cr. 4. 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. Professor RICHARDSON

22. **EUROPE SINCE 1814.** Sem. 2, Cr. 4. 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. 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. Professor RICHARDSON

23, 24. **ECONOMIC AND SOCIAL HISTORY OF THE AMERICAN COLONIES.** (Omitted 1912-13.) Assistant Professor McMAHON

25. **HISTORY OF THE UNITED STATES, 1783-1828.** Sem. 1, Cr. 4. 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. Sem. 2, Cr. 4. 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. Sem. 1, Cr. 4. A general study of the Civil war and the period of reconstruction.

Assistant Professor McMAHON

28. THE HISTORY OF NATIONAL DEVELOPMENT. Sem. 2, Cr. 4. 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. Sem. 1, Cr. 4. 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. Professor MEANY

30. DEVELOPMENT OF THE PACIFIC. Sem. 2, Cr. 4. History of the countries bordering upon the Pacific ocean, with special reference to the changes now in progress of development.

Professor MEANY

31, 32. HISTORY OF AMERICAN DIPLOMACY. Sem. 1-2, Cr. 2. 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. Sem. 1-2, Cr. 2. From the earliest voyages to the settlement and organization of the territories.

Professor MEANY

35. THE EVOLUTION OF CHINA—BEFORE THE MANCHU CONQUEST. Sem. 1, Cr. 2.

Professor GOWEN

36. THE EVOLUTION OF CHINA—MODERN ERA. Sem. 2, Cr. 2.

Professor GOWEN

37. THE EVOLUTION OF JAPAN—FEUDAL ERA. Sem. 1, Cr. 1.

Professor GOWEN

38. THE EVOLUTION OF JAPAN—MODERN ERA. Sem. 2, Cr. 1.

Professor GOWEN

40. METHODS OF TEACHING HISTORY. Sem. 2, Cr. 2. 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

41, 42. THE MAKING OF THE ENGLISH CONSTITUTION. Sem. 1-2, Cr. 2-4. The topic to be developed during the year 1912-13 is the rise of the English judicial system. Open to graduates and to a few seniors by special permission. Hours to be arranged. (Given in alternate years with 43, 44.) Assistant Professor MORRIS

43, 44. ENGLAND UNDER THE TUDORS. (Alternates with course 41, 42. Omitted 1912-13). Professor RICHARDSON

45, 46. SEMINAR IN AMERICAN HISTORY. Sem. 1-2, Cr. 2. One evening a week. This course is primarily for graduates or other advanced students who may be admitted by permission of the professor. Assistant Professor McMAHON

47, 48. JOINT SEMINAR. Sem. 1-2, Cr. 2. Designed for study and reports upon the problems in the historical, political, and legal developments 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

INSTRUCTORS, MISS HUMMEL, in charge of Department, and MISS BABCOCK.

The aim of the courses in home economics is to furnish training for teachers and dietitians, and to provide an artistic and literary training for home life.

Students taking the course in home economics must offer for entrance the requirements for admission to any group of the College of Arts and Sciences, or a certificate of graduation from an accredited high school course in domestic science.

Students who major in home economics and comply with all the other requirements for the A. B. degree (see page 58) will receive the degree of B. S.

Students may elect a maximum of twenty-four credits in home economics toward the A. B. degree.

Students who wish to prepare themselves to teach home economics should take the set course given on page 90.

COURSES

No.	Title	Semester	Credits per Semester	Deposit per Semester	Offered to	Prerequisites
1	Sel. and Prep. of Food	1	3	\$4.00	S. Jr.	Chem. 1c
2	Economic Uses of Food	2	3	\$4.00	S. Jr.	
3	Textiles	1	3	\$2.00	Jr.	Chem. 1c
4	Home Arch. and San..	1	2	.....	Jr. Sr.	Chem. 1c Bot. 3
5	Home Decoration	2	2	.....	Jr. Sr.	4
6	Dietetics	1	4	\$3.00	Jr. Sr.	1, 2, Chem. 3c Phys. 10
7	Household Manag'ment	2	3	.....	Sr.	2, 3, 6 and Econ. 1
8	Clothing	1, 2	2	\$1.00	Fr. S.	
9	Service of Food.....	1	3	\$4.00	S. Jr. Sr.	Chem. 3c H. E. 2
10	Hist. Home Econ.....	1	1	.....	Jr. Sr.	
11	Teacher's Course	1, 2	1	.....	Sr.	2, 3, 4, 5 and 6
12	Gen. Sur. of H. Econ.	1	2	.....	All.....	
13	Euthenics	1	4	.....	Jr. Sr.	Chem. 3c Phys. 10
14	Food and Nutrition...	2	4	.....	All.....	See course

1. **SELECTION AND PREPARATION OF FOOD.** Sem. 1, Cr. 3. Nature and uses of food, chemical composition, changes effected by heat, cold or fermentation, the manufacture of food, the combinations of different kinds. Miss HUMMEL, Miss BABCOCK

2. **ECONOMIC USES OF FOOD.** Sem. 2, Cr. 3. Continuation of course 1. Emphasis is put on the economic side of the food question; uses and application of preservatives; excursions to places of interest connected with the food supply. Miss HUMMEL, Miss BABCOCK

3. **TEXTILES.** Sem. 1, Cr. 3. The manufacturing conditions which affect the hygienic, economic and esthetic value of the material. Laboratory practice in identification and grading of market fabrics. A microscopic study of fibres and dyeing processes. Miss BABCOCK

4. **HOME ARCHITECTURE AND SANITATION.** Sem. 1, Cr. 2.

Miss HUMMEL

5. **HOME DECORATION.** Sem. 2, Cr. 2. Continuation of course

4. Evolution of the house. Theory of color and its application in home decoration. Miss BABCOCK

6. **DIETETICS.** Sem. 1, Cr. 4.

Miss HUMMEL

7. **HOUSEHOLD MANAGEMENT.** Sem. 2, Cr. 3. Miss HUMMEL

8. **CLOTHING.** Sem. 1-2, Cr. 2. Selection of materials; drafting and adaptation of patterns; cutting, fitting and making of garments with application of principles of color and selection of design in costume. Miss HUMMEL

9. **SPECIAL PROBLEMS IN CONNECTION WITH THE SERVICE OF FOOD.** Sem. 1, Cr. 3. Continuation of course 2. Marketing; domestic storage; menus; utilization of waste food materials as modified by special conditions. Miss HUMMEL, Miss BABCOCK

10. **HISTORY OF HOME ECONOMICS.** Sem. 1, Cr. 1.

11. **TEACHERS' COURSE.** Sem. 1-2, Cr. 1. Practical course.

Miss HUMMEL, Miss BABCOCK

12. **GENERAL SURVEY OF HOME ECONOMICS.** Sem. 1, Cr. 2.

Miss HUMMEL, Miss BABCOCK

13. **EUTHENICS.** Sem. 1, Cr. 4. Problems of hygienic and mental improvement of human offspring as influenced by heredity, nutrition and habit formation.

14. **FOOD AND NUTRITION.** Sem. 2, Cr. 4. Opportunity is given for original work in investigating the problem of food and nutrition. Prerequisites: Bacteriology 7, physiology 10, organic chemistry or food analysis, home economics. Miss HUMMEL

FOUR-YEAR COURSE IN HOME ECONOMICS

(Prescribed subjects required for the degree of Bachelor of Science in Home Economics.)

FRESHMAN

Sem. 1: English 1, Cr. 4; chemistry 1c, Cr. 4; German or French, Cr. 4; botany 2 or Zoology, Cr. 4; physical training, Cr. 2. Total credits, 18.

Sem. 2: English 2, Cr. 4; chemistry 2c, Cr. 4; German or French, Cr. 4; physiology 10, Cr. 4; physical training, Cr. 2. Total credits, 18.

SOPHOMORE

Sem. 1: Design, Cr. 3; organic chemistry 3c, Cr. 4; home economics 1, Cr. 3; German, French, English literature or Greek and Roman literature, Cr. 4; home economics 8, Cr. 2; physical training, Cr. 2. Total credits, 18.

Sem. 2: Architecture, Cr. 3; home economics 2, Cr. 3; economics 1, Cr. 4; German, French, English literature or Greek and Roman literature, Cr. 4; home economics 8, Cr. 2; physical training, Cr. 2. Total credits, 18.

JUNIOR

Sem. 1: Botany 3 (bacteriology), Cr. 4; home economics 3, Cr. 3; home economics 4, Cr. 2; home economics 6, Cr. 4; psychology or elective, Cr. 4. Total credits, 17.

Sem. 2: Physics of the home 6a, Cr. 4; sanitation, Cr. 3; home economics 5, Cr. 2; philosophy 2, Cr. 4; education 1 or elective, Cr. 4. Total credits, 17.

SENIOR

Sem. 1: Political science 3, Cr. 4; esthetics, Cr. 2; home economics 10, Cr. 1; home economics 11, Cr. 1; eutheics, Cr. 4; education 2 or elective, Cr. 4. Total credits, 16.

Sem. 2: Political science 4, Cr. 4; esthetics, Cr. 2; home economics 7, Cr. 3; home economics 11, Cr. 1; education or elective, Cr. 4. Total credits, 14.

ITALIAN

PROFESSOR FREIN, INSTRUCTOR SBEDICO.

1, 2. **ELEMENTARY.** Sem. 1-2, Cr. 4. The course will be open only to those who have earned credits in French or Spanish. No student will be allowed to begin Italian and French (or Spanish) the same year.

Dr. SBEDICO

3, 4. **ADVANCED.** Sem. 1-2, Cr. 2. Selections from Dante's *La Divina Commedia*.

Professor FREIN

JOURNALISM

ASSISTANT PROFESSOR SHERIDAN, INSTRUCTOR SMITH,
ASSISTANT KENNEDY.

Men and women planning to go into newspaper work as a profession are provided with a course especially designed to help in qualifying them for journalism. The value of such preliminary training obtainable in a college course has become recognized generally among the editors of newspapers and magazines. In the department practical journalism is studied, following as closely as feasible the work in a newspaper office. To aid in this

purpose a well-equipped printing office has been established as a laboratory adjunct to the department.

Allied courses are prescribed such as are most profitable in developing that broad scholarship which, in addition to his technical newspaper training, help the graduate to meet the requirements of modern newspaper work. These seek especially to familiarize the student with present social, political and industrial conditions.

Those who prefer a more elaborate course in journalism than is provided within the limitations of the bachelor of arts degree* may elect further courses either by adding them to the required courses or by becoming a candidate for a degree other than the bachelor of arts.

The department is fortunate in having the aid and encouragement of newspapers of Seattle, and of the state at large. Through the courtesy of the Seattle Times the department has exclusive control of one page of the Sunday edition, and many editors and writers of the state have favored the department with lectures and assistance in other ways.

GENERAL JOURNALISM COURSE

The major in journalism is restricted to twenty-four hours. Students wishing to take the short story course provided in the department of journalism and include it in their major may substitute the credits in that course for other journalism credits, with the consent of the head of the department of journalism.

FRESHMAN

Elements of newspaper writing and editing, Cr. 1; mechanics of printing, Cr. 3; English, Cr. 8; modern foreign language or ancient languages and literature, Cr. 8; history, Cr. 8; mathematics, Cr. 4. Total credits, 32.

SOPHOMORE

Newspaper reporting, Cr. 6; ancient language and literature or modern foreign language, Cr. 8; physical science, Cr. 8; political economy, Cr. 8. Total credits, 32.

Elective recommended: Advanced composition.

JUNIOR

Newspaper editing, Cr. 4; newspaper history, Cr. 2; advanced printing, Cr. 2; biological science, Cr. 8; political science, Cr. 8. Total credits, 24.

Electives recommended: The short story, English literature, history, argumentation, ethnology, evolution.

SENIOR

News interpretation, Cr. 2; editorial writing, Cr. 2; advertising, Cr. 2; philosophy, Cr. 8. Total credits, 14.

* Not more than 24 credits in journalism may be counted toward the A. B. degree.

Electives recommended: As above, or law, practical public speaking for men, library reference, magazine make-up, additional courses in political science or philosophy.

SPECIFIC JOURNALISM COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Elem'ts Newspaper Writing	1, 2	1	Fr.....	None
2, 3	Reporting	1, 2	3	S.....	Rhet. 1, 2
4, 5	Editing	1, 2	2	Jr.....	1, 2
6	Newspaper History	1, 2	2	Jr.....	None
7	News Interpretation	1, 2	2	Sr.....	1, 2, 3, 4
8, 9	Editorial Writing	1, 2	1	Jr.....	Eng. 1, 2
10, 11	Short Story	1, 2	3	All.....	Eng. 1, 2
12	Advertising	1, 2	2	Jr.....	None
13	Printing	1, 2	3	Fr.....	None
14	Advanced Printing	1, 2	2	S.....	8

1. ELEMENTS OF NEWSPAPER WRITING AND METHODS. Sem. 1, Cr. 1. The differences between newspaper writing and other forms of literature. Lectures on the general character of newspaper work.

2, 3. REPORTING. Sem. 1-2, Cr. 3. Practical reporting and correspondence. The news story. The human interest story and its kinship to the short story. The feature. Gathering campus news.

4, 5. EDITING. Sem. 1-2, Cr. 2. Practical work in preparing and editing matter for dailies, weeklies and class periodicals.

6. NEWSPAPER HISTORY. Sem. 2, Cr. 2. A comprehensive history of journalism; of the progress of the American press from colonial times, and a study of the lives and methods of famous journalists.

7. NEWS INTERPRETATION. Sem. 1-2, Cr. 2. A study of leading newspapers and magazines and their methods of handling the important topics of the day; in politics, science and discovery, literature and art. Object of the course is to train the student to seize upon the essential of daily events and comment upon them intelligibly. Student will prepare weekly dummy of world's news, resembling that given in the *Literary Digest*.

8, 9. EDITORIAL WRITING. Sem. 1-2, Cr. 2. Practice in the writing of editorials.

13. THE MECHANICS OF PRINTING. Sem. 1-2, Cr. 3. 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 publications from the press of the department of journalism. Laboratory fee, five dollars.

14. THE ART OF PRINTING. Sem. 1-2, Cr. 3. 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.

10, 11. SHORT STORY. Sem. 1-2, Cr. 3. Constant writing, commencing with the simplest and most ancient forms of the tale and leading through the sketch and fable to the highly complicated short story of the moment. Historical evolution from the tale of Ruth and earlier narratives down to O. Henry and the contemporary magazine and newspaper. Copious reading of examples and masterpieces in illustration of the history and in guidance of the writing.

12. ADVERTISING. Sem. 1-2, Cr. 2. Study of successful advertising methods, with lectures by advertising experts.

LATIN

PROFESSOR THOMSON, ASSISTANT PROFESSOR SIDEY, INSTRUCTOR SAGE

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 eight 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 1, 2.
- g. Greek 1, 2 or 3, 4.
- h. Oriental literature—Persian and Indian.

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
1	Cicero	1	4	Fr.	4 yrs. prep. Latin
2	Livy	2	4	Fr.	4 yrs. prep. Latin
3	Catullus, Tibullus	1	4	S.	1 and 2
4	Plautus, Terence	2	4	S.	
5	Horace, Juvenal	1	2	Jr. Sr. Gr.	3 and 4
6	Tacitus	2	2	Jr. Sr. Gr.	5
7	Caesar, Suetonius	1	2	Jr. Sr. Gr.	5 and 6
8	Sallust, Virgil	2	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	S. Jr. Sr. * ..	None
14	Hist. of Roman Lit.	2	4	S. Jr. Sr. * ..	None
15	History of Rome	2	4	All.	None
16	Roman Law	1	2	All.	4 yrs. prep.
17	Roman Law	2	2	All.	4 yrs. prep.
18	Lucretius, Cicero	1	2	Gr.	
19	Cicero, Seneca	2	2	Gr.	
20	Quintilian	1	2	Gr.	
21	Tacitus	2	2	Gr.	
22	Statius, Martial	1	2	Gr.	
23	Tacitus	2	2	Gr.	
24	Roman Antiquities	1	2	Latin Majors	4 yrs. prep. Latin

* Freshmen who have had two years of Latin.

A. CICERO. Orations. Sem. 1, Cr. 4. Dr. SAGE

B. CICERO. Orations. Sem. 2, Cr. 4. Dr. SAGE

C. VERGIL. Aeneid I-III. Sem. 1, Cr. 4. Dr. SAGE

D. VERGIL. Aeneid IV-VI. Sem. 2, Cr. 4. Dr. SAGE

Courses A, B, and C, D, are given in alternate years. Course C, D, will not be given in 1912-13.

1. CICERO. De Senectute and Letters. Sem. 1, Cr. 4. Primarily for freshmen. Professor THOMSON and Dr. SAGE

2. LIVY. Book I and selections from others of the early books. Sem. 2, Cr. 4. Professor THOMSON and Dr. SAGE

3. CATULLUS, TIBULLUS AND HORACE. Primarily for sophomores. Sem. 1, Cr. 4. Assistant Professor SIDEX

4. PLAUTUS, Captivi and Mostellaria. TERENCE, Phormio and Heauton. Sem. 2, Cr. 4. Assistant Professor SIDEX

FOR JUNIORS, SENIORS AND GRADUATES

5. HORACE, Satires and Epistles. JUVENAL, Satires. Sem. 1, Cr. 2. Professor THOMSON
6. TACITUS. Selected books of The Annals. Sem. 2, Cr. 2. Professor THOMSON
7. CAESAR. Bell. Gall. V-VII and Bell. Civile. SUETONIUS, Julius Caesar. Sem. 1, Cr. 2. Assistant Professor SIDEY
8. SALLUST, Catiline. VERGIL, Bucolics and Georgics, Ancient Lives of Vergil. Sem. 2, Cr. 2. Assistant Professor SIDEY
9. TEACHERS' COURSE. Sem. 1, Cr. 2. Practice in writing 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. Assistant Professor SIDEY
10. TEACHERS' COURSE. Sem. 2, Cr. 2. Course 9 continued. Visits will be made to schools where Latin is taught and reports of the teaching observed will be presented by members of the class. Assistant Professor SIDEY
24. ROMAN ANTIQUITIES. For Latin majors. Sem. 1, Cr. 2. Assistant Professor SIDEY

FOR GRADUATES

18. LUCRETIVS. Sem. 1, Cr. 2. Books I and III; CICERO, Tusculan Disputations I and IV. Professor THOMSON
19. CICERO, De Officiis. SENECA, Moralia. Sem. 2, Cr. 2. Professor THOMSON
20. QUINTILIAN. I, X, XII. Sem. 1, Cr. 2. Professor THOMSON
21. TACITUS. Histories I, II. Sem. 2, Cr. 2. Professor THOMSON
22. STATIUS, Silvae; MARTIAL, Epigrams. Sem. 1, Cr. 2. Professor THOMSON
23. TACITUS, Dialogus. Sem. 2, Cr. 2. Professor THOMSON

OPEN TO ALL STUDENTS

11. ROMAN CIVILIZATION. Sem. 1, Cr. 4. 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. Dr. SAGE
12. ROMAN CIVILIZATION. Course 11 repeated. Sem. 2, Cr. 4. Dr. SAGE
13. HISTORY OF ROMAN LITERATURE. Sem. 2, Cr. 4. MacKail's Latin Literature, supplemented by lectures and collateral reading.

Illustrative selections from English versions of the more important authors.
Assistant Professor SIDEX

NOTE.—Not open to freshmen who have not had at least two years of Latin.

14. HISTORY OF ROMAN LITERATURE. Sem. 2, Cr. 4. Course 13 repeated.
Assistant Professor SIDEX

15. HISTORY OF ROME TO THE FALL OF THE WESTERN EMPIRE. Sem. 2, Cr. 4. (See history 4.)
Mr. DENSMORE

16, 17. ROMAN LAW. Sem. 1-2, Cr. 4. 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.

Professor THOMSON

LIBRARY ECONOMY

LIBRARIAN HENBY, ASSISTANT LIBRARIAN SMITH, ASSISTANT MEISSNER, in charge of classification and circulation.

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-hours courses for which twenty credits are granted, twelve of which may be counted toward the A. B. degree, four in the junior year and eight in the senior year.

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.

COURSE OF STUDY

JUNIOR YEAR

1. LIBRARY ECONOMY. Sem. 1, Cr. 5. Book-buying, accessioning, classification and book numbers, shelf-listing, book-making and mending, periodicals, trade bibliography.

Mr. HENRY and Miss MEISSNER

2. LIBRARY ECONOMY. Sem. 2, Cr. 5. Cataloging, circulation, reference.

Mr. SMITH and Miss MEISSNER

SENIOR YEAR

3. LIBRARY ECONOMY. Sem. 1, Cr. 5. Cataloging continued, reference continued, public documents.

Mr. SMITH and Miss MEISSNER

4. LIBRARY ECONOMY. Sem. 2, Cr. 5. Library organization and extension; inspection of public libraries, book selection, work with children, library administration.

Mr. HENRY and Miss MEISSNER

MATHEMATICS

PROFESSOR MORITZ, ASSOCIATE PROFESSOR GOULD, ASSISTANT PROFESSORS MORRISON, GAVETT; INSTRUCTORS LOVITT, CARPENTER, NEIKIRK, BIDDLE, WHITMORE; GRADUATE ASSISTANTS BOYD, MADISON.

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 1, 2, or 1b, 2b.

REQUIREMENTS OF THE DEPARTMENT

1. For all students in College of Arts and Sciences, course 1, 1b, 2b, or 1, 2, except when trigonometry has been offered for admission, in which case course 1, 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	Trigonometry *	1, 2	2	Fr.	2½ yrs. entr.†
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. S.	Same as 1
3, 4	Calculus ‡	1, 2	4	S.	2
3a, 3a	Diff. Calculus ‡	1, 2	4	S.	2a
4a, 4a	Int. Calculus	1, 2	4	S.	3a
5a	Applications of D. I. Cal.	1	2	Jr.	3a, 4a
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, 16	Functions	1, 2	2	Sr. Gr.	5 and 6
17, 18	Elliptic Functions	1, 2	2	Sr. Gr.	5 and 6
19	Diff. Geometry	1	4	Jr. Sr. Gr.	4 or 4a
20	Modern Geometry	2	4	Jr. Sr. Gr.	4 or 4a
21, 22	Teacher's Course	1, 2	2	Sr.	4 or 4a
23, 24	Non-Euclidean Geometry..	1, 2	2	Jr. Sr. Gr.	4 or 4a
25, 26	Theory of Numbers.....	1, 2	2	Jr. Sr. Gr.	4 or 4a
27, 28	Thermodynamics.....	1, 2	2	Jr. Sr. Gr.	4 or 4a
30, 31	Descriptive Geom. and Curve Tracing	1, 2	2	Jr. Sr. Gr.	4 or 4a
32, 33	Theory of Equations.....	1, 2	3	Jr. Sr. Gr.	4 or 4a
36	Seminar	1, 2	.....	Gr.	

* 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

A, B. SOLID GEOMETRY. Sem. 1-2, Cr. 4. Required during the first year of all students in the Colleges of Engineering, Forestry and Mines, who do not offer solid geometry for admission.

1. PLANE TRIGONOMETRY. Sem. 1-2, Cr. 4. 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.

1a. PLANE TRIGONOMETRY AND ALGEBRA. Sem. 1 or 2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

2a. ANALYTICAL GEOMETRY AND ALGEBRA. Sem. 1 or 2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

1b, 2b. COLLEGE MATHEMATICS. Sem. 1-2, Cr. 4. Primarily for students in history, literature and philosophy who can devote but one year to the study of mathematics. Elements of trigonometry, college algebra, analytical geometry and the infinitesimal calculus. Emphasis is put on the concepts of the college mathematics rather than on the details of the science.

3, 4. CALCULUS. Sem. 1-2, Cr. 4. 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.
Mr. CARPENTER

3a, 4a. CALCULUS FOR ENGINEERS. Sem. 1-2, Cr. 4. May be begun either semester. A first course in calculus with special reference to the needs of engineering students.

4a. CALCULUS FOR ENGINEERS. Sem. 1, Cr. 4. Second half of courses 3a, 4a.

5a. APPLICATIONS OF DIFFERENTIAL AND INTEGRAL CALCULUS. Sem. 1, Cr. 2. For students in the Colleges of Engineering, Forestry and Mines.

5. ADVANCED CALCULUS. Sem. 1, Cr. 4. 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.

Professor MORITZ

6. COLLEGE ALGEBRA. Sem. 2, Cr. 4. 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.

Professor MORITZ

7, 8. ANALYTIC MECHANICS. Sem. 1-2, Cr. 2. Mathematical treatment of the laws of force and motion.

Associate Professor GOULD

9, 10. VECTOR ANALYSIS.* Sem. 1-2, Cr. 2.

Assistant Professor GAVETT

11. ORDINARY DIFFERENTIAL EQUATIONS. Sem. 1, Cr. 2. 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.

Mr. NEIKIRK

12. PARTIAL DIFFERENTIAL EQUATIONS. Sem. 1, Cr. 2. 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 the same with given boundary conditions. Must be preceded by 11.

Dr. NEIKIRK

13, 14. PROJECTIVE GEOMETRY.* Sem. 1-2, Cr. 2.

Mr. CARPENTER

* Not given in 1912-13.

15, 16. FUNCTIONS OF THE COMPLEX VARIABLE. Sem. 1-2, Cr. 2. The theories of Cauchy, Weierstrass and Riemann. Conformal representation, integrability, etc. Associate Professor MORRISON

17, 18. ELLIPTIC FUNCTIONS.* Sem. 1-2, Cr. 2.
Associate Professor MORRISON

19. DIFFERENTIAL GEOMETRY.* Sem. 1, Cr. 4.
Professor MORITZ

20. MODERN ANALYTICAL GEOMETRY.* Sem. 2, Cr. 4.
Professor MORITZ

21, 22. TEACHERS' COURSE. Sem. 2, Cr. 4. 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.
Mr. CARPENTER

23, 24. NON-EUCLIDEAN GEOMETRY. Sem. 2, Cr. 2.
Assistant Professor GAVETT

25, 26. THEORY OF NUMBERS. Sem. 1-2, Cr. 2. Introductory course. Divisibility of numbers, the totient function, congruences, the theorems of Fermat, Euler and Wilson; the theory of quadratic residues.
Dr. BIDDLE

27, 28. THERMODYNAMICS. Sem. 1-2, Cr. 2. Mathematical treatment following the method of J. W. Gibbs. Dr. WHITMORE

30, 31. DESCRIPTIVE GEOMETRY AND CURVE TRACING. Sem. 1-2, Cr. 2. For students in advanced mathematics. Theoretical treatment of the principles underlying graphic methods.
Mr. CARPENTER

32, 33. THEORY OF EQUATIONS. Sem. 1-2, Cr. 3. Includes the Galois theory and the theory of invariants. Professor MORITZ

34. 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.

35. 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.

36. SEMINAR. Sem. 1-2. Required of students working for the master's degree in mathematics. Credit to be determined.
Professor MORITZ

MILITARY SCIENCE AND TACTICS

W. T. PATTEN, Captain 13th 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. Three hours a week are devoted to military training, for which two credits are given each semester.

MUSIC

PROFESSOR GLEN, INSTRUCTOR CROSS, ASSISTANTS ROSEN, HILLING, HALL, ZIMMERMAN, COLE, ST. JOHN.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Musical Theory	1, 2	2	All.....	
2	Elementary Harmony	1, 2	2	All.....	1 or equiv.
4	Advanced Harmony	1, 2	2	All.....	1 and 2
3	Music Form and Analysis..	2	2	All.....	1 and 2
5	History of Music.....	1, 2	2	All.....	
6	Musical Appreciation	2	2	All.....	
7	Choral Study	1, 2	1	All.....	See below
8	Practical Performance ...	1, 2	1	All.....	See below
9	Orchestral Study	1, 2	2	All.....	See below
10	Sight Reading	1, 2	1	All.....	
11	Public School Music.....	1, 2	2	All.....	See below

DESCRIPTION OF COURSES

1. **THEORY.** Sem. 1-2, Cr. 2. A thorough course in sight reading, ear training and elementary theory. Practical work in scale study.
Mrs. CROSS

2. **HARMONY.** Sem. 1-2, Cr. 2. Study of intervals, construction, relation and progression of chords, and harmonization of melodies.
Mrs. HILLING

3. **MUSIC FORM.** Sem. 1-2, Cr. 2. An essential study of music leading directly to composition.
Mrs. HILLING

4. **ADVANCED HARMONY.** Sem. 1-2, Cr. 2. Analysis of form, counterpoint, in three or more parts. Composition.
Mrs. HILLING

5. **HISTORY OF MUSIC.** Sem. 1-2, Cr. 2. A survey course, covering the progress of musical development from the primitive period to the modern.
Professor GLEN

6. **MUSICAL APPRECIATION.** Sem. 2, Cr. 2. A course planned to make music contribute to liberal culture. Actual presentation of musical masterpieces of different periods, by mechanical devices.
Professor GLEN

7. **CHORAL STUDY.** Sem. 1-2, Cr. 1. The University chorus provides the opportunity, for those qualified, to study the more serious as well as the lighter forms of choral composition. Candidates must satisfy the director as to the extent of their musical ability.
Professor GLEN

8. **PRACTICAL PERFORMANCE.** Sem. 1-2, Cr. 1. The courses in applied music cover the following lines of work:

Piano..... Mrs. Cross and Miss Zimmerman
Violin..... Mr. Rosen
Voice..... Mrs. Katherine Hall

Students enrolled in these courses will be given opportunity, upon demonstration of the required ability, to participate in the public recitals of the department.

9. **ORCHESTRAL STUDY.** Sem. 1-2, Cr. 2. The University orchestra affords an unusual opportunity for the study of the various forms of orchestral composition. None admitted without the recommendation of the director.
Professor GLEN

10. **SIGHT READING.** Sem. 1-2, Cr. 1. A course designed for those who may be naturally well equipped for choral work, but who do not possess the requisite ability to read music.
Professor GLEN

11. **PUBLIC SCHOOL MUSIC.** Sem. 1-2, Cr. 2. This course is arranged for the special benefit of those interested in the teaching of music in the public schools, and will, as far as possible, cover both content and method. Only those will be eligible to this course who, in the judgment of the instructor, may be musically well enough equipped to pursue it to advantage.
Miss COLE

NOTE.—Credit in courses 7 and 8 will be given only upon the recommendation of the director, and in course 9 upon the recommendation of the instructor in charge and the director.

GENERAL INFORMATION

In July, 1911, the Board of Regents of the University added the department of music to the then existing University departments, and later in the year the faculty approved and adopted the following courses leading to the degree of "bachelor of music." This action in no way affected a former ruling to the effect that twelve credits of music might be offered toward the B. A. degree.

The course leading to the degree of bachelor of music with vocal music as a major:

FRESHMAN

Vocal music, Cr. 8; history of music, Cr. 4; choral study, Cr. 2; English composition, Cr. 8; Italian, Cr. 8; physical training or drill, Cr. 4. Total credits, 34.

SOPHOMORE

Vocal music, Cr. 8; harmony, Cr. 4; choral study, Cr. 2; French or German, Cr. 8; physics, Cr. 8; physical training or drill, Cr. 4. Total credits, 34.

JUNIOR

Vocal music, Cr. 8; harmony, Cr. 4; choral study, Cr. 2; French or German, Cr. 8; political science, Cr. 8. Total credits, 30.

SENIOR

Vocal music, Cr. 8; choral study, Cr. 2; musical appreciation, Cr. 2; program, Cr. 6; philosophy, Cr. 8; elective, Cr. 4. Total credits, 30.

Course leading to bachelor of music with instrumental music as a major:

FRESHMAN

Instrumental music, Cr. 10; history of music, Cr. 4; English composition, Cr. 8; Italian, Cr. 8; physical training or drill, Cr. 4. Total credits, 34.

SOPHOMORE

Instrumental music, Cr. 10; harmony, Cr. 4; French or German, Cr. 8; physics, Cr. 8; physical training or drill, Cr. 4. Total credits, 34.

JUNIOR

Instrumental music, Cr. 10; harmony, Cr. 4; German or French, Cr. 8; political science, Cr. 8. Total credits, 30.

SENIOR

Instrumental music, Cr. 10; musical appreciation, Cr. 10; philosophy, Cr. 8; program, Cr. 6; elective, Cr. 4. Total credits, 30.

NOTE.—A total of two years of German and two years of French pursued either in high school or in the University is required for the degree. If a student has finished this language work in the high school he shall substitute electives in the University. If he presents neither French nor German for admission he must supply the deficiency above the sixteen hours allowed for in the outlined courses, without credit.

If a student has had two years of Latin he may be excused from the second required year of French or German, at the discretion of the head of the department of music.

The requirements for admission to the courses leading to the degree of bachelor of music shall be identical in academic subjects with those admitting to any course in the College of Arts and Sciences. In addition thereto, there shall be required the equivalent of four years' work in music of the following character:

First Year: Rudiments of music. Melody and rhythm. Principles of touch and technique. Major scales. Studies by Gurliitt, Gaynor, Martin, Lambert, etc.

Second Year: Continuation of work in melody and technique. All major scales. Begin the study of chords in three tones. Studies by Lynes, Behr, Lambert, Tschaikowski, etc.

Third Year: Begin minor scales, essential chords of scales in three positions. Studies by Bertini, Berens, Czerny, Kohler, Clementi, Moszkowski, etc.

Fourth Year: Scales, chords of scales in all positions. Studies by Bertini, Czerny, Loeschorn; easier Mozart and Haydn sonatas, Bach (Little Preludes and Fugues), Schumann.

NORMAL DIPLOMA. Graduates in music may receive in addition to their bachelor of music degree a normal diploma, entitling them to teach music in the public schools, by meeting the requirements of the department of education and such departmental requirements as the department of music may see fit to institute. This will necessitate a total of at least 132 credits.

CERTIFICATES OF PROFICIENCY. May be issued by the head of this department to students who may not have completed the requirements for the degree, but who have satisfactorily completed certain stipulated courses at the discretion of the department.

COLLEGE COURSES IN APPLIED MUSIC. The courses outlined are not necessarily arbitrary. They simply indicate the amount and character of the work that the student is expected to cover for his musical degree. Credit will be given for equivalent courses pursued elsewhere.

PIANO

Freshman: All major and minor scales, chords, in four-note forms, diminished seventh, arpeggios of all common chords, major and minor fundamental position. Studies, Czerny, Op. 299; selected studies of Cramer, Berens, Op. 61; sonatas, Reinecke, Krauss, Mozart, Haydn; two part inventions, Mendelssohn songs, Schuman, Op. 15, MacDowell, etc.

Sophomore: Chords in inversions. Studies of Cramer, Czerny, two and three-part inventions of Bach, Haydn, and Mozart, Sonatas; Weber, Schubert, Mendelssohn, Greig, and Moszkowski.

Junior: Scales in thirds, sixths, and tenths. Studies, Op. 740 Czerny, Clementi, Gradus ad Parnassum; Bach's French and English suites and fugues; Beethoven, Schumann; easier concertos of Mozart, Mendelssohn; Chopin nocturnes and waltzes.

Senior: Studies in Chopin, Clementi, Bach; Well-tempered Clavichord, Brahms, Grieg, Korsakow, MacDowell, etc.

VOCAL MUSIC

The course in vocal music is even more flexible than that outlined for piano study. The purpose is to develop the voice and musical understanding so that the best in vocal music may be faithfully interpreted. The fact of having studied vocal music for four years will not necessarily entitle a student to graduation.

Freshman: Practical work in voice placing, breathing, studies from among the following: Concone, Op. 9; Marchesi, Op. 1; Panofka, Op. 85; Vaccai, Book I; simple Italian and English songs.

Sophomore: Progressive tone work; Bordogni, Concone, Marchesi, Panofka, simple Italian arias, Italian and English songs.

Junior: Tone work; advanced technique. Arias from Italian, French and German operas. German song classics; modern French and English songs.

Senior: Tone work and technique. Repertoire in opera and oratorio. Recitals; Senior Program.

VIOLIN

Freshman: Violin schools, Dancla, DeBeriot; Exercises, Wohlfahrt, Op. 45; Etudes, Kayser.

Sophomore: Scales, Hirnaly; Studies, Blumenstengel Op. 33, Mazas, Books I and II; Concerto, Accoly; Scene de Ballet, DeBeriot.

Junior: Exercises, Schradieck, Books I and II; Etudes, Kreutzer, Fiorillo; Rode: Concertos, De Beriot 7 and 9, Spohr 2 and 8.

Senior: Scales, Rosen; Etudes, Gavini; Dont Op. 35; Bach Sonata for violin alone; Concertos, Bruch, Mendelssohn, Wieniaski, D-Minor, Vieuxtemps, No. 4.

NOTE.—In the last semester the student is obliged to memorize one sonata by Bach for violin alone and one of the concertos given in the fourth year.

FEES. Since most of the work in the courses in applied music must necessarily be of the character of private or individual instruction, the student will be required to pay tuition fees for this work. These fees are payable to the University Bursar and are collected in advance for the entire semester. No rebate will be made for the loss of lessons falling on national or University holidays nor will such lessons be made up by the teacher. The rate charged takes these into consideration. The following quotations are based on one lesson per week. More than one lesson per week will be charged for at the same rate. All lessons are one-half hour in length:

Piano: Mrs. Cross, \$24.00 per semester; Miss Zimmerman, \$16.00 per semester.

Vocal Music: Mrs. Hall, \$16.00 per semester.

Violin: Mr. Rosen, \$24.00 per semester.

Arrangements may be made for individual instruction in other musical courses if necessary or desirable.

Pianos for practice may be rented at the Music Building at the following rates:

One hour daily, \$4.00 per semester.

Two hours daily, \$7.50 per semester.

Additional hours, \$3.00 per semester.

All rental charges must be paid in advance. No rebate in these charges will be allowed. Lessons lost through enforced absence may not be made up unless the teacher in charge has been previously notified of the intended absence and is willing to accept the excuse for the absence.

ORIENTAL HISTORY, LITERATURE AND INSTITUTIONS

PROFESSORIAL LECTURER GOWEN.

The requirement of one year's work in ancient language and literature may be satisfied by courses 5 and 6. Courses 1, 2, 3 and 4 count for credits in the department of history.

1. THE EVOLUTION OF CHINA—BEFORE THE MANCHU CONQUEST. Sem. 1, Cr. 2.

2. THE EVOLUTION OF CHINA—MODERN ERA. Sem. 2, Cr. 2.
3. THE EVOLUTION OF JAPAN—FEUDAL ERA. Sem. 1, Cr. 1.
4. THE EVOLUTION OF JAPAN—MODERN ERA. Sem. 2, Cr. 1.
5. THE LITERATURE OF INDIA. Sem. 1, Cr. 4.
6. THE LITERATURE OF PERSIA. Sem. 2, Cr. 4.
- 7-8. ELEMENTARY SANSKRIT. Sem. 1-2, Cr. 4; time to be arranged.
- 9-10. ELEMENTARY HEBREW. Sem. 1-2, Cr. 4; time to be arranged.

PHILOSOPHY

PROFESSOR SAVERY, ASSOCIATE PROFESSOR STEVENS, ASSISTANT
PROFESSOR SMITH, INSTRUCTORS DUCASSE, WILCOX.

Majors in philosophy should take 15 and 1 or 2 in the sophomore year. The requirements in philosophy may be satisfied by eight hours in the following courses: 1, 2, 3, 4, 15, 16, 17, 18; or by 5, 6.

Courses 2, 3 and 15 are adapted to arts-law students.

Course 15 is a prerequisite to the study of education, unless the student has taken elsewhere elementary psychology.

A laboratory fee of two dollars will be charged for each semester's course in psychology.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Introd. to Philosophy.....	1	4	S. Jr.	
2	Ethics	2	4	S. Jr.	
3	Logic (Arts-Law students).....	1	4	S. Jr.	
4	Logic	2	4	S. Jr.	
5, 6	Hist. of Philosophy.....	1, 2	4	Jr. Sr. †.....	
7	Philos. of Science.....	1, 2	2	Jr. Sr. Gr....	One course
8	Hist. of Religion †.....	1, 2	2	Jr. Sr. Gr....	None
9	Philos. of Religion.....	1, 2	2	Jr. Sr. Gr....	One course
10	Philos. in English Poetry of the Nineteenth Cent....	1, 2	2	Jr. Sr. Gr....	
11	Esthetics	1, 2	2	Jr. Sr. Gr....	
12	Metaphysics	1, 2	4	Sr. Gr.....	8 credits
13	Semin'ry Philos. of Bergson	1, 2	3	Sr. Gr.....	*
15	Elements of Psychology....	1	4	S. Jr.	None
16	Principles of Psychology....	1, 2	3	Jr. Sr. Gr....	15
17	Physiol. Psychology	2	4	Jr. Sr. Gr....	15
18	Experimental Psychology..	2	4	Jr. Sr. Gr....	15
19	Genetic Psychology	1	3	Jr. Sr. Gr....	15
20	Abnormal Psychology	2	3	Jr. Sr. Gr....	15
21, 22	Research in Psychology....	1, 2	2	Sr. Gr.....	*
25	Psychology of Exceptional Children	1	4	Sr. Gr.....	15

* Open to students only upon approval of instructor.

† Open to Sophomores upon approval of instructor.

‡ Not offered in 1912-13.

COURSES

1. **INTRODUCTION TO PHILOSOPHY.** Sem. 1, Cr. 4. An elementary study of the main problems of philosophy.

Professor SAVERY

2. **ELEMENTS OF ETHICS.** Sem. 2, Cr. 4. Study of value, the good, duty, virtue. Application of ethical principles to problems of economic life, government, law, art and religion. Three lectures, one discussion hour.

Professor SAVERY, Mr. DUCASSE, Mr. WILCOX

3. **ELEMENTS OF LOGIC** (for arts-law students). Sem. 1, Cr. 4. The nature of clear ideas and valid reasoning. Analysis of fallacies. Adapted to those intending to study law. Mr. DUCASSE

4. **ELEMENTS OF LOGIC.** Sem. 2, Cr. 4. The nature of clear ideas, and valid reasoning. Analysis of fallacies. Mr. DUCASSE

5, 6. **HISTORY OF PHILOSOPHY.** Sem. 1-2, Cr. 4. Ancient, medieval and modern; genetic, critical and constructive.

Mr. DUCASSE

7. **PHILOSOPHY OF SCIENCE.** Sem. 1-2, Cr. 2. The fundamental laws and concepts of the sciences—mathematical, physical and biological. Interpretation of the scientific view of the world and its place in the human economy. Primarily for majors in science.

Professor SAVERY or Mr. WILCOX

8. **HISTORY OF RELIGION.** Sem. 1-2, Cr. 2. The nature, origin and early development of religion, and its advanced types in Brahmanism, Buddhism, Confucianism, Zoroastrianism, and Judaism.

Mr. DUCASSE

9. **PHILOSOPHY OF RELIGION.** Sem. 1-2, Cr. 2. (Not offered, 1912-13.)

10. **PHILOSOPHY IN ENGLISH POETRY OF THE NINETEENTH CENTURY.** Sem. 1-2, Cr. 2. Conceptions of the universe, evolution, the destiny of man, the individual and social ideal in Wordsworth, Shelley, Emerson, Browning, Tennyson, Fitzgerald's Omar Khayyam, James Thomson, Arnold, Swinburne and Whitman. Some account of Carlyle, Ruskin and Morris.

Professor SAVERY

11. **ESTHETICS.** Sem. 1-2, Cr. 2. The nature of beauty and its typical forms in art. The sublime, the tragic, the comic, the grotesque and allied esthetic forms. History of art; social theories of art.

Mr. WILCOX

12. **METAPHYSICS.** Sem. 1-2, Cr. 4. (1) The meaning and tests of truth; (2) theories of the universe, the self, the material world and God; (3) pessimism, optimism and the evolution and destiny of man.

Professor SAVERY

13. **SEMINARY: THE PHILOSOPHY OF BERGSON.** Sem. 1-2, Cr. 3. Interpretation and criticism of Bergson's works.

Professor SAVERY

15. **ELEMENTS OF PSYCHOLOGY.** Sem. 1, Cr. 4. The phenomena and principles of consciousness in their dependence upon the

nervous system. Three lectures, one recitation, one laboratory period. Associate Professor STEVENS, Mr. DUCASSE, Mr. WILCOX

16. PRINCIPLES OF PSYCHOLOGY. Sem. 1-2, Cr. 3. A systematic study. Students are urged to precede this by physiological psychology. Associate Professor STEVENS

17. PHYSIOLOGICAL PSYCHOLOGY. Sem. 2, Cr. 4. The human brain and spinal cord, demonstration of the motor region of the cortex, summation of stimuli, inhibition, rate of transmission of the nerve impulse, Weber's law and space perception. One lecture, one recitation, two laboratory periods. Associate Professor STEVENS

18. EXPERIMENTAL PSYCHOLOGY. Sem. 2, Cr. 4. Training in methods and results. Mainly qualitative experiments upon mental states and the association of ideas. One lecture, one recitation and two laboratory periods. Mr. WILCOX

19. GENETIC PSYCHOLOGY. Sem. 1, Cr. 3. (1) Child psychology, the mental development of the child; and (2) race psychology, the evolution of mind in animals and in the human race. Mr. WILCOX

20. ABNORMAL PSYCHOLOGY. Sem. 2, Cr. 3. Sleep, dreams, hypnotisms, mediumships, possessions, hallucinations, motor automatisms, double personality and the subconscious. Associate Professor STEVENS

21, 22. RESEARCH IN PSYCHOLOGY. Sem. 1-2, Cr. 2. Opportunity for original investigation. Associate Professor STEVENS

25. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. Sem. 1, Cr. 4. Experimental methods of tests and methods of instruction. Assistant Professor SMITH

PHYSICAL TRAINING

DIRECTORS HALL, DIRECTOR FOR WOMEN MERRICK, ASSISTANTS, FITCH, SIPPRELL.

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	S.	1
4	Advanced	2	2	S.	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

MEN

1, 2. Sem. 1-2, Cr. 2. Introductory course.

WOMEN

9a or 1, 2. Sem. 1-2, Cr. 2. Introductory course.

MEN

3, 4. Sem. 1-2, Cr. 3. Gymnastics.

WOMEN

3, 4. Sem. 1-2, Cr. 2. Advanced.

5, 6. Sem. 1-2, Cr. 2. A study of the various methods and systems of physical training; their application and adaptability to different ages and conditions.

7, 8. Sem. 1-2, Cr. 2. A continuation of courses 5 and 6.

9. HYGIENE. Sem. 1, Cr. 2. A study of the forces that make for or against the perfect health of the individual.

9a. HYGIENE. Sem. 1-2, Cr. 2.

10. PHYSICAL EXAMINATIONS. Sem. 1, Cr. 2.

11. ANTHROPOMETRY. Sem. 1, Cr. 2.

12. CORRECTIVE GYMNASTICS AND PRESCRIPTION OF EXERCISE. Sem. 2, Cr. 2.

13. HISTORY OF PHYSICAL TRAINING. Sem. 2, Cr. 3.

MISS MERRICK

14. PUBLIC PARKS AND PLAYGROUNDS. Sem. 1, Cr. 2.

MISS FITCH

15. **HYGIENE; EMERGENCIES.** Sem. 2, Cr. 2. Especially accidents that may arise on athletic fields, on public playgrounds or in the gymnasium.
Director HALL

16. **PHYSIOLOGY OF BODILY EXERCISE.** Sem. 1, Cr. 2.
Director HALL

17, 18. Sem. 1-2, Cr. 2. A course designed especially for teachers who may wish to conduct classes in physical training in conjunction with other school courses.

19. **ADVANCED GYMNASIAC EXERCISES.** No credit.
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.

First period is out-of-doors and consists of gymnastic 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.

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.

PHYSICS

PROFESSOR OSBORN, INSTRUCTORS BRAKEL, GRONDAHL, LESTER
GRADUATE ASSISTANTS KARRER, GIBLIN.

COURSES

(a) COLLEGE OF ARTS AND SCIENCES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1, 2	General Physics	1-2	4	Fr. S.	None
3, 4	Mechanics, Sound and Music	1-2	4	Music st'dents	None
5	Heat	1	4	S. Jr. Sr.	1, 2 and Math. 4 hrs.
6	Vibratory Motion	2	4	Jr. Sr. Gr.	1, 2 and Cal.
7	Light	1	4	Jr. Sr. Gr.	1, 2 and 8 hrs. of Math.
8, 9	Electricity	1-2	4	S. Jr. Sr.	1, 2 and 8 hrs. of Math.
10	Mechanics	1	8	S.	1, 2 and 8 hrs. of Math.
11	Teacher's Physics	2	2	Jr. Sr.	1, 2 and 4 hrs. additional

COURSES—Continued

(a) COLLEGE OF ARTS AND SCIENCES—Continued

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
12	History of Physics.....	1	2	S. Jr. Sr.	1, 2
16	Theoretical Mechanics	1-2	2	Gr.....	16 hrs. Physics 16 hrs. Math.
17	Theoretical Electricity	1	3	Gr.....	16 hrs. Physics 16 hrs. Math.
18	Advanced Optics	2	3	Gr.....	7 and 16 hrs. of Math.
19	Kinetic Theory, Etc.....	1-2	3	Gr.....	5 and Math. 16 hrs.
20	High Temp. Thermometry	2	1	Jr. Sr. Gr....	5
21	Electro-Chemistry	2	3	Sr. Gr.....	8, 9 and 12 hrs. of Chem.
22	Conduction of Elect.....	1	2	Gr.....	8, 9 and Math. 16 hrs.
23	Theory of Electrons.....	2	1	Gr.....	8, 9, 22 and 16 hrs. of Math.
24	Physics Colloquium	1-2	1	Gr.....	Grad. students

(b) FOR STUDENTS IN APPLIED SCIENCE

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1a, 2a	General Physics	1-2 or 2-1	4	S. Eng.	Math. 8 hrs.
1b, 2b	Physics Measurements ...	1-2 or 2-1	1b-2 2b-1	S. Eng.	Tak'g 1a or 2a Math. 4 hrs.
3a, 4a	General Physics	1-2	4	Jr. Elect.	1a, 2a
5a	Electrical Measurements...	1 or 2	4	Domestic Sc.	None
6a	Physics of Home.....	2	4		

* Pharmacy, Forestry and Medical students only.

1, 2. GENERAL PHYSICS. Sem. 1-2, Cr. 4. No laboratory work is required. Open to junior and seniors as a half credit course.

Professor OSBORN

3, 4. MECHANICS, SOUND AND MUSIC. Sem. 1-2, Cr. 4. A course for students in the music department only. Three class periods and one laboratory period. (Not given in 1912-13.)

Professor OSBORN

5. HEAT. Sem. 1, Cr. 4. The course is planned with a view to familiarizing the student with the more important aspects of the subject, both experimental and theoretical. Three class periods and one laboratory period.

Dr. GRONDAHL

6. VIBRATORY PHENOMENA AND SOUND. Sem. 2, Cr. 4. The course takes up the development and discussion of the mathematical expressions for wave-motions and various types of vibrations.

Professor OSBORN

7. **LIGHT.** Sem. 1, Cr. 4. This course aims to discuss the more important optical researches and their mathematical theory in elementary form. (Not given in 1912-13.)

Professor OSBORN

8, 9. **ELECTRICITY.** Sem. 1-2, Cr. 4. (Not given in 1912-13.)
See 5 a for 1912-13.

Mr. BRAKEL

10. **THEORETICAL MECHANICS.** Sem. 1, Cr. 3. (Not given in 1912-13.)

Dr. GRONDAHL

11. **TEACHERS' PHYSICS.** Sem. 2, Cr. 2. Professor OSBORN

12. **HISTORY OF PHYSICS.** Sem. 1, Cr. 2. Primarily for graduate students.

Dr. GRONDAHL

16. **THEORETICAL MECHANICS.** Sem. 1-2, Cr. —. (Not given in 1912-13.)

Dr. GRONDAHL

17. **THEORETICAL ELECTRICITY.** Sem. 1, Cr. 3. Mr. BRAKEL

18. **ADVANCED OPTICS.** Sem. 2, Cr. 3. Professor OSBORN

19. **KINETIC THEORY OF GASES AND THERMO-DYNAMICS.** Sem. 1-2, Cr. 3. Two hours the first semester and one hour the second.

Dr. GRONDAHL

20. **HIGH TEMPERATURE THERMOMETRY.** Sem. 2, Cr. 1.

Dr. GRONDAHL

21. **ELECTRO-CHEMISTRY AND THEORIES OF E. M. F.** (Not given in 1912-13.)

Mr. BRAKEL

22. **CONDUCTION OF ELECTRICITY THROUGH GASES AND RADIO ACTIVITY.** Sem. 1, Cr. 2.

Professor OSBORN

23. **THEORY OF ELECTRONS.** Sem. 2, Cr. 1. Mr. BRAKEL

24. **COLLOQUIUM.**

NOTE.—Laboratory deposit is five dollars for all laboratory courses.

(b) PRIMARILY FOR STUDENTS IN APPLIED SCIENCE

1a. **MECHANICS, WAVE MOTION AND LIGHT.** Sem. 1-2, Cr. 4.

2a. **ELECTRICITY AND HEAT.** Sem. 2-1, Cr. 4.

1b. **PHYSICS MEASUREMENTS.** Sem. 1-2, Cr. 2.

2b. **PHYSICS MEASUREMENTS.** Sem. 2-1, Cr. 1.

3a, 4a. **GENERAL PHYSICS.** Sem. 1-2, Cr. 4. This course is an abridgement of 1 a and 2a and is open only to students in forestry, pharmacy and medicine. Three class periods and one laboratory period.

Dr. GRONDAHL

5a. **ELECTRICAL MEASUREMENTS.** Sem. 1-2, Cr. 4. Two class periods and two laboratory periods.

Mr. BRAKEL

6a. **PHYSICS OF THE HOME.** Sem. 2, Cr. 4. A course for students in domestic science.

Professor OSBORN

NOTE.—The laboratory deposit is six dollars per year for all laboratory courses.

POLITICAL AND SOCIAL SCIENCE

PROFESSORS SMITH, BEACH, ASSISTANT PROFESSOR CUSTIS,
INSTRUCTORS BENNETT, MCMAHON, LECTURER ON INTERNATIONAL LAW, BELL.

The general requirement of eight credits in political and social science may be satisfied by course 1 and four credits in other courses in economics for which 1 is prerequisite; by courses 3 and 4; or by courses 19 and 20.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
ECONOMICS—					
1	Elements of Economics....	1 or 2	4	S. Jr. Sr.	None
2*	Economic Problems	2	4	S. Jr. Sr.	1
5	Natural Resources	1	2	S. Jr. Sr.	1
6*	Trade and Trans. Routes..	2	2	S. Jr. Sr.	1
8	Industrial Organization ..	2	4	S. Jr. Sr.	1
10	Pub. Finance and Taxat'n	2	4	Jr. Sr. Gr....	8 hrs. in Econ.
11	Transportation	1	4	S. Jr. Sr.	1
12	History of Commerce.....	2	4	S. Jr. Sr.	1
13*	Insurance	1	2	S. Jr. Sr.	1
14	Modern Tariff Systems....	2	2	S. Jr. Sr.	1
15	Money and Banking.....	1	4	S. Jr. Sr.	1
17	Labor	1	2	S. Jr. Sr.	1
25	The Growth of Cities.....	1	2	S. Jr. Sr.	1
27	The Domestic Market.....	1	2	S. Jr. Sr.	1
28*	The Foreign Market.....	2	2	S. Jr. Sr.	1
31*	The Development of Industrial Society	1	4	S. Jr. Sr.	None
32	The Economic History of the United States.....	2	4	S. Jr. Sr.	None
35	Principles of Economics....	1	4	Jr. Sr. Gr....	8 hrs. in Econ.
39	Economic Organization ..	1	2	Jr. Sr. Gr....	8 hrs. in Econ.
40	Corporation Finance.....	2	2	Jr. Sr. Gr....	8 hrs. in Econ.
42	Seminar in Labor Legislation	2	2	Jr. Sr. Gr....	17 and 29
SOCIOLOGY—					
3	Principles of Sociology....	1	4	S. Jr. Sr.	None
4	Social Problems	2	4	S. Jr. Sr.	3
29	Social Amelioration	1	4	Jr. Sr. Gr....	4
30	Social Psychology	2	4	Jr. Sr. Gr....	4
37, 38	Social Investigation	1, 2	2	Jr. Sr. Gr....	8 hrs. in Econ. or Sociology
GOVERNMENT—					
18	Municipal Government	2	2	Jr. Sr.	1, 3 or 19
19	American Government (national)	1	4	S. Jr. Sr.	None
20	American Government (state and local)	2	4	S. Jr. Sr.	19
21, 22	Political Theories	1, 2	2	Jr. Sr. Gr....	20
23	The Governm't of England	1	2	Jr. Sr.	†
24	Public International Law..	2	2	S. Jr. Sr.	None
33, 34	Joint Seminar	1, 2	2	Sr. Gr.....	Special permission

* Not given in 1912-1913.

† Preceded or accompanied by 19.

1. **ELEMENTS OF ECONOMICS.** Sem. 1-2, Cr. 4. Dr. McMAHON
2. **ECONOMIC PROBLEMS.** Sem. 2, Cr. 4. A discussion of present day economic problems. Not open to those who intend to major in the department. (Not given 1912-13.)
3. **PRINCIPLES OF SOCIOLOGY.** Sem. 1, Cr. 4.
Professor BEACH and Mr. BENNETT
4. **SOCIAL PROBLEMS.** Sem. 2, Cr. 4.
Professor BEACH and Mr. BENNETT
5. **NATURAL RESOURCES—DEVELOPMENT AND CONSERVATION.** Sem 1, Cr. 2. Use and abuse of national assets. To be preceded or accompanied by 1.
Mr. BENNETT.
6. **TRADE AND TRANSPORTATION ROUTES.** Sem. 2, Cr. 2. Survey of the great channels of trade, domestic and international. Industrial conditions that give rise to the principal traffic movements. (Not given 1912-13.)
8. **INDUSTRIAL ORGANIZATION.** Sem. 2, Cr. 4. A study of modern industry with special reference to the higher forms of organization, such as the trust. Assistant Professor CUSTIS
10. **PUBLIC FINANCE AND TAXATION.** Sem. 2, Cr. 4. Special attention will be given to the problems now before the United States and the several states, particularly Washington.
Assistant Professor CUSTIS
11. **TRANSPORTATION.** Sem. 1, Cr. 4. Primarily a study of railway transportation in the United States.
Assistant Professor CUSTIS
12. **HISTORY OF COMMERCE AND COMMERCIAL POLICIES.** Sem. 2, Cr. 4.
Mr. BENNETT
13. **INSURANCE.** Sem. 1, Cr. 2. Social importance and legal regulation of fire, marine and life insurance. (Not given 1912-13.)
14. **MODERN TARIFF SYSTEMS.** Sem. 2, Cr. 2. Mr. BENNETT
15. **MONEY AND BANKING.** Sem. 1, Cr. 4.
Assistant Professor CUSTIS
17. **LABOR.** Sem. 1, Cr. 2. Dr. McMAHON
18. **MUNICIPAL GOVERNMENT.** Sem. 2, Cr. 2.
Professor SMITH
19. **AMERICAN GOVERNMENT (NATIONAL).** Sem. 1, Cr. 4.
Professor SMITH and Mr. BENNETT
20. **AMERICAN GOVERNMENT (STATE AND LOCAL).** Sem. 2, Cr. 4.
Professor SMITH and Mr. BENNETT
- 21, 22. **POLITICAL THEORIES.** Sem. 1-2, Cr. 2. A study of the political ideas that have influenced constitutional development and legislation in England and the United States.
Professor SMITH
23. **THE GOVERNMENT OF ENGLAND.** Sem. 1, Cr. 2. To be preceded or accompanied by 19.
Professor SMITH

24. PUBLIC INTERNATIONAL LAW. Sem. 2, Cr. 2. Mr. BELL
25. THE GROWTH OF CITIES. Sem. 1, Cr. 2. Economic basis of the location and growth of the modern city. Mr. BENNETT
27. THE DOMESTIC MARKET. Sem. 1, Cr. 2. Organization of business for the marketing of goods. Mr. BENNETT
28. THE FOREIGN MARKET. Sem. 2, Cr. 2. Methods of developing foreign markets and of marketing wares in foreign countries. (Not given 1912-13.)
29. SOCIAL AMELIORATION. Sem. 1, Cr. 4. A study of the attempt of society under the present industrial system, to effect improvement in the life of the less fortunate classes. Professor BEACH
30. SOCIAL PSYCHOLOGY. Sem. 2, Cr. 4. The growth and nature of custom and convention, and the formation of public opinion. It is also desirable that the student should have had philosophy 15. Professor BEACH
31. THE DEVELOPMENT OF INDUSTRIAL SOCIETY. Sem. 1, Cr. 4. (Not given 1912-13.)
32. ECONOMIC HISTORY OF THE UNITED STATES. Sem. 2, Cr. 4. Assistant Professor CUSTIS
- 33, 34. JOINT SEMINAR. Sem. 1-2, Cr. 2. 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. PRINCIPLES OF ECONOMICS. Sem. 1, Cr. 4. A study of the economic laws governing the production, distribution, and exchange of wealth, with special reference to present day problems. Assistant Professor CUSTIS
- 37, 38. SOCIAL INVESTIGATION. Sem. 1-2, Cr. 2. A practical course designed for social workers. Dr. McMAHON
39. ECONOMIC ORGANIZATION. Sem. 1, Cr. 2. A study of socialism and other plans for the reorganization of society. Assistant Professor CUSTIS
40. CORPORATION FINANCE. Sem. 2, Cr. 2. Must be preceded or accompanied by 8. Assistant Professor CUSTIS
42. SEMINAR IN LABOR LEGISLATION. Sem. 2, Cr. 2. Professor BEACH and Dr. McMAHON

PUBLIC SPEAKING AND DEBATE

ASSISTANT PROFESSOR HERBSMAN, INSTRUCTOR PEARCE.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites
1	Freshman Comp.	1	4	All.....	
2a	Oral Expression	1-2	3	All.....	
2b	Oral Expression	1-2	3	All.....	
3	Extemporaneous Speaking..	1	2	All.....	2a or 2b
4	Oration	1	2	All.....	1, 2a, 2b
5	Forms of Public Discourse..	2	2	All.....	4
6	English Oratory	1	3	All.....	1, 2a or 2b, 4, 5
7	American Oratory	2	3	All.....	6
8	Dramatic Reading	1	2	All.....	2a or 2b
9	Dramatic Reading	2	2	All.....	8
10	Advanced Argumentation..	1	3	All.....	1
11	Debating	2	2	All.....	10
12	Technique of Drama.....	1	2	All.....	8, 9
13	Dram. Comp., Cont'd.....	2	2	All.....	12
14	Soliloquy and Monologue..	1-2	2	All.....	2a or 2b, 8, 9

A major in this department is restricted to 24 hours, 8 hours of which must be taken in freshman composition. Not more than 16 hours in this department may be counted toward the A. B. degree.

1. FRESHMAN COMPOSITION. Given under English department.

2a. ORAL EXPRESSION. Sem. 1-2, Cr. 3. A development of the co-ordination of mind, body and voice. Mr. PEARCE

2b. ORAL EXPRESSION. Sem. 1-2, Cr. 3. A development of the co-ordination of mind, body and voice.

Assistant Professor HERBSMAN

3. EXTEMPORANEOUS SPEAKING. Sem. 1, Cr. 2. A study of the fundamentals of practical public speaking. Mr. PEARCE

4. THE ORATION. Sem. 1, Cr. 2. A study of the oration from the standpoint of composition. Weekly themes with conferences. Text: Phillip's Effective Public Speaking. Mr. PEARCE

5. FORMS OF PUBLIC DISCOURSE. Sem. 2, Cr. 2. A study of the commemoration address. The eulogy, and other forms of public discourse. Mr. PEARCE

6. ENGLISH ORATORY. Sem. 1, Cr. 3. The principal orations of Elliot, Wentworth, Walpole, Chatham, Burke, Mansfield, Fox, Pitt, Cobden, Bright, and Gladstone are read and analyzed.

Mr. PEARCE

7. AMERICAN ORATORY. Sem. 2, Cr. 3. A study of the orations of Otis, Henry, Hamilton, Webster, Calhoun, Phillips, Beecher, Lincoln and other representative orators. Mr. PEARCE

8. **DRAMATIC READING.** Sem. 1, Cr. 2. Selected scenes from Shakespeare are acted by members of the class.

Professor HERBSMAN

9. **DRAMATIC READING.** Sem. 2, Cr. 2. Scenes from contemporary dramas are presented by members of the class.

Professor HERBSMAN

10. **ADVANCED ARGUMENTATION.** Sem. 1, Cr. 3. Practice in briefing and in argumentative composition. Texts: Foster's Principles of Argumentation and Baker & Huntington.

Professor HERBSMAN

11. **DEBATING.** Sem. 2, Cr. 2. Practice in preparation in delivering debates.

Professor HERBSMAN

12. **TECHNIQUE OF THE DRAMA.** Sem. 1, Cr. 2. The effect of the stage, the audience, and the actors upon the development of the drama. Texts: Brander Matthew's History of the Drama and the Development of the Drama.

Professor HERBSMAN

13. Continuation of 12 and **DRAMATIC COMPOSITION.** Sem. 2, Cr. 2.

Professor HERBSMAN

14. **THE SOLILOQUY AND MONOLOGUE.** Sem. 1-2, Cr. 2. A study of the soliloquy and the dramatic monologue.

Professor HERBSMAN

SCANDINAVIAN LANGUAGE AND LITERATURE

PROFESSOR DAVID NYVALL.

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. (Isben and Lagerlof)	1, 2	2	All.....	6 or 8

Note.—For a major, 24 credits.

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.** Sem. 1-2, Cr. 4. Orthography, etymology, syntax, composition.

3, 4. **NORWEGIAN-DANISH LANGUAGE.** Sem. 1-2, Cr. 4. Orthography, etymology, syntax, composition.

5, 6. HISTORY OF NORWEGIAN-DANISH LITERATURE. Sem. 1-2, Cr. 2.

7, 8. HISTORY OF SWEDISH LITERATURE. Sem. 1-2, Cr. 2.

9, 10. ELEMENTARY OLD NORSE. Sem. 1-2, Cr. 2. Alternating with courses 11, 12. (Not offered in 1912-13.)

11, 12. ADVANCED SWEDISH GRAMMAR. Sem. 1-2, Cr. 2. Etymology, composition, metre, poetry and oratory. Alternating with courses 9, 10.

13, 14. NORTHERN MYTHOLOGY AND SAGA LITERATURE. Sem. 1-2, Cr. 2. Alternating with courses 15, 16.

15, 16. SCANDINAVIAN LITERATURE BY PERIODS AND AUTHORS. Sem. 1-2, Cr. 2. Alternating with courses 13, 14.

SPANISH

PROFESSOR OBER, ASSISTANT PROFESSOR UMPHREY, INSTRUCTOR STRONG.

REQUIREMENTS OF THE DEPARTMENT

For a major, 24 to 40 credits.

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.....	
1a, 2a	Beginning	2-1	4	All.....	
3	Practical, Second Year...	1	4	All.....	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, Lope de Vega and Calderon	1-2	3	All.....	4 or 6
9, 10	Spanish Novel	1-2	4	All.....	4 or 6
11, 12	Hist. Spanish Literature.	1-2	2	All.....	4 or 6
13, 14	Don Quixote	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	Spanish Drama	1-2	.....	.....	6
23	Spanish Lyric Poetry.....	1	2	.....	6
24	Spanish Ballad	2	2	.....	6
25, 26	Old Spanish	1-2	2	Gr.	

No credit for first semester alone in any foreign language.

COURSES

1, 2. ELEMENTARY. Sem. 1-2, Cr. 4.

Professor OBER and Instructors

1a. ELEMENTARY. Sem. 2, Cr. 4. Same as course 1.

Mr. STRONG

- 2a. **ELEMENTARY.** Sem. 1, Cr. 4. Continuation of course 1a.
Mr. STRONG
- 3, 4. **PRACTICAL.** Sem. 1-2, Cr. 4. Business correspondence, commercial terms and conversation; readings from Spanish newspapers.
Professor OBER
- 5, 6. **LITERARY.** Sem. 1-2, Cr. 4. Spanish literature of nineteenth century.
Assistant Professor UMPHREY
- 7, 8. **ADVANCED.** Sem. 1-2, Cr. 3. Professor OBER
- 9, 10. **SPANISH NOVEL.** Sem. 1-2, Cr. 4. Mr. STRONG
- 11, 12. **HISTORY OF SPANISH LITERATURE.** Sem. 1-2, Cr. 2.
Professor OBER
- 13, 14. **CERVANTES.** Sem. 1-2, Cr. 2. (Omitted 1912-13.)
- 15, 16. **ADVANCED PROSE COMPOSITION.** Sem. 1-2, Cr. 1.
Professor OBER
- 17, 18. **TEACHER'S COURSE.** Sem. 1-2, Cr. 2. Professor OBER
- 19, 20. **SPANISH READINGS.** Sem. 1-2, Cr. 2. Advanced. Written reports.
Professor OBER

FOR UNDERGRADUATES AND GRADUATES

- 21, 22. **THE SPANISH DRAMA FROM THE SIXTEENTH CENTURY DOWN TO THE PRESENT TIME.** Reading of plays by the most important dramatists; collateral reading and reports; lectures.
Assistant Professor UMPHREY
23. **SPANISH LYRIC POETRY FROM THE EARLIEST TIMES DOWN TO THE PRESENT DAY.** Two hours. Reading of selections from the principal poets; reports on special topics; lectures.
Assistant Professor UMPHREY
24. **THE SPANISH BALLAD.** Lectures on the origin and development; reading of ballads selected from the Romanceros; reports on special topics.
Assistant Professor UMPHREY
- 25, 26. **OLD SPANISH. Philology.** History of Spanish Literature to the Fifteenth century. Reading of the Poema del Cid and of selections from other Early Spanish writings; reports on special topics.
Assistant Professor UMPHREY

ZOOLOGY

PROFESSOR EMERITUS JOHNSON, PROFESSOR KINCAID, ASSISTANT
PROFESSOR E. VICTOR SMITH, INSTRUCTOR OSTERUD.

COURSES

No.	Title	Semester	Credits per Semester	Offered to	Prerequisites	Deposit per Semester
1, 2	Elements of Zoology....	1, 2	4	All.....	None...	\$2.00
1a	Elementary Zoology	2	4	Fr. S. Jr.	None...	\$2.00
3, 4	Vertebrate Anatomy	1, 2	4	S. Jr. Sr. Gr.	2 or 11..	\$2.00
5	Normal Histology	1	4	S. Jr. Sr. Gr.	2 or 11..	\$2.00
6	Comparative Histology..	1	4	S. Jr. Sr. Gr.	2.....	\$2.00
7	Embryology	2	4	S. Jr. Sr. Gr.	5 or 6...	\$2.00
8	Neurology	2	2	Jr. Sr. Gr.	5 or 6...	\$1.00
8a	Neurology	2	2	Jr. Sr. Gr.	5 or 6...	\$1.00
9	Pharmacy Physiology ..	1	4	All.....	None...	\$2.00
10	Elementary Physiology..	2	4	All.....	None...	\$2.00
11, 12	Physiology	1, 2	4	All.....	None...	\$2.00
12	Forest Zoology	1	2	All.....	None...	
14	Forest Entomology	2	4	All.....	None...	\$2.00
15	Ethnology	1	2	All.....	None...	
16	Evolution	2	2	All.....	None...	
17, 18	General Entomology	1-2	4	S. Jr. Sr. Gr.	2.....	\$2.00
19, 20	Museum and Field Work	1-2	.....	Jr. Sr. Gr.	4 or 7...	*
21, 22	Research	1-2	.....	Sr. Gr.	4 or 7...	*

* To be arranged.

1, 2. **ELEMENTS OF ZOOLOGY.** Sem. 1-2, Cr. 4. A general review of zoological science. Professor KINCAID and Mr. OSTERUD

1a. **ELEMENTARY ZOOLOGY.** Sem. 2, Cr. 4. Designed to meet the needs of students entering the University at the mid-year period.
Mr. OSTERUD

3, 4. **VERTEBRATE ANATOMY.** Sem. 1-2, Cr. 4. Comparative structure of vertebrates.
Assistant Professor SMITH

5. **NORMAL HISTOLOGY** Sem. 1, Cr. 4. Mammalian histology, especially for pre-medical students.
Mr. OSTERUD

6. **COMPARATIVE HISTOLOGY.** Sem. 1, Cr. 4. Mr. OSTERUD

7. **EMBRYOLOGY.** Sem. 2, Cr. 4. Comparative developmental history of vertebrates.
Mr. OSTERUD

8. **NEUROLOGY.** Sem. 2, Cr. 4. Comparative structure and genesis of sense organs. To be given on alternate years with 8a.
Assistant Professor SMITH

8a. **NEUROLOGY.** Sem. 2, Cr. 4. The structure and genesis of the central nervous system.
Assistant Professor SMITH

9. **PHARMACY PHYSIOLOGY.** Sem. 1, Cr. 4. An elementary course designed to meet the needs of students registered in the school of pharmacy.
Assistant Professor SMITH

10. **ELEMENTARY PHYSIOLOGY.** Sem. 2, Cr. 4. Especially for students registered in department of home economics but open to others.
Assistant Professor SMITH

11, 12. **PHYSIOLOGY.** Sem. 1-2, Cr. 4.
Assistant Professor SMITH

13. **FOREST ZOOLOGY.** Sem. 1, Cr. 2. Habits and economic relations of typical forest animals.
Professor KINCAID

14. **FOREST ENTOMOLOGY.** Sem. 2, Cr. 4. Relation of insects to the forest.
Professor KINCAID

15. **ETHNOLOGY.** Sem. 1, Cr. 2. Origin, migration, distribution and customs of the races of man. Illustrated by lantern slides.
Professor KINCAID

16. **EVOLUTION.** Sem. 2, Cr. 2. Lectures upon important biological problems related to organic evolution including variation, selection, mutation and heredity. Illustrated by stereopticon views.
Professor KINCAID

17, 18. **GENERAL ENTOMOLOGY.** Sem. 1-2, Cr. 4. Introduction to study of insects, their structure, classification, ecology and economic relations.
Professor KINCAID

19, 20. **MUSEUM AND FIELD WORK.** Sem. 1-2, Cr. 4. Systematic investigation of the local fauna including studies based upon material in the state museum.
Professor KINCAID

21, 22. **RESEARCH.** Sem. 1-2. Students capable of carrying on independent research will be allowed to do so under the direction of the instructors in charge.

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, Ph. D., 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 MORE, 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.
EDGAR ALLEN LOEW, B. S., E. E., Wisconsin, Assistant Professor of Electrical Engineering.
FRANK G. SCHROEDER, B. S., C. E., Wisconsin, Acting Assistant Professor of Civil Engineering.
JOSEPH DANIELS, S. B., M. S., Lehigh, Assistant Professor of Mining Engineering and Metallurgy.
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.
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 Institute of Technology, Instructor in Civil Engineering.
CHARLES EARL MALLORY, B. S. (E. E.), Washington, Instructor in Electrical Engineering.
WILLIAM CHARLES MUEHLSTEIN, B. S. (C. E.), Wisconsin, Instructor in Civil Engineering.

* Absent on leave 1911-12.

- ERIC THERKELSEN, B. S., Washington, Instructor in Mechanical Engineering.
- CHARLES E. NEWTON, E. M., Michigan School of Mines, Instructor in Civil Engineering.
- CHAUNCEY WERNECKE, B. S. (C. E.), Washington, Instructor in Civil Engineering.
- WALTER CALVIN WAGNER, B. S., M. E., Cornell, Instructor in Electrical Engineering.
- GEORGE ROBERT STRANDBERG, B. S. (C. E.), Washington, 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 HARRISBERGER, Lecturer on Power Transmission.
- ELBERT G. ALLEN, B. S., Lecturer on Electric Railways.
- SHEERWOOD C. LINDSAY, Lecturer on Station Practice.
- CAESAR RODNEY ROBERTS, Assistant in Surveying.
- VILLEROY GLEASON, Assistant in Surveying.
- DUTTON KNAPP, Assistant in Stock Room (Surveying).

SPECIAL LECTURES

During the past year special lectures have been delivered before the students of the College of Engineering as follows:

- PROFESSOR H. S. JACOBY, Cornell University.
"Bridge Engineering—An Inspection Trip."
- REGENT A. L. ROGERS, Waterville.
"The Spirit of the Engineer."
- CAPTAIN A. O. POWELL, Seattle.
"The Education of the Engineer."
- MAJOR C. W. KUTZ, Corps of Engineers, U. S. Army.
"Engineering Contracts, with Special Reference to the U. S. Engineer Department."
- MR. JOSEPH JACOBS, Seattle.
"Water Rights."
- MR. C. E. FOWLER, Seattle.
"Superintendence of Engineering Work."
"Bridge Erection."
"Bridge Architecture."
"Harbor Improvements."
- MR. WM. B. RUGGLES, Seattle.
"The Panama Canal."
- MR. J. J. FRANKLIN, Seattle.
"Building Construction."
- MR. F. H. WHITWORTH, Seattle.
"The Legal Phase of Making and Recording Surveys."
- MR. T. A. NOBLE, North Yakima.
"The Irrigation Engineer."
- MR. STIRLING B. HILL, U. of W., 1901.
"Investigation of Water Power."

MR. HALBERT P. GILLETTE, Chicago.

"The Valuation of Public Service Corporations."

MR. N. A. CARLE, Seattle.

"Failures of Dams and the Design of Dams to Prevent Failures."

CURRICULA

The College of Engineering offers two four-year curricula in each of the departments of chemical, civil, electrical, and mechanical engineering. One of these 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 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 curricula. This curriculum in each department leads to the degree of bachelor of science (B. S.), and is followed by a year of graduate work which, under the University regulations for advanced degrees, leads to the degree of master of science in the respective lines.

Thus in five years it will be possible to cover all of the subjects in a regular engineering curriculum and add nearly a year's work in general training, and a certain amount of advanced engineering work. This should insure greater efficiency in all of the work as well as broaden the general education.

The freshman work in the several curricula is identical, thus making it possible for a student to delay the definite choice 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 two 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.

DEGREE WITH HONORS

A degree with honors in engineering may be conferred upon any student of the College of Engineering who upon recommendation of the engineering faculty, of the honors committee and upon vote of the university faculty may be declared worthy of unusual distinction.

ADVANCED DEGREES

The 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 curriculum leading to the degree of bachelor of science and maintain a grade of A or B 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 college 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.

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

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.

THESIS

A graduating thesis is required of each candidate for degree. This will consist of research or design in some branch of engineering, or the review of some existing construction. The sub-

ject 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.

SEMINAR

The senior and junior students meet for an hour each week with their respective class advisers for the consideration and discussion of engineering questions, not specifically covered by the class room work. In connection with this each student does systematic reading and submits oral and written reports, which are discussed by the class.

GOVERNMENT TIMBER TESTING SERVICE

The United States government through its forest service has located at the University of Washington a government timber testing station. Three timber testing engineers of the forest service are stationed here, and actual work in the investigation of the mechanical properties of Northwest timber is regularly carried on. The structural materials testing laboratory is used jointly for this work and for University instruction and investigation.

CURRICULUM IN CHEMICAL ENGINEERING

Leading to the degree of bachelor of science in chemical engineering.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; chemistry 1a, Cr. 4; engineering drawing 1, 3, Cr. 6; English 1a, Cr. 2; shop 1, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Analytic geometry 2a, Cr. 4; chemistry 2a, Cr. 4; engineering drawing 4, Cr. 2; surveying 20, Cr. 4; English 1b, Cr. 2; shop 2, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; physics 1a, 1b, Cr. 6; qualitative chemistry 8, Cr. 4; elements of steam engineering 2, Cr. 2; shop 3, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; Physics 2a, 2b, Cr. 5; quantitative chemistry 9, Cr. 4; machine design 10, Cr. 3; shop 4, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Mechanics 41, Cr. 5; calculus 5a, Cr. 2; organic chemistry 3, Cr. 4; electrical engineering 5, Cr. 4; experimental engineering 40, Cr. 2. Total credits 17.

Sem. 2: Hydraulics 50, Cr. 4; organic chemistry 4, Cr. 4; mineralogy 5, Cr. 4; chemical technology 14, Cr. 4. Total credits, 16.

SENIOR YEAR

Sem. 1: Metallurgy 1, Cr. 4; physical chemistry 22, Cr. 4; water analysis 15, Cr. 4; elective, Cr. 4. Total credits, 16.

Sem. 2: Gas and fuel analysis 16, Cr. 4; electro-chemistry 23, Cr. 4; thesis, Cr. 4; elective, Cr. 4. Total credits, 16.

CURRICULUM IN CHEMICAL ENGINEERING

Leading to degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; modern language, Cr. 4; chemistry 1, Cr. 4; English 1a, Cr. 2; engineering drawing 1, Cr. 2; drill, Cr. 2. Total credits, 15+2.

Sem. 2: Analytic geometry 2a, Cr. 4; modern language, Cr. 4; chemistry 2, Cr. 4; surveying 20, Cr. 4; English 1b, Cr. 2; drill, Cr. 2. Total credits, 18+2.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; modern language, Cr. 4; chemistry 8b, Cr. 4; engineering drawing 3, Cr. 4; shop 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; modern language, Cr. 4; physics, 1a, 1b, Cr. 6; engineering drawing 4, Cr. 2; shop 2, Cr. 2; drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Physics 2a, 2b, Cr. 5; calculus 5a, Cr. 2; organic chemistry 3, Cr. 4; elements of steam engineering 21, Cr. 2; quantitative chemistry 9, Cr. 4; shop 3, Cr. 2. Total credits, 17+2.

Sem. 2: Mechanics 41, Cr. 5; mineralogy 5, Cr. 4; organic chemistry 4, Cr. 4; machine design 10, Cr. 3; shop 4, Cr. 2. Total credits, 16+2.

SENIOR YEAR

Sem. 1: Hydraulics 50, Cr. 4; water analysis 15, Cr. 4; metallurgy 1, Cr. 4; bacteriology 7, Cr. 4. Total credits, 16.

Sem. 2: Chemical technology 14, Cr. 4; bacteriology 8, Cr. 4; electrical engineering 5, Cr. 4; gas and fuel 16, Cr. 4. Total credits, 16.

GRADUATE YEAR

(Supplementary work to above.)

Leading to degree of master of science in chemical engineering.

Sem. 1: Physical chemistry 22, Cr. 4; experimental engineering 40, Cr. 2; thesis, Cr. 4; elective, Cr. 6. Total credits, 16.

Sem. 2: Electro-chemistry 23, Cr. 4; sanitary engineering 56, Cr. 3; chemical theory 27, Cr. 2; thesis, Cr. 3; elective, Cr. 4. Total credits, 16.

CURRICULUM IN CIVIL ENGINEERING

Leading to the degree of bachelor of science in civil engineering.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; chemistry 1a, Cr. 4; engineering drawing 1, 3, Cr. 6; English 1a, Cr. 2; shop 1, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Analytic geometry 2a, Cr. 4; chemistry 2a, Cr. 4; engineering drawing 4, Cr. 2; surveying 20, Cr. 4; English 1b, Cr. 2; shop 2, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

32+4

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; physics 1a, 1b, Cr. 6; surveying 21, Cr. 3; industrial chemistry 12, Cr. 3; engineering drawing 7, Cr. 1; military drill Cr. 2. Total credits 17+2.

Sem. 2: Calculus 4a, Cr. 4; physics 2a, 2b, Cr. 5; surveying 22, Cr. 3; geology 1a, Cr. 4; engineering drawing 8, Cr. 1; military drill, Cr. 2. Total credits, 17+2. 34+4

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; mechanics 41, Cr. 5; railroads 31, Cr. 3; electrical engineering 5, Cr. 4; surveying 23, Cr. 3. Total credits, 17.

Sem. 2: Hydraulics 50, Cr. 4; mechanics 42, Cr. 4; railroads 32, Cr. 2; masonry 45, Cr. 5; highways 70, Cr. 2. Total credits, 17. 34

SENIOR YEAR

Sem. 1: Bridges 61, Cr. 4; water supply and irrigation 55, Cr. 3; hydraulic power 51, Cr. 3; structural materials 65, Cr. 3; options, Cr. 4. Total credits, 17. 34

Sem. 2: Bridges 62, Cr. 3; sanitary engineering 56, Cr. 3; contracts and specifications 80, Cr. 2; thesis, Cr. 3; options, Cr. 6. Total credits, 17.

Options will be chosen with the consent of the class adviser from the following groups:

GROUP 1

Sem. 1: Astronomy 3, Cr. 2; least squares 5, Cr. 2.

Sem. 2: Astronomy 4, Cr. 2; geodesy 6, Cr. 2; elective (restricted), Cr. 2.

GROUP 2

Sem. 1: Highway location 71, Cr. 2; highway construction 73, Cr. 1; highway metals 75, Cr. 1.

Sem. 2: Highway construction 74, Cr. 2; highway economics 76, Cr. 2; chemistry 18 (road oils and tars), Cr. 2.

GROUP 3

Sem. 1: Mechanics 43, Cr. 2; bridges 63, Cr. 2.

Sem. 2: Mechanics 44, Cr. 2; bridges 64, Cr. 2; elective (restricted), Cr. 2.

GROUP 4

Water supply and irrigation design 57, Cr. 2; chemistry of water 15, Cr. 2.

Sem. 2: Sanitary engineering design 58, Cr. 2; bacteriology 9a, Cr. 2; elective (restricted), Cr. 2.

GROUP 5

Sem. 1: Yards and terminals 33, Cr. 2; electric railways 44, Cr. 2.

Sem. 2: Tunnelling and track elevation 34, Cr. 2; railway electrification, Cr. 2; elective (restricted), Cr. 2.

CURRICULUM IN CIVIL ENGINEERING

Leading to the degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; modern language, Cr. 4; chemistry 1, Cr. 4; English 1a, Cr. 2; engineering drawing 1, Cr. 2; drill, Cr. 2. Total credits, 16+2.

Sem. 2: Analytic geometry 2a, Cr. 4; modern language, Cr. 4; chemistry 2, Cr. 4; surveying 20, Cr. 4; English 1b, Cr. 2; drill, Cr. 2. Total credits, 18+2.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; chemistry 8b, Cr. 4; modern language, Cr. 4; engineering drawing 3, Cr. 4; shop 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; physics, 1a, 1b, Cr. 6; modern language, Cr. 4; engineering drawing 4, Cr. 2; shop 2, Cr. 2; drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; physics 2a, 2b, Cr. 5; surveying 21, Cr. 3; industrial chemistry 12, Cr. 3; machine design 10, Cr. 3. Total credits, 16.

Sem. 2: Mechanics 41, Cr. 5; electrical engineering 5, Cr. 4; surveying 22, Cr. 3; highways 70, Cr. 2; elementary steam engineering 21, Cr. 2. Total credits, 16.

SENIOR YEAR

Sem. 1: Surveying 23, Cr. 3; mechanics 42, Cr. 4; railroads 31, Cr. 3; political science 1, Cr. 4; geology 1a, Cr. 4. Total credits, 18.

Sem. 2: Hydraulics 50, Cr. 4; railroads 32, Cr. 2; masonry 45, Cr. 5; elective, Cr. 4. Total credits, 15.

GRADUATE YEAR

Leading to the degree of master of science in civil engineering.

Sem. 1: Bridges 61, Cr. 4; water supply and irrigation 55, Cr. 3; hydraulic power 51, Cr. 3; structural materials 65, Cr. 3; optional, Cr. 4. Total credits, 17.

Sem. 2: Bridges 62, Cr. 3; sanitary engineering 56, Cr. 3; contracts and specifications 80, Cr. 2; thesis, Cr. 3; optional, Cr. 6. Total credits, 17.

CURRICULUM IN ELECTRICAL ENGINEERING

Leading to the degree of bachelor of science in electrical engineering.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; chemistry 1a, Cr. 4; engineering drawing 1, 3, Cr. 6; English 1a, Cr. 2; shop 1, Cr. 2; drill, Cr. 2. Total credits 16+4.

Sem. 2: Analytic geometry 2a, Cr. 4; chemistry 2a, Cr. 4; en-

engineering drawing 4, Cr. 2; surveying 20, Cr. 4; English 1b, Cr. 2; shop 2, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; physics 1a, 1b, Cr. 6; machine design 10, Cr. 3; industrial chemistry 13, Cr. 3; shop 3, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; physics 2a, 2b, Cr. 5; machine design 11, Cr. 2; mechanism 20, Cr. 2; political science 1a, Cr. 4; Shop 4, Cr. 2; drill, Cr. 2. Total credits 17+4.

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; mechanics 41, Cr. 5; electrical engineering 1, Cr. 4; electrical measurements 5a, Cr. 4; elementary steam engineering 21, Cr. 2. Total credits, 17.

Sem. 2: Mechanics 42, Cr. 4; electrical engineering 2, 3, Cr. 7; hydraulics 50, Cr. 4; experimental engineering 40, cr. 2. Total credits, 17.

SENIOR YEAR

Sem. 1: Alternating currents 21, 22, Cr. 8; electrical railways 44, or telephones 31, Cr. 2; dynamo design 36, Cr. 2; steam turbines 30, Cr. 2; hydraulic design 53, Cr. 2. Total credits, 18.

Sem. 2: Alternating currents 23, 24, Cr. 6; central stations 46, Cr. 2; power transmission 48, Cr. 2; thesis, Cr. 4; elective, Cr. 2. Total credits, 18.

CURRICULUM IN ELECTRICAL ENGINEERING

Leading to the degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; modern language, Cr. 4; chemistry 1, Cr. 4; English 1a, Cr. 2; engineering drawing 1, Cr. 2; drill, Cr. 2. Total credits, 16+2.

Sem. 2: Analytic geometry 2a, Cr. 4; modern language, Cr. 4; chemistry 2, Cr. 4; surveying 20, Cr. 4; English 1b, Cr. 2; drill, Cr. 2. Total credits, 18+2.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; modern language, Cr. 4; chemistry 2a, Cr. 4; engineering drawing 3, Cr. 4; shop 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; modern language, Cr. 4; physics 1a, 1b, Cr. 6; engineering drawing 4, Cr. 2; shop 2, Cr. 2; drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; physics 2a, 2b, Cr. 5; political science 1a, Cr. 4; machine design 1a, Cr. 3; industrial chemistry 13, Cr. 3; shop 3, Cr. 2. Total credits, 17+2.

Sem. 2: Mechanics 41, Cr. 5; electrical engineering 1, Cr. 4; electrical measurements 5a, Cr. 4; machine design 11, Cr. 2; mechanism 20, Cr. 2; shop 4, Cr. 2. Total credits, 17+2.

SENIOR YEAR

Sem. 1: Mechanics 42, Cr. 4; electrical engineering 2, 3, Cr. 7; hydraulics 50, Cr. 4; elementary steam engineering 21, Cr. 2. Total credits, 17.

Sem. 2: Alternating currents 21, 22, Cr. 8; telephones 32, or meters 41, Cr. 2; experimental engineering 40, Cr. 2; hydraulic motors 53, Cr. 2; elective, Cr. 2. Total credits, 16.

GRADUATE YEAR

Leading to degree of master of science in electrical engineering.

Sem. 1: Alternating currents 23, 24, Cr. 6; electrical railways 44, Cr. 2; dynamo design 36, Cr. 2; steam turbines 30, Cr. 2; structural materials 65, Cr. 2; elective, Cr. 2. Total credits, 16.

Sem. 2: Alternating currents 51, Cr. 4; power transmission 48, Cr. 2; central stations 46, Cr. 2; thesis, Cr. 4; elective, Cr. 4. Total credits, 16.

CURRICULUM IN MECHANICAL ENGINEERING

Leading to the degree of bachelor of science in mechanical engineering.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; chemistry 1a, Cr. 4; engineering drawing 1, 3, Cr. 6; English 1a, Cr. 2; shop 1, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Analytic geometry 2a, Cr. 4; chemistry 2a, Cr. 4; engineering drawing 4, Cr. 2; surveying 20, Cr. 4; English 1b, Cr. 2; shop 2, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; physics 1a, 1b, Cr. 6; machine design 10, Cr. 3; industrial chemistry 13, Cr. 3; shop 3, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; physics 2a, 2b, Cr. 5; machine design 11, Cr. 2; political science 1, Cr. 4; mechanism 20, Cr. 2; shop 4, Cr. 2; military drill, Cr. 2. Total credits, 17+4.

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; mechanics 41, Cr. 5; electrical engineering 1, Cr. 4; steam engineering 21, Cr. 2; experimental engineering 41, Cr. 3; shop 5, Cr. 2. Total credits, 16+2.

Sem. 2: Mechanics 42, Cr. 4; electrical engineering 7, Cr. 4; hydraulics 50, Cr. 4; engines and boilers 22, Cr. 2; valve gears 24, Cr. 2; shop 6, Cr. 2. Total credits, 16+2.

SENIOR YEAR

Sem. 1: Hydraulic design 53, Cr. 2; machine design 12, Cr. 2; engine and boiler design 23, Cr. 3; steam turbines 30, Cr. 2; Thermodynamics 33, Cr. 2; structural materials 65, Cr. 2; experimental engineering 42, Cr. 3. Total credits, 16.

Sem. 2: Gas engines 25, Cr. 2; machine design 13, Cr. 2; heating and ventilating 31, Cr. 2; power plants 32, Cr. 2; experimental engineering 43, Cr. 2; elective, Cr. 2; thesis, Cr. 4. Total credits, 16.

CURRICULUM IN MECHANICAL ENGINEERING

Leading to the degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Plane trigonometry and higher algebra 1a, Cr. 4; modern language, Cr. 4; chemistry 1, Cr. 4; English 1a, Cr. 2; engineering drawing 1, Cr. 2; military drill, Cr. 2. Total credits, 16+2.

Sem. 2: Analytic geometry 2a, Cr. 4; modern language, Cr. 4; surveying 20, Cr. 4; chemistry 2, Cr. 4; English 1b, Cr. 2; military drill, Cr. 2. Total credits, 18+2.

SOPHOMORE YEAR

Sem. 1: Calculus 3a, Cr. 4; chemistry 2a, Cr. 4; modern language, Cr. 4; engineering drawing 3, Cr. 4; shop 1, Cr. 2; military drill, Cr. 2. Total credits, 16+4.

Sem. 2: Calculus 4a, Cr. 4; modern language, Cr. 4; physics 1a, 1b, Cr. 6; engineering drawing 4, Cr. 2; shop 2, Cr. 2; drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Calculus 5a, Cr. 2; physics 2a, 2b, Cr. 5; political science 1, Cr. 4; machine design 10, Cr. 3; industrial chemistry 13, Cr. 3; shop 3, Cr. 2. Total credits 17+2.

Sem. 2: Mechanics 41, Cr. 5; electrical engineering 1, Cr. 4; machine design 11, Cr. 2; mechanism 20, Cr. 2; steam engineering 21, Cr. 2; elective, Cr. 2; shop 4, Cr. 2. Total credits, 17+2.

SENIOR YEAR

Sem. 1: Mechanics 42, Cr. 4; electrical engineering 7, Cr. 4; hydraulics 50, Cr. 4; experimental engineering 41, Cr. 3; engines and boilers 22, Cr. 2; shop 5, Cr. 2. Total credits, 17+2.

Sem. 2: Hydraulic motors 53, Cr. 2; thermodynamics 33, Cr. 2; power plants 32, Cr. 2; valve gears 24, Cr. 2; engine and boiler design 23, Cr. 2; machine design 12, Cr. 2; experimental engineering 42, Cr. 3; shop 6, Cr. 2. Total credits 15+2.

GRADUATE YEAR

Leading to degree of master of science in mechanical engineering.

Sem. 1: Alternating currents 21, 22, Cr. 8; machine design 13, Cr. 2; steam turbines 30, Cr. 2; experimental engineering 43, Cr. 2; structural materials 65, Cr. 2. Total credits, 16.

Sem. 2: Heating and ventilating 31, Cr. 2; gas engines 25, Cr. 2; gas engine design 26, Cr. 2; electric railways 44, Cr. 2; graphic statics 34, Cr. 2; elective, Cr. 2; thesis, Cr. 4. Total credits, 16.

DEPARTMENTS OF INSTRUCTION

CHEMICAL ENGINEERING

PROFESSOR BYERS, ASSOCIATE PROFESSOR BENSON, ASSISTANT
PROFESSOR DEHN, ASSISTANT PROFESSOR ROSE,
INSTRUCTOR TRUMBULL.

1, 2. GENERAL CHEMISTRY. Sem. 1-2, Cr. 4. To meet the needs of students who have not had chemistry in the preparatory schools, a course is offered consisting of two lectures and six hours laboratory work per week. Textbooks: Smith's College Chemistry and Laboratory Manual.

Professor BYERS, Instructors and Assistants

1a, 2a. GENERAL CHEMISTRY. Sem. 1-2, Cr. 4. 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. Textbooks: Smith's General Chemistry, Smith's Laboratory Manual, and Byers and Knight's Qualitative Analysis.

Professor BYERS, Assistant Professor ROSE and Assistants

1b. GENERAL CHEMISTRY. Sem. 2, Cr. 4. Repetition of 1a. 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 curricula, such students must elect some other four-hour course in the department of chemistry.

Assistant Professor ROSE

2b. GENERAL CHEMISTRY. Sem. 1, Cr. 4. Continuation of 1b.

Assistant Professor ROSE

3, 4. ORGANIC CHEMISTRY. Sem. 1-2, Cr. 4. Bernthsen-Sudborough's text is used as a reference book in connection with the lectures and Sudborough-James' laboratory manual is used as a laboratory guide.

Assistant Professor DEHN

8. ADVANCED QUALITATIVE ANALYSIS. Sem. 1, Cr. 4. 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. Sem. 1, Cr. 4. Chemistry 1, 2, is followed by a course in qualitative analysis. The course consists of two lectures and six laboratory hours per week. Textbook: Byers and Knight.

Assistant Professor DEHN

9. QUANTITATIVE ANALYSIS. Sem. 1-2, Cr. 4. Gravimetric and volumetric analysis. Olsen's Quantitative Analysis. Twelve laboratory hours and one recitation per week.

Associate Professor BENSON

12. **INDUSTRIAL CHEMISTRY.** Sem. 1, Cr. 3. For civil engineers. Chemistry of the materials for engineering, such as cement, wood preservatives, paints, explosives, paving materials, clay products and structural steel. Two lectures and one laboratory afternoon. Prerequisite: 2a, 2b, 8b.

Associate Professor BENSON

13. **INDUSTRIAL CHEMISTRY.** Sem. 1, Cr. 3. For mechanical and electrical engineers. 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: 2a, 2b, or 8b.

Associate Professor BENSON

14. **CHEMICAL TECHNOLOGY.** Sem. 2, Cr. 4. Required of chemical engineers and elective for students who have had quantitative chemistry. A course dealing with a detailed study of chemical industries. Two lectures and two laboratory periods per week.

Associate Professor BENSON

15. **WATER ANALYSIS.** Sem. 1, Cr. 4. 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.

Associate Professor BENSON

16. **GAS AND FUEL ANALYSIS.** Sem. 2, Cr. 4. Two lectures and two laboratory periods per week.

Associate Professor BENSON

17. **SOILS AND FERTILIZERS.** Sem. 2, Cr. 2. A lecture course dealing with the fundamental ideas necessary for field identification and classification and a discussion of the elements of fertility.

Associate Professor BENSON

18. **ROAD OILS AND TARS.** Sem. 2, Cr. 2. A course offered as a civil engineering option for students in highway engineering. One lecture and one laboratory period.

Associate Professor BENSON

22. **PHYSICAL CHEMISTRY.** Sem. 1, Cr. 4. An elementary course dealing with fundamental theories of chemistry based upon physical measurements. Three lectures and one laboratory period per week. Prerequisites: 8, 9, college physics.

Dr. TRUMBULL

23. **ELECTRO CHEMISTRY.** Sem. 2, Cr. 4. 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 and Dr. TRUMBULL

27. **CHEMICAL THEORY.** Sem. 1-2, Cr. 2. 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 fundamental laws and theories.

Professor BYERS

CIVIL ENGINEERING

PROFESSORS FULLER, MCCAUSTLAND, *ASSOCIATE PROFESSOR MORE, ASSISTANT PROFESSOR HARRIS, ACTING ASSISTANT PROFESSOR SCHROEDER, INSTRUCTORS MILLER, ADLER, GLEASON, MUEHLSTEIN, NEWTON, WERNECKE, STRANDBERG, LECTURER FOWLER.

SUBJECTS

1. ENGINEERING DRAWING. Sem. 1-2, Cr. 2. Linear drawing, Roman and Gothic capital letters; freehand lettering. Prerequisite, plane geometry. Assistant Professor HARRIS and —

3. ENGINEERING DRAWING. Sem. 1-2, Cr. 4. The elements of descriptive geometry, including the principles of shades, shadows and perspective. Prerequisites, solid geometry, preceded or accompanied by drawing 1.

Assistant Professor HARRIS, Professor MCCAUSTLAND, Mr. GLEASON, Mr. MUEHLSTEIN, Mr. WERNECKE and Mr. STRANDBERG

4. ENGINEERING DRAWING. Sem. 1-2, Cr. 2. Continuation of drawing 3. Problems and tracings. Prerequisite 4.

7, 8. ENGINEERING DRAWING. Sem. 1-2, Cr. 1. Working drawings, including tracings. Prerequisite, 4.

Assistant Professor HARRIS and Acting Assistant Professor SCHROEDER

20. PLANE SURVEYING. Sem. 1-2, Cr. 4. Class, field and office work. Prerequisites: Drawing 1, mathematics 1a.

Mr. GLEASON, Mr. MUEHLSTEIN and Mr. NEWTON

21. MAPPING. Sem. 1-2, Cr. 3. Construction of maps from field notes. Indexing and filing engineering information. Prerequisite: Surveying 20.

Mr. MILLER

22. CONSTRUCTION SURVEYING. Sem. 1-2, Cr. 3. Theory and field practice of railway curves. Computation of earthwork. Staking out engineering work. Prerequisite: Surveying 21.

Mr. MILLER

23. TOPOGRAPHIC SURVEYING. Sem. 1, Cr. 3. Base line measurement. Reading, adjusting and computing triangulation systems. Methods of making topographic and hydrographic surveys, including phototopography and cartography. Prerequisites: Surveying 21, mathematic 4b.

Mr. MILLER

24, 25. FOREST SURVEYING. Sem. 1-2, Cr. 4. Map drawing, including freehand lettering. Chain, compass, level and transit surveying with reference to work in forests. Computations and mapping. Prerequisites: Mathematics 1a, forestry 2.

Mr. NEWTON

26. FOREST TOPOGRAPHY. Sem. 1, Cr. 4. Topographic surveys as applied to forestry. Reconnaissance and plane triangulation.

Mr. NEWTON

* Absent on leave 1911-12.

27. LOGGING RAILROADS. Sem. 2, Cr. 4. The location of logging railroads, roads and trails. Maps, profiles and estimates. Prerequisite: 26. Mr. MILLER

28. MINE SURVEYING. Sem. 1-2, Cr. 3. Use of instruments designed for mining work. Methods of carrying a meridian underground and underground practice. Surface surveying of mineral claims for patent. Prerequisite: 20. Mr. NEWTON

31. RAILWAY OPERATION. Sem. 1, Cr. 3. Economics of the operation of railways from an engineering standpoint. Train weights and resistances, costs, etc. Maintenance of way and equipment. Prerequisite: 22, accompanied by 41. Mr. MILLER

32. RAILWAY CONSTRUCTION. Sem. 2, Cr. 2. The economics of railway location and the relation of location to operation. Contracts and specifications. Prerequisite, 31. Mr. MILLER

33. YARDS AND TERMINALS. Sem. 1, Cr. 2. The design and operation of the large yards of modern railway organizations, and the control of trains by means of signaling and interlocking. Prerequisite, 32. Mr. MILLER

34. TUNNELLING AND TRACK ELEVATION. Sem. 2, Cr. 2. The problems confronting the engineer on track elevation and the construction of subways. Mr. MILLER

35. RAILWAY ELECTRIFICATION. Sem. 2, Cr. 2. The economic principles involved in the electrification of existing railway lines and the construction and operation of rapid transit lines. Mr. MILLER

41, 42. MECHANICS. 41. Sem. 1-2, Cr. 5. 42. Sem. 1-2, Cr. 4. Statics, dynamics and mechanics of materials. Prerequisites: Mathematics 4b, physics 1a.

Associate Professor MORE, Acting Assistant Professor SCHROEDER, Mr. ADLER, Mr. MUEHLSTEIN and Mr. WERNECKE

43, 44. ADVANCED MECHANICS. Sem. 1, Cr. 2. General theories of flexure, elasticity and least work, with applications. Prerequisites, 42 and 45. Associate Professor MORE

45. MASONRY CONSTRUCTION. Sem. 2, Cr. 5. A study of the properties of the materials employed in masonry construction and their use in foundations, piers, abutments, retaining walls, dams and arches. Prerequisites, 8, preceded or accompanied by 42. Associate Professor MORE, Acting Assistant Professor SCHROEDER and Mr. WERNECKE

50. HYDRAULICS. Sem. 2, Cr. 4. Flow of water through pipes and orifices, over weirs and in open channels; energy, impulse and reaction of jets with application to impulse wheels. Review of hydrostatics. Preceded or accompanied by 42. Assistant Professor HARRIS and Mr. STRANDBERG

51. HYDRAULIC POWER. Sem. 1, Cr. 3. Stream flow, storage and generation of power. Development and theory of turbines, design of a spillway, penstock and turbine; test of an existing power plant. Prerequisite, 50. Assistant Professor HARRIS

53. **HYDRAULIC MOTORS.** Sem. 1, Cr. 2. Development and theory of water wheels and turbine pumps; design of a reaction turbine. Prerequisite, 50. Assistant Professor HARRIS

55. **WATER SUPPLY AND IRRIGATION.** Sem. 1, Cr. 3. A study of the principal engineering operations necessary to secure suitable water supplies for cities and towns and water for irrigation. Prerequisite, 50. Professor McCAUSTLAND

56. **SANITARY ENGINEERING.** Sem. 2, Cr. 3. A study of the design and construction of sewerage systems, both combined and separate. Prerequisite, 55 Professor McCAUSTLAND

57. **WATER SUPPLY AND IRRIGATION DESIGN.** Sem. 1, Cr. 2. Supplementary to course 55, with special problems in design. Professor McCAUSTLAND

58. **SANITARY ENGINEERING DESIGN.** Sem. 2, Cr. 2. Supplementary to course 56, with special problems in design. Professor McCAUSTLAND

61, 62. **BRIDGES.** Sem. 1, Cr. 4; Sem. 2, Cr. 3. Stresses, design and deflection of simple trusses. Detail drawings. Estimates. Prerequisite, 45. Professor FULLER

63, 64. **HIGHER STRUCTURES.** Sem. 1-2, Cr. 2. Primary and secondary stresses. Design. Preceded or accompanied by 61, 62. Professor FULLER

65. **STRUCTURAL MATERIALS.** Sem. 1, Cr. 3. An experimental study of the physical properties of materials of construction. Laboratory deposit three dollars. Prerequisite, 42.

Professor FULLER and Mr. MUEHLSTEIN

70. **HIGHWAYS.** Sem. 2, Cr. 2. A general survey of the location, construction and maintenance of country roads and city streets. Mr. ADLER

71. **HIGHWAY LOCATION.** Sem. 1, Cr. 2. Theory of location as applied to highways. Prerequisite, 45. Mr. ADLER

73. **HIGHWAY CONSTRUCTION.** Sem. 1, Cr. 2. A study of rural highway construction from the standpoint of drainage, grading, and the treatment of the wearing surface of every type of road. Mr. ADLER

74. **HIGHWAY CONSTRUCTION.** Sem. 2, Cr. 2. A study of city streets and pavements, and of the manufacture and testing of the various materials used therein. Mr. ADLER

75. **HIGHWAY METALS.** Sem. 1, Cr. 2. A study of the proper selection of highway materials for use in metalling the surface of roads. Laboratory work; all standard tests for highway metals. Mr. ADLER

76. **HIGHWAY ECONOMICS.** Sem. 2, Cr. 2. 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

ELECTRICAL ENGINEERING

*PROFESSOR MAGNUSSON; †ASSISTANT PROFESSOR LOEW; INSTRUCTORS, JOHNSON, MALLORY, WAGNER; LECTURERS, ROSS, HARRISBERGER, ALLEN, LINDSAY.

FOR UNDERGRADUATES

1. ELECTRICAL ENGINEERING. Sem. 1-2, Cr. 4. Theory of the magnetic circuit; construction, operation, and the characteristics of direct generators and motors.

Assistant Professor LOEW, Mr. MALLORY

2. ELECTRICAL ENGINEERING. Sem. 1-2, Cr. 3. Continuation of course 1, and including storage batteries and the principles of photometry.

Assistant Professor LOEW, Mr. WAGNER

3. DYNAMO LABORATORY. Sem. 1-2, Cr. 4. Experimental work on direct current dynamo machinery and storage batteries. Commercial photometry. Must be taken in connection with course 2.

Assistant Professor LOEW, Mr. MALLORY

5. ELECTRICAL ENGINEERING. Sem. 1-2, Cr. 4. An abbreviated course for civil and chemical engineers.

Mr. MALLORY and Mr. WAGNER

6. ELECTRICAL ENGINEERING. Sem. 2, Cr. 3. The application of electricity to mining; for students in mining engineering.

Mr. MALLORY and Mr. WAGNER

7. ELECTRICAL ENGINEERING. Sem. 2, Cr. 4. For students in mechanical engineering who have completed course 1. The more important features of direct current dynamos, elementary alternating current theory and fundamental experiments with alternating current machinery.

Mr. MALLORY and Mr. WAGNER

15. ALTERNATING CURRENTS. Sem. 2, Cr. 2. 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 and Mr. WAGNER

FOR GRADUATES AND UNDERGRADUATES

21. ALTERNATING CURRENTS. Sem. 1, Cr. 4. 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. Sem. 1, Cr. 4. Experimental work on alternating current machinery. To be taken with course 21.

Professor MAGNUSSON

23. ALTERNATING CURRENTS. Sem. 2, Cr. 4. The theory of the single phase and polyphase induction motor, synchronous motor, and rotary convertor. The effect of these motors on transmission lines and systems. Distortion of wave shape and the effects of higher harmonics.

Professor MAGNUSSON

* Absent on leave, 1911-1912.

† In charge of department, 1911-1912.

24. **ALTERNATING CURRENTS.** Laboratory. Sem. 2, Cr. 2. A continuation of course 22 with tests on large commercial machines. Professor MAGNUSSON

31. **TELEPHONES.** Sem. 1, Cr. 2. Theory, construction, and operation of telephone and telephone systems. General station practice. Mr. JOHNSON

32. **TELEPHONES AND TELEGRAPHS.** Sem. 2, Cr. 2. Details of automatic and manual switchboards. Testing and locating of faults. Multiplex and wireless telegraphy. Railway signal systems. Mr. JOHNSON

36. **DYNAMO DESIGN.** Sem. 1-2, Cr. 2. Complete design of one direct current generator or motor. Assistant Professor LOEW

37. **DESIGN OF ELECTRICAL APPARATUS.** Sem. 1-2, Cr. 2. Design of switchboards, transformers, alternating generators or motors. Assistant Professor LOEW

41. **METERS.** Sem. 2, Cr. 2. 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.** Sem. 1, Cr. 2. Electrical equipment and rolling stock; roadbed; construction, and operation of direct current, single phase and polyphase systems. Professor MAGNUSSON, Mr. ALLEN, and Mr. WAGNER

46. **CENTRAL STATIONS AND ELECTRIC LIGHTING.** Sem. 2, Cr. 2. Location, design, and operation of electric central stations. Electric lighting systems. Mr. JOHNSON, Mr. ROSS

48. **POWER TRANSMISSION.** Sem. 2, Cr. 2. Location, design, and operation of electric power transmission systems. Assistant Professor LOEW, Mr. HARISBERGER

51. **ALTERNATING CURRENTS.** Sem. 2, Cr. 4. Transient electrical phenomena and alternating current commutator motors. Prerequisites: Courses 21, 22, 23, 24. Professor MAGNUSSON

MECHANICAL ENGINEERING

PROFESSOR EASTWOOD, ASSISTANT PROFESSOR WILSON, INSTRUCTOR THERKELSEN, INSTRUCTOR IN WOODWORK BEATTIE, INSTRUCTOR IN METALWORK KANE.

COURSES

1. **CARPENTRY AND WOOD-TURNING.** Sem. 1-2, Cr. 2.
Mr. BEATTIE and Mr. THERKELSEN
2. **PATTERN MAKING AND CABINET WORK.** Sem. 1-2, Cr. 2.
Mr. BEATTIE and Mr. THERKELSEN
3. **FORGE AND FOUNDRY.** Sem. 1-2, Cr. 2. Mr. KANE
4. **MACHINE WORK.** Sem. 1-2, Cr. 2. Mr. KANE
5. **MACHINE WORK.** Sem. 1, Cr. 2. Advanced. Mr. KANE

6. MACHINE WORK. Sem. 2, Cr. 2. Advanced. Mr. KANE
7. MANUAL ARTS, WOODWORK. Sem. 1-2, Cr. 2. For teachers.
Mr. BEATTIE
8. MANUAL ARTS, METALWORK. Sem. 1-2, Cr. 2. For teachers.
Mr. KANE
9. MINE TIMBER FRAMING. Sem. 2, Cr. 2. Mr. BEATTIE

10. MACHINE DESIGN. Sem. 1-2, Cr. 3. A study of the design of machine details, giving practice in the application of modern formulæ and manufacturers' standards. Prerequisite, engineering drawing 4.
Mr. THERKELSEN

11. MACHINE DESIGN. Sem. 1-2, Cr. 2. A continuation of course 10, consisting in the design of gearing, cone pulleys and belt transmission. Practice in tracing and blue-printing. Prerequisite, 10, preceded or accompanied by mechanism 20.
Mr. THERKELSEN

12. DESIGN OF SPECIAL MACHINERY. Sem. 1, Cr. 2. Special problems in the design of hoisting and pumping machinery. Prerequisites, 11 and mechanics 41. Assistant Professor WILSON

13. ADVANCED MACHINE DESIGN. Sem. 2, Cr. 2. Special problems in the design of machine tools, and automatic machinery. Prerequisites, 12, 20, and mechanics 42.
Assistant Professor WILSON

10a. MACHINE DESIGN. Sem. 1-2, Cr. 2. First five weeks. For students taking mining engineering, an abridgement of 10.
Mr. THERKELSEN

20. MECHANISM. Sem. 1 or 2, Cr. 2. A study of the operation of machines involving the transmission of forces and the production of determinate motions. Assistant Professor WILSON

21. STEAM ENGINEERING. Sem. 1-2, Cr. 2. The various forms of steam apparatus used in modern power plants, considering the construction, use and reasons for installing such apparatus.
Professor EASTWOOD

22. ENGINES AND BOILERS. Sem. 2, Cr. 2. 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. Sem. 2, Cr. 3. One complete problem will be assigned for solution in the class room. Prerequisites, 11, 22 and mechanics 41. Professor EASTWOOD

24. VALVE GEARS. Sem. 2, Cr. 2. 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. Sem. 2, Cr. 2. 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.** Sem. 1, Cr. 2. Calculations and plans for the design of a given type of gas engine. Prerequisite, 25.

30. **STEAM TURBINES.** Sem. 1, Cr. 2. The theory, construction and design of steam turbines. Prerequisite, 21.

Professor EASTWOOD

31. **HEATING AND VENTILATING.** Sem. 2, Cr. 2. The various systems of heating and ventilating, methods of design and tests. Prerequisite, 21.

Professor EASTWOOD

32. **POWER PLANTS.** Sem. 2, Cr. 2. The design of power plants involving their location, buildings, prime movers, power transmission, etc. Prerequisite, 22.

Professor EASTWOOD

33. **THERMODYNAMICS.** Sem. 1, Cr. 2. The fundamental principles underlying the transformation of heat into work, with reference to the steam engine, the gas engine and hot air engine, and the operation of refrigerating machinery; efficiency of the simple, compound, and multiple expansion engine. Prerequisites, 21 or 22, physics 2a, and mathematics 4b.

Professor EASTWOOD

34. **GRAPHIC STATICS OF MECHANISM.** Sem. 1, Cr. 3. The graphic determination of the forces acting at different points in machines used for hoisting, crushing, punching and power transmission. The effects of friction and the stiffness of ropes and belts. Prerequisite, mechanics 41.

Professor EASTWOOD

40. **EXPERIMENTAL ENGINEERING.** Sem. 1 or 2, Cr. 2. Calibrations of thermometers, gages, indicator springs, etc. Friction and mechanical efficiency tests of the simple steam engine. One complete engine and boiler test with report. Prerequisite, preceded or accompanied by 21.

Assistant Professor WILSON

41. **EXPERIMENTAL ENGINEERING.** Sem. 1, Cr. 3. Same as 40 except an additional laboratory period is provided.

42. **EXPERIMENTAL ENGINEERING.** Sem. 1, Cr. 2. 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.** Sem. 2, Cr. 2. An advanced course in commercial testing. Prerequisite, 42.

Professor EASTWOOD and Assistant Professor WILSON

50. **NAVAL ARCHITECTURE.** Sem. 1, Cr. 2. Elective. The calculations common to ship construction, accompanying regular drafting room work.

Professor EASTWOOD

51. **SHIP DRAWING AND DESIGN.** Sem. 2, Cr. 2. Elective. An application of the principles of naval architecture to the design of a steamship for a definite purpose.

Professor EASTWOOD

ASTRONOMY

3, 4. **ENGINEERING ASTRONOMY.** Sem. 1, Cr. 2. Spherical trigonometry and applications to astronomy. Theory and use of sextant and theodolite.

Sem. 1, Cr. 2. Actual determination of azimuth, latitude, and longitude by means of the sextant and theodolite. Prerequisite, mathematics 4 or 4b. Associate Professor GOULD

5. **LEAST SQUARES.** Sem. 1, Cr. 2. The best methods for the adjustment of measurements and observations. Prerequisite, mathematics 4 or 4b. Associate Professor GOULD

6. **ELEMENTS OF GEODESY.** Sem. 1, Cr. 2. Must be preceded or accompanied by astronomy 4. Associate Professor GOULD

ENGLISH

1a, 1b. Sem. 1-2, Cr. 2. Freshman composition for students of engineering.

Professor BENHAM, Mr. DARBY, Mr. JOHANSON and Mr. SAWYER

GEOLOGY

1a. **GENERAL GEOLOGY.** Sem. 1, Cr. 4. For engineering and mining students. Professor LANDES

1b. **GENERAL GEOLOGY.** Sem. 2, Cr. 4. Repetition of 1a. Professor LANDES

6. **MINERALOGY.** Sem. 2, Cr. 4. For students in mining and chemical engineering. Dr. WEAVER

LAW

80. **ENGINEERING CONTRACTS.** Sem. 2, Cr. 2. The law of contracts as applied to engineering.

Mr. COCKERILL and Special Lecturers

MATHEMATICS

1a. **PLANE TRIGONOMETRY AND ALGEBRA.** Sem. 1-2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

2a. **ANALYTICAL GEOMETRY AND ALGEBRA.** Sem. 1-2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

3a, 4a. **CALCULUS FOR ENGINEERS.** Sem. 1-2, Cr. 4. May be begun either semester. A first course in calculus with special reference to the needs of engineering students.

4a. **CALCULUS FOR ENGINEERS.** Sem. 1, Cr. 4. Second half of courses 3a, 4a.

5a. **APPLICATIONS OF DIFFERENTIAL AND INTEGRAL CALCULUS.** Sem. 1, Cr. 4. For students in the Colleges of Engineering, Forestry and Mines.

PHYSICS

1a. MECHANICS AND WAVE MOTION. Sem. 1, Cr. 2. This course must be accompanied by 1b. Professor OSBORN

1b. PHYSICS MEASUREMENT. Sem. 1-2, Cr. 2. One four-hour laboratory period. Six dollars deposit per year. Mr. LESTER

2a. LIGHT, HEAT, ELECTRICITY. Sem. 1-2, Cr. 4. This course must be accompanied by 2b. Dr. GRONDAHL

2b. PHYSICS MEASUREMENTS. Sem. 1-2, Cr. 1. One three-hour laboratory period. Mr. LESTER and Assistants

5a. ELECTRICAL MEASUREMENTS. Sem. 1-2, Cr. 4. Two class periods and two three-hour laboratory periods. Five dollars deposit per semester. Mr. BRACKEL

POLITICAL AND SOCIAL SCIENCE

1. ELEMENTS OF ECONOMICS. Sem. 1-2, Cr. 4. Dr. McMAHON

18. MUNICIPAL GOVERNMENT. Sem. 2, Cr. 2. Prerequisite, 1, 3, or 19. Professor SMITH

COLLEGE OF FORESTRY

FACULTY

THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, President.
FRANCIS GARNER MILLER, M. F., Yale, Professor of Forestry, Dean.
HUGO A. WINKENWERDER, M. F., Yale, Associate Professor of Forestry.
E. T. CLARK, M. F., Yale, Assistant Professor of Forestry.
WILLIAM T. ANDREWS, Instructor in Mensuration and Lumbering.
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.

J. ALLEN SMITH, Ph. D., Michigan, Professor of Political Economy and Social Science.
JOHN THOMAS CONDON, L. L. M., Northwestern, Professor of Law.
HORACE G. 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.
THEODORE CHRISTIAN FRYE, Ph. D., Chicago, Professor of Botany.
EVERETT OWEN EASTWOOD, B. S., M. A., Virginia, Professor of Mechanical Engineering.
DAVID CONNOLLY HALL, Sc. M., M. D., Chicago, Professor of Physical Training.
HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.
GEO. S. WILSON, B. S., Nebraska, Assistant Professor of Mechanical Engineering.
EDWIN JAMES SAUNDERS, A. M., Harvard, Assistant Professor of Zoology.
GEORGE IRVING GAVETT, M. S. (C. E.), Michigan, Assistant Professor of Mathematics.
LARS O. GRONDAHL, Ph. D., Johns Hopkins, Instructor in Physics.

SPECIAL LECTURERS

GEORGE H. CECIL, District Forester, United States Forest Service, Lecturer on Forest Administration.
W. E. HERRING, District Engineer, District 6, United States Forest Service, Lecturer on Forest Engineering.
R. E. BENEDICT, Forest Inspector, United States Forest Service, Lecturer on Forest Protection.
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. BUCK, 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. F. KUMMEL, Chief of Silvics, United States Forest Service, Lecturer on Forest Extension.

PURPOSE AND LOCATION

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.

ADMISSION

FRESHMAN CLASS		Credits
English	4	
Algebra	1½	
Plane geometry	1	
Solid geometry	½	
Physics	1	
United States history and civics or history.....	1	
Botany	1	
One foreign language.....	2	
Elective	3	
Total.....		15

Students may be admitted:

- (1) By presenting a certificate of graduation from an accredited school covering the above subjects.
- (2) By passing a satisfactory examination in the above subjects.

ADVANCED STANDING

Credit will be given for subjects pursued at other colleges of recognized rank upon presentation of certificates that such subjects have been satisfactorily completed, or upon examination. Graduates of this institution and others of similar rank are admitted to graduate standing.

SPECIAL STUDENTS

Persons twenty-one years of age or over, who are not regularly qualified for admission, but who have pursued special lines of studies related to forestry may be admitted as special students, on giving satisfactory evidence of their ability to pursue the work.

SPECIAL SHORT CURRICULA

Applicants must be at least twenty years old and show ability to carry the work with profit to themselves. Admission to classes is without examination.

LABORATORY DEPOSITS

Forestry courses 1, 3, 5, 6, and 13, \$1.00; forestry courses 7 and 19, \$2.00; botany, for each hour of credit, \$1.00; chemistry, for each semester, \$10.00; geology 1b, \$1.00; physics, for each hour of credit, \$1.75; zoology, for each hour of credit, \$1.00.

NOTE.—The laboratory deposits in each case are for materials used and to cover breakage and wear. In some cases the student is entitled to a refund.

FIELD EXCURSIONS

Much of the instruction in technical forestry is given in the field, necessitating frequent field excursions in nearby forests, logging camps and sawmills. The expense of these excursions is about \$15.00 for the freshman year, \$25.00 dollars for the sophomore year, \$25.00 dollars for the junior year, and \$50.00 for the senior year.

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.

CURRICULA 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 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.

CURRICULA

GROUP I

Leading to the degree of bachelor of science in forestry.

FRESHMAN YEAR

Sem. 1: Forestry 1, Cr. 4; botany 11, Cr. 4; chemistry 1, Cr. 4; mathematics 1a, Cr. 4; forestry 1a, Cr. 1; drill, Cr. 2. Total credits, 16+3.

Sem. 2: English 1a, Cr. 4; botany 12, Cr. 4; chemistry 2, Cr. 4; geology 1c, Cr. 4; drill, Cr. 2. Total credits, 16+2.

SOPHOMORE YEAR

Sem. 1: Civil engineering 24, Cr. 4; forestry 3, Cr. 4; physics 3a, Cr. 4; political science 1, Cr. 2; drill, Cr. 2. Total credits, 16+2.

Sem. 2: Civil engineering 25, Cr. 4; forestry 4, Cr. 4; physics 4a, Cr. 4; zoology 11, Cr. 4; drill, Cr. 2. Total credits, 16+2.

JUNIOR YEAR

Sem. 1: Botany 15, Cr. 4; civil engineering 26, Cr. 4; forestry 5, Cr. 3; forestry 7, Cr. 4; zoology 10, Cr. 2. Total credits, 17.

Sem. 2: Botany 16, Cr. 4; civil engineering 27, Cr. 4; forestry 6, Cr. 3; forestry 8, Cr. 2; forestry 10, Cr. 3; business law, Cr. 2. Total credits, 18.

SENIOR YEAR

Sem. 1: Forestry 11, Cr. 4; forestry 13, Cr. 4; forestry 9, Cr. 2; forestry 17, Cr. 4; forestry 19, Cr. 3. Total credits, 17.

Sem. 2: Forestry 12, Cr. 5; forestry 14, Cr. 2; forestry 16, Cr. 2; forestry 18, Cr. 6; forestry 20, Cr. 2. Total credits, 17.

GROUP II

(Lumberman's Group)

Leading to the degree of bachelor of science in forestry.

FRESHMAN YEAR

Sem. 1: Forestry 1, Cr. 4; botany 11, Cr. 4; chemistry 1, Cr. 4; mathematics 1a, Cr. 4; forestry 1a, Cr. 1; drill, Cr. 2. Total credits, 16+3.

Sem. 2: English 1a, Cr. 4; botany 12, Cr. 4; chemistry 2, Cr. 4; geology 1a, Cr. 4; drill, Cr. 2. Total credits, 16+2.

SOPHOMORE YEAR

Sem. 1: Civil engineering 24, Cr. 4; forestry 3, Cr. 4; physics 3a, Cr. 4; political science 1, Cr. 4; shop 1b, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Civil engineering 25, Cr. 4; forestry 4, Cr. 4; physics 4a, Cr. 4; zoology 11, Cr. 4; shop 3a, Cr. 2; drill, Cr. 2. Total credits, 16+4.

JUNIOR YEAR

Sem. 1: Civil engineering 26, Cr. 4; forestry 5, Cr. 3; forestry 7, Cr. 4; mechanical engineering 21, Cr. 2; elective, Cr. 4. Total credits, 17.

Sem. 2: Civil engineering 27, Cr. 4; forestry 6, Cr. 3; forestry 8, Cr. 2; mechanical engineering 20, Cr. 2; business law, Cr. 2; elective, Cr. 4. Total credits, 17.

SENIOR YEAR

Sem. 1: Forestry 11, Cr. 4; mechanical engineering 40, Cr. 2; forestry 17, Cr. 4; elective, Cr. 6. Total credits, 16.

Sem. 2: Forestry 12, Cr. 5; forestry 14, Cr. 2; forestry 16, Cr. 2; forestry 18, Cr. 6; forestry 20, Cr. 2. Total credits, 17.

GROUP III

Sub-Group A

Leading to the degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Modern language, Cr. 4; botany 11, Cr. 4; mathematics 1a, Cr. 4; forestry 1, Cr. 4; forestry 1a, Cr. 1; drill, Cr. 2. Total credits, 16+3.

Sem. 2: Modern language, Cr. 4; botany 12, Cr. 4; geology 1c, Cr. 4; English 1a, Cr. 2; drill, Cr. 2. Total credits, 16+2.

SOPHOMORE YEAR

Sem. 1: Modern language, Cr. 4; civil engineering 24, Cr. 4; chemistry 1, Cr. 4; elective, Cr. 4; drill, Cr. 2. Total credits, 16+2.

Sem. 2: Modern language, Cr. 4; civil engineering 25, Cr. 4; chemistry 2, Cr. 4; political science 1, Cr. 4; drill, Cr. 2. Total credits, 16+2.

JUNIOR YEAR

Sem. 1: Forestry 3, Cr. 4; physics 3a, Cr. 4; botany 15, Cr. 4; civil engineering 26, Cr. 4. Total credits, 16.

Sem. 2: Forestry 4, Cr. 4; physics 4a, Cr. 4; botany 16, Cr. 4; civil engineering 27, Cr. 4; mechanical engineering 21, Cr. 2. Total credits, 18.

SENIOR YEAR

Sem. 1: Forestry 5, Cr. 3; forestry 7, Cr. 4; forestry 9, Cr. 2; forestry 19, Cr. 3; zoology 10, Cr. 2; elective, Cr. 3. Total credits, 17.

Sem. 2: Forestry 6, Cr. 3; forestry 8, Cr. 2; forestry 10, Cr. 3; business law, Cr. 2; zoology 11, Cr. 4; elective, Cr. 4. Total credits, 18.

Sub-Group B.

GRADUATE YEAR

Leading to the degree of master of science in forestry.

Sem. 1: Forestry 11, Cr. 4; forestry 13, Cr. 4; forestry 17, Cr. 4; thesis, Cr. 4; forestry 21, Cr. 2. Total credits, 18.

Sem. 2: Forestry 12, Cr. 5; forestry 14, Cr. 2; forestry 16, Cr. 2; forestry 18, Cr. 6; forestry 20, Cr. 2. Total credits, 17.

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, surveying and languages are granted this degree on the completion of the following courses:

Forest pathology, silviculture, forest history and policy, advanced dendrology, timber physics, forest utilization, forest management, forest entomology, forest mensuration, wood preservation, wood technology, forest economics, lumbering, thesis.

DEPARTMENTS OF INSTRUCTION

SUBJECTS PRESENTED BY THE FACULTY OF FORESTRY

1. **ELEMENTARY DENDROLOGY.** Sem. 1-2, Cr. 4. The principles of nomenclature and classification; characteristic, identification and distribution of the local tree species.

Associate Professor WINKENWERDER

1a. **CAMPING AND PACKING.** Sem. 2, Cr. 1. Camp equipment; what to wear; camp rations, and camp cooking; pack transportation; camp sanitation. Demonstrations. This course includes a half dozen lectures on first aid to the injured.

Assistant Professor CLARK and Dr. HALL

3, 4. **SILVICULTURE.** Sem. 1-2, Cr. 4. A study of the individual tree; forest ecology; the forest as a whole, treatment of the forest; forest regions; forest types; seed collecting, nursery practice; transplanting.

Professor MILLER

5, 6. **FOREST MENSURATION.** Sem. 5-6, Cr. 3. 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, Assistant Professor CLARK

7. **WOOD TECHNOLOGY.** Wood structure; physical properties; identification, classification, and uses of the chief commercial woods. Prerequisite, 1 year of chemistry.

Associate Professor WINKENWERDER

7a. **WOOD IDENTIFICATION.** A course including only the laboratory work in wood technology; designed for persons who wish to learn to identify the commercial woods. Open to students in the other departments of the University.

Associate Professor WINKENWERDER

7b. **ADVANCED TECHNOLOGY.** A continuation of the laboratory work of course 7. Designed primarily for advanced students.

Associate Professor WINKENWERDER

8. **FOREST ECONOMICS.** The forest as a natural resource; the relation of forests to climate, soil erosion, irrigation, water-power, navigation, grazing, public health, industry and labor; forest taxation. Open to students in other departments.

Associate Professor WINKENWERDER

9. **NATIONAL FOREST ADMINISTRATION.** 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.

Assistant Professor CLARK

10. **FOREST HISTORY AND POLICY.** 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.** Economic management of forest lands; forest valuation; forest finance; regulation of the yield; working plans; forest administration. In the second half of the semester the work is transferred to the field.

Professor MILLER, Assistant Professor CLARK, Mr. KIRKLAND

13. **ADVANCED DENDROLOGY.** The identification, classification and distribution of the forest trees of North America. Silvical characters reviewed. Open only to students who have had one year of botany and elementary dendrology.

Associate Professor WINKENWERDER

14. **FOREST MENSURATION.** Field practice in estimating timber and mapping timber tracts. The course is given in connection with the field work in lumbering and forest management.

Assistant Professor CLARK

16. **WOOD PRESERVATION.** The decay of timber and methods of preventing it; the various methods of preservative treatment; the treatment of special products. Report work on dry kilns and commercial treating plants. Prerequisite, 1 year of chemistry.

Associate Professor WINKENWERDER

16a. **ADVANCED WOOD PRESERVATION.** A two-hour laboratory course for those who desire to specialize in forest products. This course may be carried simultaneously with course 16 or following it. Elective.

Associate Professor WINKENWERDER, Mr. Goss

17, 18. **LUMBERING.** The lumber industry in detail in each lumber region of the United States. Special emphasis upon logging engineering in the Northwest. Field work with detailed reports on every phase of the industry are required of the student. During the last half of the second semester the work is carried on entirely in the field.

Assistant Professor CLARK

19. **TIMBER PHYSICS.** 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

19a. **ADVANCED TIMBER PHYSICS.** A two-hour laboratory course for those who wish to specialize in forest products. The course is a continuation of course 19 and endeavors to give the student a thorough working knowledge in timber testing.

Mr. Goss

20. **FOREST UTILIZATION.** Methods of harvesting and the manufacture of secondary forest products; statistics of production; markets and centers of distribution; the utilization of waste. Classroom work supplemented by visits to industries using secondary forest products.

Associate Professor WINKENWERDER

21. **GENERAL FORESTRY.** This course is given to meet the requirements of teachers in public schools offering agriculture (including forestry) for entrance. Forest influences; the farm

wood lot; identification, distribution, and silvical requirements of the more common trees of Washington and Oregon. Three afternoons in the field are required in addition to the lectures. Open to students in other departments.

Associate Professor WINKENWERDER

22. SEMINAR. Open to seniors and graduates.

Professor MILLER

SUBJECTS PRESENTED BY THE FACULTY OF ARTS AND SCIENCES

BOTANY.

1. ELEMENTARY BOTANY. A study of the structure and function of the leaves, stems, roots and seeds of flowering plants.

Mr. Rigg, Mr. Hotson and Assistants

10. SYSTEMATIC BOTANY. The principles of classification. The analysis chiefly of the higher plants. Some field trips. Intended for foresters and for other students who expect to take botany 5 or 11. Prerequisite: Botany 1, except for teachers and seniors.

11. GENERAL BOTANY. A rapid sketch of the line of evolution in plants, laboratory types of the great groups illustrating progress. Intended for forestry students.

Mr. Hotson

12. MORPHOLOGY OF SPERMATOPHYTES. Types of spermatophytes of various orders illustrating the basic principles of grouping into orders and families. Stem structures. Lectures on adaptation to environment. Intended for forestry students.

Mr. Hotson

15. PLANT PHYSIOLOGY. Lectures and laboratory work. Barnes' textbook as a reference. Prerequisites: Botany 1, 2, Chemistry 1, 2.

Professor FRYE

16. FOREST PATHOLOGY. A course in the diseases of trees.

Mr. Hotson

CHEMISTRY.

1, 2. GENERAL CHEMISTRY. 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. Textbooks, Smith's College Chemistry and Laboratory Manual. Deposit ten dollars per semester.

Professor BYERS, Instructors and Assistants.

ENGLISH

1. ENGLISH COMPOSITION. 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.

GEOLOGY

1c. GEOLOGY FOR FORESTRY STUDENTS.

Professor LANDES

MATHEMATICS.

1a. PLANE TRIGONOMETRY AND ALGEBRA. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

MILITARY SCIENCE AND TACTICS

Three hours a week in freshman and sophomore years 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.

W. T. PATTEN, Captain 13th Infantry, U. S. A., Commandant

PHYSICS

3a, 4a. GENERAL PHYSICS. Sem. 1-2, Cr. 4. This course is an abridgment of 1a, 2a, and is open only to students in forestry, pharmacy and medicine. Three class periods and one laboratory period.

Dr. GRONDAHL

NOTE.—The laboratory deposit is six dollars per year for all laboratory courses.

1. ELEMENTS OF ECONOMICS. Sem. 1-2, Cr. 4.

Dr. McMAHON

ZOOLOGY

13. FOREST ZOOLOGY. A discussion of the animal life characteristic of forest, including the classification, habits, economic relations, propagation, and protection of forest animals.

Professor KINCAID

14. FOREST ENTOMOLOGY. 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

SUBJECTS PRESENTED BY THE FACULTY OF ENGINEERING

CIVIL ENGINEERING

24, 25. FOREST SURVEYING. Map drawing including freehand lettering. Chain, compass, level and transit surveying with reference to work in forests. Computations and mapping. Prerequisites: Mathematics 1a and Forestry 2.

Mr. NEWTON

26. **FOREST TOPOGRAPHY.** Topographic surveys as applied to forestry. Reconnaissance and plane triangulation. Mr. NEWTON

27. **LOGGING RAILROADS.** The location of logging railroads, roads and trails. Maps, profiles and estimates. Prerequisite, 26. Mr. MILLER

MECHANICAL ENGINEERING

2. **PATTERN MAKING AND CABINET WORK.**

Mr. BEATTIE and Mr. THERKELSEN

3. **FORGE AND FOUNDRY.**

Mr. KANE

20. **MECHANISM.** A study of the operation of machines involving the transmission of forces and the production of determinate motions.

Assistant Professor WILSON

21. **STEAM ENGINEERING.** The various forms of steam apparatus used in modern power plants, considering the construction, use and reasons for installing such apparatus.

Professor EASTWOOD

40. **EXPERIMENTAL ENGINEERING.** Calibrations of thermometers, gages, indicator springs, etc. Friction and mechanical efficiency tests of the simple steam engine. One complete engine and boiler test with report. Prerequisite, preceded or accompanied by 21.

Assistant Professor WILSON

SPECIAL SHORT CURRICULA

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 1913 opens Thursday, January 2, and closes Thursday, March 27. 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, one dollar; 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.

COURSES

FIRST YEAR

Silviculture 1, forest mensuration 2, dendrology 3, forest surveying 4, forest law 5, national forest administration 6, English composition (elective) 7, first aid to injured 8, diseases of trees 9.

SECOND YEAR

Silviculture 10, forest mensuration 11, forest surveying 12, lumbering 13, forest management 14, geology (elective) 15.

ELECTIVE—FIRST OR SECOND YEAR

Botany 16, veterinary science 17, animal husbandry 18.

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 1913 opens January 2 and closes March 27. In the enumeration of the subjects of this course, the numbers correspond to those designating the subjects in the ranger group. This group includes:

Silviculture 1, forest mensuration 2, forest surveying 4, first aid to injured 8, diseases of trees 9, lumbering 13, forest management 14, geology (elective) 15.

DESCRIPTION OF COURSES

1. **SILVICULTURE.** Silvical character of tree—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 measures, etc. Log grading; scale records.

Assistant Professor CLARK, 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.

Assistant Professor CLARK, Mr. ANDREWS

(3) **DENDROLOGY.** The characteristics, identification, classification and distribution of local tree species.

Associate Professor WINKENWERDER

4. FOREST 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. NEWTON

5. 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

6. 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, FLORY, KNAPP, MUNGER, JUDD, AMES.

7. **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. CLINTON

8. **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

9. **DISEASES OF TREES.** A course of lectures on the fungi diseases of tree. 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

10. **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

11. **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.

Assistant Professor CLARK

12. **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

13. **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

14. **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.

Mr. KIRKLAND

15. **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 SAUNDERS

16. **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

17. **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

18. **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.

Dr. HARRINGTON

SCHOOL OF LAW

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., Lecturer of Law
EARL G. RICE, A. B., LL. B., Instructor in Law
ORVILLE PORTER COCKERILL, A. B., LL. B., Instructor in Law

ADMISSION TO THE LAW SCHOOL

To be admitted to regular standing in the Law School students must, in addition to presenting credits or passing examinations entitling them to admission to any other school or college of this University, present credits or pass examinations equivalent to thirty college hours in the College of Arts and Sciences of this University, plus four hours in physical training.

ADMISSION IN 1913

The equivalent of one year's work in the College of Arts and Sciences of this University will be added to the foregoing requirements for admission to the Law School to take effect upon the beginning of the school year of 1913-1914.

ADVANCED STANDING

If, in addition to satisfying the entrance requirements for regular standing in the Law School, the student has earned credits in another law school of satisfactory standing, by regular attendance for at least one academic year of not less than eight months, he will ordinarily receive credit for such work, subject to the following restrictions: The work must equal in amount and character that required by this Law School. Not more than two years' credit will be allowed for such work. The right is reserved to refuse advance credit in law in whole or in part, save upon examination. Candidates for 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-one years of age and his general education is such as to entitle him to take the state bar examination.

Special students who comply with these requirements 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 CURRICULA 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 year's 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 A.B. degree will be granted upon the completion of both courses.

The last two years of this combined course are devoted to completing the rest of the 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 COURSES IN LAW

The University offers courses in law in the evening, open to those who are not able to attend in the day time. The entrance and graduation 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 textbooks are used, and the same instructors conduct the course. 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.

The University library contains about forty-five 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.

FEEES

A tuition fee of forty dollars per annum for day students and twenty dollars per annum for evening students is charged in the Law School, one-half payable at the beginning of each semester.

A diploma fee of five dollars is charged all students to whom diplomas are issued.

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.

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. Sem. 1, Cr. 2. Textbook: Mechem's Cases on Agency supplemented by a selection of Washington cases.

Mr. GOODNER

2, 3. CONTRACTS. Sem. 1-2, Cr. 3. Textbook: Keener's Cases on Contracts.

Professor LANTZ

4. CRIMINAL LAW. Sem. 1, Cr. 2. Textbook: Mikell's Cases on Criminal Law, supplemented by the Washington Criminal Code and cases.

Mr. COCKERILL

5. EQUITY. Sem. 2, Cr. 2. Textbook: Ames' Cases on Equity Jurisprudence, volume I.

Mr. GOODNER

6. PERSONS. Sem. 2, Cr. 2. Textbook: Woodruff's Cases on Domestic Relations and the Law of Persons, supplemented by a selection of Washington cases.

Professor LANTZ

7, 8. PLEADING. Sem. 1-2, Cr. 2. Textbook: 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. Sem. 1-2, Cr. 2. Textbook: Gray's Cases on Property, volumes I and II.

Professor COLE

11, 12. STATUTORY INTERPRETATION. Sem. 1-2, Cr. 2. Washington Cases.

Professor CONDON

13, 14. TORTS. Sem. 1-2, Cr. 2. Textbook: Ames' Cases on Torts, Ed. II, first semester; Smith's Cases on Torts, Ed. III, second semester.

Mr. RICE

15, 16. PROCEDURE I AND II. Sem. 1-2, Cr. 1. 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. Sem. 1-2, Cr. 1. 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. Sem. 2, Cr. 1. Students' edition Remington's Bankruptcy and Selected Cases.

Mr. GOODNER

20. BILLS AND NOTES. Sem. 1, Cr. 2. Textbook: Hufcut's Cases on Negotiable Instruments.

Professor LANTZ

2 21. CARRIERS. Sem. 2, Cr. 2. Textbook: Green's Cases on Carriers. Professor LANTZ

4 22. CORPORATIONS, PRIVATE. Sem. 1-2, Cr. 2. Textbook: Warren's Cases on Private Corporations, supplemented by Washington cases. Professor COLE

2 23. DAMAGES. Sem. 2, Cr. 2. Textbook: Gilbert and Mechem's Cases on Damages, supplemented by a selection of Washington cases. Mr. COCKERILL

4 24, 25. EQUITY, JURISDICTION. Sem. 1-2, Cr. 2. Textbook: Ames' Cases on Equity, volumes I and II, supplemented by a selection of Washington cases. Mr. GOODNER

4 26, 27. EVIDENCE. Sem. 1-2, Cr. 2. Textbook: Wigmore's Cases on Evidence, supplemented by a selection of Washington statutes and cases. Professor CONDON

2 28. PARTNERSHIP. Sem. 2, Cr. 2. Textbook: Gilmore's Cases on Partnership. Mr. COCKERILL

4 29, 30. PROPERTY. Sem. 1-2, Cr. 2. Textbook: Gray's Cases on Property, volumes III and V. Professor COLE

2 31. QUASI-CONTRACTS. Sem. 1, Cr. 2. Textbook: Woodruff's Cases on Quasi-Contracts. Mr. RICE

3 32. SALES, INCLUDING CONDITIONAL SALES AND SALES UNDER SALES IN BULK ACT IN WASHINGTON. Sem. 1, Cr. 3. Textbook: Williston's Cases on Sales and Washington statutes and cases.

4 33, 34. WASHINGTON STATUTE LAW. Sem. 1-2, Cr. 2. Washington Cases. Professor CONDON

2 35, 36. PROCEDURE III AND IV. Sem. 1-2, Cr. 1. A continuation of courses I and II of first year, to consist of the procedure in civil and criminal actions, in the justice and superior courts. Professor CONDON and Mr. COCKERILL

THIRD YEAR

2 37. ADMIRALTY. Sem. 1, Cr. 2. Textbook: Ame's Cases on Admiralty. Professor LANTZ

4 38, 39. COMPARATIVE STATUTE LAW. Sem. 1-2, Cr. 2. Professor CONDON

2 40. CONFLICT OF LAWS. Sem. 2, Cr. 2. Textbook: Lorenzen's Cases on Conflict of Laws. Professor LANTZ

4 41, 42. CONSTITUTIONAL LAW. Sem. 1-2, Cr. 2. First semester, Federal; second semester, State of Washington. Textbook: McClain's Cases on Constitutional Law. Professor CONDON

2 43. MORTGAGES. Sem. 1, Cr. 2. Textbook: Wyman's Cases on Mortgages and Washington statutes and cases. Mr. GOODNER

2 44. MUNICIPAL CORPORATIONS. Sem. 2, Cr. 2. Textbook: Smith's Cases on Municipal Corporations and Washington constitution, statutes and cases. Mr. RICE

45. OFFICE PRACTICE. Sem. 2, Cr. 2. 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. Sem. 2, Cr. 2. 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. Sem. 1-2, Cr. 2. Textbook: 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. Sem. 1, Cr. 2. Textbook: Ames' Cases on Suretyship.

Mr. COCKERILL

51. TRUSTS. Sem. 2, Cr. 2. Textbook: Kenneson's Cases on Trusts.

Mr. GOODNER

52. WILLS. Sem. 1, Cr. 2. Textbook: Costigan's Cases on Wills.

Mr. GOODNER

ELECTIVE

JOINT SEMINAR. Sem. 1-2, Cr. 2. 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

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COLLEGE OF MINES.

FACULTY

- THOMAS FRANKLIN KANE, Ph. D., Johns Hopkins, President.
MILNOR ROBERTS, A. B., Stanford, Professor of Mining Engineering and Metallurgy, Dean.
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 Training.
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.
HENRY KREITZER BENSON, Ph. D., Columbia, Associate Professor of Chemistry.
JOSEPH DANIELS, S. B., M. S., Lehigh, Assistant Professor of Mining Engineering and Metallurgy.
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 English.
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., Wisconsin, Assistant Professor of Electrical Engineering.
JAMES EDWARD GOULD, Ph. B., A. M., Harvard, Assistant Professor of Mathematics.
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*Absent on leave during 1911-12.

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

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

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

GEORGE IRVING GAVETT, B. S., C. E., Assistant Professor in Mathematics.

WILLIAM VERNON LOVITT, A. M., Instructor in Mathematics.

CHARLES EDWARD WEAVER, Ph. D., Instructor in Geology.

JOHN W. MILLER, B. S., Instructor in Civil Engineering.

JULIUS ADLER, B. S., Instructor in Civil Engineering.

CHARLES EDWARD NEWTON, E. M., Instructor in Civil Engineering.

SAMUEL THOMAS BEATTIE, Instructor in Woodwork.

WARREN S. SMITH, Assistant in Metallurgy.

JAMES M. McDONALD, Assistant in Mining.

GEO. B. WELCH, Assistant in Stock Room.

GEORGE JAMME, Lecturer on Coal Mining.

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

ROGER TAYLOR, B. S., Lecturer on Copper Smelting.

C. H. SHAMEL, LL. B., Ph. D., Lecturer on Mining Law.

GEORGE BATES HARRINGTON, S. B., Mass. Inst. Tech., Lecturer on the Economics of Mining.

DAVID C. BOTTING, State Coal Mine Inspector, Lecturer on Mine Regulations.

ADMISSION TO THE FRESHMAN CLASS

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.

The requirements for admission to the freshman class of the College of Mines for curricula I, II and III, leading to the degrees of bachelor of science in mining engineering, in geology and mining, or in metallurgical engineering, are as follows:

	Units
†English	4
Algebra	1½
Plane geometry	1
Solid geometry	½
Physics	1
Chemistry	1
One foreign language	2
History, American preferred.....	1
Or United States history, ½; civics, ½.	
Elective	3
Total.....	15

*Absent on leave during 1911-12.

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

For course IV, leading to the degree of bachelor of science (B. S.), the entrance requirements are:

	Units
†English	4
Algebra	1½
Plane geometry	1
Solid geometry	½
Physics	1
One foreign language	2
History, American preferred.....	1
Or United States history, ½; civics, ½.	
Elective	4
Total.....	15

DEGREES

The four-year courses in the College of Mines 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, course IV, which leads to the degree of bachelor of science (B. S.), is offered. 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.). A new course in coal mining engineering is offered, beginning in September, 1912.

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.

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.; 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 descriptive of their summer work are presented by the student members. The officers for 1911-12 are, Horace H. Crary, president; Geo. B. Welch, vice-president; Clinton R. Lewis, secretary-treasurer.

UNITED STATES MINE RESCUE TRAINING STATION

The United States Mine Rescue Training Station, operated in connection with the College of Mines, occupies a separate building. The "smokeroom," 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.

Several sets of the Draeger oxygen apparatus and pulmoter are kept on hand for practice as well as for use in mine rescue work. The purpose of the station is to train miners in the use of oxygen helmets, which are used in cases of mine fires and explosions in both coal and metal mines. From ten days to two weeks' time is required for the course of training. The applicant is taught the construction of the apparatus and is required to wear it for four hours each day, in two periods of two hours each. The practice is carried on in a room filled with gas which cannot be breathed without immediate danger, and the work to be performed is the same as that which would be required in actual mining operations or rescue work. The smokeroom represents a portion of a mine, and is equipped with mine car, track, overcast, timbers and brick. Applicants who have completed the course of training receive a certificate from the U. S. Bureau of Mines.

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. Special lectures are given by State Mine Inspector Botting, Assistant Inspector Corey and government engineers.

CURRICULA IN THE COLLEGE OF MINES

I. CURRICULUM IN MINING ENGINEERING

For men intending to enter coal mining, a new curriculum in coal mining engineering is offered. The freshman and sophomore years will be as now scheduled for course I. The junior and senior studies will be given beginning with the fall of 1912. Announcement will be made in June, 1912.

FRESHMAN YEAR

Sem. 1: Mathematics 1a, Cr. 4; chemistry 1a, Cr. 4; civil engineering 1, 3, Cr. 6; English 1a, Cr. 2; mechanical engineering 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Mathematics 2a, Cr. 4; chemistry 2a, Cr. 4; civil engineering 4, Cr. 2; civil engineering 20, Cr. 4; mechanical engineering 9, Cr. 2; English 1b, Cr. 2; drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Geology 1a, Cr. 4; mathematics 3a, Cr. 4; physics 1a, Cr. 4; physics 1b, Cr. 2; civil engineering 28, Cr. 3; drill, Cr. 2. Total credits, 17+2.

Sem. 2: Geology 9, Cr. 4; mathematics 4a, Cr. 4; chemistry 9, Cr. 4; physics 2a, Cr. 4; physics 2b, Cr. 2; drill, Cr. 2. Total credits, 18+2.

JUNIOR YEAR

Sem. 1: Mining 4, Cr. 2; mathematics 5a, Cr. 2; metallurgy 1, Cr. 4; civil engineering 41, Cr. 5; geology 13, Cr. 4; mechanical engineering 3, Cr. 2. Total credits, 17+2.

Sem. 2: Mining 9, Cr. 1; metallurgy 2, Cr. 4; geology 16, Cr. 4; civil engineering 50, Cr. 4; economics 1, Cr. 4. Total credits, 17. Mining practice in summer vacation.

SENIOR YEAR

Sem. 1: Mining 1, Cr. 4; mining 3, Cr. 2; mining 6, Cr. 1; metallurgy 5, Cr. 3; metallurgy 7, Cr. 3; metallurgy 13, Cr. 3. Total credits, 16.

Sem. 2: Mining 2, Cr. 4; mining law, Cr. 1; mining 7, Cr. 1; mining 8, Cr. 2; geology 17, Cr. 4; geology 20, Cr. 1; electrical engineering 6, Cr. 3. Total credits, 16.

II. CURRICULUM IN GEOLOGY AND MINING

FRESHMAN YEAR

167 9 Sem. 1: Mathematics 1a, Cr. 4; chemistry 1a, Cr. 4; civil engineering 1, 3, Cr. 6; English 1a, Cr. 2; mechanical engineering I, Cr. 2; drill, Cr. 2. Total credits, 16+4.

167 2 Sem. 2: Mathematics 2a, Cr. 4; chemistry 2a, Cr. 4; civil engineering 4, Cr. 2; civil engineering 20, Cr. 4; English 1b, Cr. 2; mechanical engineering 9, Cr. 2; drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

17 2 Sem. 1: Geology 1, Cr. 4; mathematics 3a, Cr. 4; physics 1a, Cr. 4; physics 1b, Cr. 2; civil engineering 28, Cr. 3; drill, Cr. 2. Total credits, 17+2.

17 2 Sem. 2: Geology 9, Cr. 4; mathematics 4a, Cr. 4; chemistry 9, Cr. 4; physics 2a, Cr. 4; physics 2b, Cr. 2; drill, Cr. 2. Total credits, 17+2.

JUNIOR YEAR

16 Sem. 1: Mining 4, Cr. 2; metallurgy 1, Cr. 4; metallurgy 3, Cr. 2; geology 18, Cr. 4; geology 18, Cr. 1; civil engineering 23, Cr. 3; mechanical engineering 3, Cr. 2. Total credits, 16+2.

17 Sem. 2: Mining 9, Cr. 1; metallurgy 2, Cr. 4; metallurgy 9, Cr. 2; metallurgy 12, Cr. 2; geology 16, Cr. 4; economics 1, Cr. 4. Total credits, 17. Geology or mining practice in summer vacation.

SENIOR YEAR

16 Sem. 1: Mining 1, Cr. 4; mining 6, Cr. 1; metallurgy 5, Cr. 3; metallurgy 7, Cr. 3; geology 18, Cr. 4; geology 14, Cr. 1. Total credits, 16.

16 Sem. 2: Mining 2, Cr. 4; mining law, Cr. 1; mining 7, Cr. 1; mining 8, Cr. 2; metallurgy 4 or 6, Cr. 3; geology 17, Cr. 4; geology 20, Cr. 1. Total credits, 16.

III. CURRICULUM IN METALLURGICAL ENGINEERING

FRESHMAN YEAR

13 6 Sem. 1: Mathematics 1, Cr. 4; chemistry 1a, Cr. 4; civil engineering 1, 3, Cr. 6; English 1a, Cr. 2; mechanical engineering 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

19 6 Sem. 2: Mathematics 2a, Cr. 4; chemistry 2a, Cr. 4; civil engineering 4, Cr. 2; civil engineering 20, Cr. 4; English 1b, Cr. 2; mechanical engineering 9, Cr. 2; drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Geology 1a, Cr. 4; mathematics 3a, Cr. 4; physics 1a, Cr. 4; physics 1b, Cr. 2; civil engineering 28, Cr. 3; drill, Cr. 2. Total credits, 17+2.

Sem. 2: Geology 9, Cr. 4; mathematics 4, Cr. 4; chemistry 9, Cr. 4; physics 2a, Cr. 4; physics 2b, Cr. 2; drill, Cr. 2. Total credits, 18+2.

JUNIOR YEAR

Sem. 1: Metallurgy 1, Cr. 4; metallurgy 10, Cr. 3; civil engineering 41, Cr. 5; economics 1, Cr. 4; mechanical engineering 3, Cr. 2. Total credits, 16+2.

Sem. 2: Mining 9, Cr. 1; metallurgy 2, Cr. 4; metallurgy 4, Cr. 3; civil engineering 42, Cr. 4; civil engineering 50, Cr. 4; mechanical engineering 5b, Cr. 1; mechanical engineering 4a, Cr. 2. Total credits, 17+2. Metallurgical practice in summer vacation.

SENIOR YEAR

Sem. 1: Mining 1, Cr. 4; mining 6, Cr. 1; metallurgy 3, Cr. 2; metallurgy 5, Cr. 3; metallurgy 7, Cr. 3; metallurgy 11, Cr. 1; metallurgy 13, Cr. 3. Total credits, 17.

Sem. 2: Mining 2, Cr. 4; mining 8, Cr. 2; mining 7, Cr. 1; metallurgy 6, Cr. 2; metallurgy 8, Cr. 3; geology 17, Cr. 4. Total credits, 16.

IV. CURRICULUM IN MINING ENGINEERING

Leading to the degree of bachelor of science.

FRESHMAN YEAR

Sem. 1: Mathematics 1a, Cr. 4; chemistry 1, Cr. 4; English 1a, Cr. 2; modern foreign language, Cr. 4; mechanical engineering 1, Cr. 2; civil engineering 1, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Mathematics 2a, Cr. 4; chemistry 2, Cr. 4; civil engineering 3, Cr. 4; modern foreign language, Cr. 4; mechanical engineering 9, Cr. 2; drill, Cr. 2. Total credits, 16+4.

SOPHOMORE YEAR

Sem. 1: Mathematics 3a, Cr. 4; chemistry 8b, Cr. 4; civil engineering 4, Cr. 2; modern foreign language, Cr. 4; mechanical engineering 3, Cr. 2; English 1b, Cr. 2; drill, Cr. 2. Total credits, 16+4.

Sem. 2: Mathematics 4a, Cr. 4; physics 1a, Cr. 4; physics 1b, Cr. 2; chemistry 9, Cr. 4; civil engineering 20, Cr. 4; drill, Cr. 2. Total credits, 18+2.

JUNIOR YEAR

Sem. 1: Mathematics 5a, Cr. 2; physics 2a, Cr. 4; physics 2b, Cr. 2; geology 1a, Cr. 4; civil engineering 23, Cr. 3; mining 5, Cr. 1. Total credits, 17.

Sem. 2: Mining 9, Cr. 1; metallurgy 1, Cr. 4; electrical engineering 6, Cr. 3; civil engineering 41, Cr. 5; geology 9, Cr. 4. Total credits, 17. Mining practice in summer vacation.

SENIOR YEAR

Sem. 1: Metallurgy 2, Cr. 4; mining 1, Cr. 4; civil engineering 42, Cr. 4; geology 13, Cr. 4. Total credits, 16.

Sem. 2: Mining 2, Cr. 4; mining 7, Cr. 1; metallurgy 8, Cr. 2; geology 16, Cr. 4; geology 20, Cr. 1; economics 1, Cr. 4. Total credits, 16.

GRADUATE COURSE IN MINING ENGINEERING

Following course IV and leading to the degree of master of science in mining engineering.

Sem. 1: Mining 10, Cr. 3; mining 5, Cr. 1; metallurgy 7, Cr. 3; metallurgy 4, Cr. 3; metallurgy 13, Cr. 3; elective, engineering, Cr. 3. Total credits, 16.

Sem. 2: Mining 4, Cr. 2; mining 6, Cr. 1; mining 7, Cr. 1; mining 8, Cr. 3; geology 17, Cr. 4; elective, engineering, Cr. 3; mining 11, Cr. 2. Total credits, 16.

V. SHORT SESSION FOR MINING MEN

The sixteenth annual Short Session for mining men will open on January 8th, 1913, continuing until April 4th. During that period each year twelve of the instructors in mining engineering offer a course for the benefit of persons who are interested in prospecting, mining, smelting, clay 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. Practically all the students attend the following subjects: 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. 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. 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. NEWTON

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. MINE TIMBER FRAMING. Shop work in the cutting, framing and erecting of various types of timbers employed in mining operations. Deposit, two dollars. One afternoon a week.
Mr. BEATTIE

12. **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

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 172.

Professor DANIELS, State Mine Inspector BOTTING and Government Engineers.

DEPARTMENTS OF INSTRUCTION

MINING ENGINEERING AND METALLURGY

PROFESSOR MILNOR ROBERTS, ASSISTANT PROFESSOR JOSEPH DANIELS, INSTRUCTOR CLARENCE RAYMOND COREY; LECTURERS, GEORGE JAMME, HARVEY L. GLENN, ROGER TAYLOR; ASSISTANT IN METALLURGY, WARREN S. SMITH; ASSISTANT IN MINING, JAMES M. McDONALD; ASSISTANT IN STOCK ROOM, GEO. B. WELCH.

MINING ENGINEERING

Coal miners who are taking the ten days' course in the U. S. 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.

1. **MINING.** Sem. 1, Cr. 4. Three lectures and one laboratory period. Lectures on mining, power generation, air compression, hoisting and transportation. Practice with air compressors, machine drills and mine equipment in laboratories and local plants. Prerequisite: Senior standing. Professor ROBERTS

2. **ORE DRESSING.** Sem. 2 Cr. 4. Two lectures and two laboratory periods. A detailed study of certain branches of ore dressing followed by a full test of ores by mill run checked by assays. Prerequisite: Mining 3. Senior or graduate.

Professors ROBERTS and DANIELS, and Mr. McDONALD

3. **MILLING.** Sem. 1, Cr. 2. One lecture and one laboratory period. Lectures and mill practice in the principles of ore dressing. Professors ROBERTS and DANIELS, and Mr. McDONALD

4. **COAL MINING.** Sem. 1, Cr. 2. The preparation of coal for market; the coal fields of the Pacific Coast; a study of the Renton coal mine. Regular course of training under U. S. Bureau of Mines in rescue work and first aid to the injured.

Professors ROBERTS and DANIELS

5. **FIELD WORK.** Sem. 1, Cr. 1. 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.** Sem. 1, Cr. 1. 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 INSPECTION.** Sem. 1, Cr. 1. Ten days in the second semester. An excursion of the senior class to a mine or mining district.

Professors ROBERTS and DANIELS, and Mr. COREY

8. **THESIS.** Sem. 2, Cr. 2. A continuation of mining 6. Weekly consultation and seminars.

Professors ROBERTS and DANIELS, and Mr. COREY

9. **JUNIOR EXCURSION.** Sem. 2, Cr. 1. An excursion of the junior class to a mine or mining district. Sometimes made in connection with the senior excursion, mining 7. Required for senior standing.

Professors ROBERTS and DANIELS, and Mr. COREY

10. **MINING METHODS.** Sem. 1, Cr. 3. Two lectures and one laboratory period. A detailed study of certain branches of mining. Senior or graduate.

Professor ROBERTS

11. **MINE MANAGEMENT.** Sem. 1, Cr. 2. Two lectures. A study of the organization and administration of engineering plants, involving the keeping and interpretation of cost accounts, the efficiency of labor and methods, the financial, legal and social aspects of engineering operation.

Professor DANIELS

METALLURGY

1. **FIRE ASSAYING.** Sem. 1. 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, GLENN and SMITH

2. **GENERAL METALLURGY.** Sem. 2. Two lectures and two laboratory periods. The properties of metals and alloys, fuels, refractory materials, furnaces and the extraction of the common metals from their ores. Visits to smelter. Deposit, ten dollars.

Professor ROBERTS, Messrs. COREY and TAYLOR

3. **METALLURGICAL FUELS.** Sem. 1, Cr. 2. One lecture and one laboratory period. The composition, manufacture and metallurgical uses of natural and prepared fuels; the methods and costs of coking, gas making, and coal briquetting. Furnace and calorimeter tests of various types of fuels. Deposit, five dollars.

Professor DANIELS

4. **COPPER AND LEAD.** Sem. 2, Cr. 3. Three lectures. The metallurgy of copper and lead, especially the methods of roasting, smelting and refining.

Mr. COREY

5. **GOLD AND SILVER.** Sem. 1, Cr. 3. 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.** Sem. 2, Cr. 3. 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. Deposit, five dollars. Mr. COREY

7. **WET ASSAYING.** Sem. 1, Cr. 3. 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.** Sem. 2, Cr. 3. Technical methods of analysis of coals, slags, and industrial products. Prerequisite: Chemistry 9. Deposit, ten dollars. Mr. COREY

9. **PYROMETRY AND ALLOYS.** Sem. 2, Cr. 2. One lecture and one laboratory period. Methods of measuring high temperatures. Union of metals by fusion, compression and electro-deposition; the behavior of metals and alloys under heat. Laboratory practice in thermal measurements, synthesis and testing of alloys. Deposit, three dollars. Mr. COREY

10. **METALLOGRAPHY.** Sem. 1, Cr. 2. One lecture and laboratory period. The constitution and microstructure of metals and alloys, especially iron and steel. The preparation and study of metal sections, photomicrography and the use of the microscope to aid in testing structural iron and steel. Deposit, three dollars. Professor DANIELS

11. **METALLURGICAL PROBLEMS.** Sem. 1, Cr. 1. 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.** Sem. 2, Cr. 3. One lecture and two laboratory periods. Methods of testing clays, refractory materials, cement-making materials. Deposit, three dollars. Mr. COREY

13. **DESIGN OF PLANT.** Sem. 1, Cr. 3. Three drafting periods. The designing of a piece of equipment or a structure for mining, milling or metallurgical purposes. Senior or graduate. Professors ROBERTS and DANIELS

THESIS. See mining 6 and 8.

SUMMER FIELD WORK. See mining 7 and 8.

CHEMISTRY

1, 2. **GENERAL CHEMISTRY.** Cr. 4. Textbooks, Smith's College Chemistry and Laboratory Manual. Professor BYERS, Instructors and Assistants

1a, 2a. **GENERAL CHEMISTRY.** Cr. 4. Consists of two lectures and six laboratory hours per week. Textbooks, Smith's General

Chemistry, Smith's Laboratory Manual, and Byers and Knight's Qualitative Analysis. Prerequisite: One year high school chemistry. Professor BYERS, Assistant Professor ROSE and Assistants

1b. GENERAL CHEMISTRY. Sem. 2, Cr. 4. Repetition of 1a. 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 curricula, such students must elect some other four-hour course in the department of chemistry.
Assistant Professor ROSE

2b. GENERAL CHEMISTRY. Sem. 1, Cr. 4. Continuation of 1b.
Assistant Professor ROSE

1d. PROSPECTOR'S COURSE. Cr. 4. For miners who may enter January 1, and will continue to April 1. Does not require previous knowledge of chemistry, and will be merged into a course of qualitative analysis. The text is Brownlee. Deposit, ten dollars per semester.
Associate Professor BENSON

9. QUANTITATIVE ANALYSIS. Sem. 1-2, Cr. 4. Gravimetric and volumetric analysis. Olsen's Quantitative Analysis. Twelve laboratory hours and one recitation per week.
Associate Professor BENSON

ENGLISH

1a, 1b. ENGLISH COMPOSITION. Sem. 1-2, Cr. 2. A brief consideration of the principles of rhetoric with practice in theme writing.
Messrs. BENHAM, DARBY, JOHANSON and SAWYER

GEOLOGY

1a. GENERAL GEOLOGY. Sem. 1, Cr. 4. For engineering and mining students.
Professor LANDES

9. MINERALOGY. Sem. 2, Cr. 4. Two laboratory periods. Descriptive and determinative mineralogy. Laboratory fee of \$2.00.
Dr. WEAVER

13. OPTICAL CRYSTALLOGRAPHY. Sem. 1, Cr. 4. Two recitations and two laboratory periods per week. Laboratory fee of \$2.00.
Dr. WEAVER

16. PETROGRAPHY. Sem. 2, Cr. 4. A study of the distinguishing characteristics of the different groups and species of rocks with practice in their determination by modern petrographical methods. Prerequisite: 1a, or 1, or 4, 5, 6.
Dr. WEAVER

17. ECONOMIC GEOLOGY. Sem. 2, Cr. 4. Four recitations per week.
Professor LANDES

18. PALEONTOLOGY. Cr. 4. Three recitations and one laboratory period per week. Chiefly for students in geology and mining.
Dr. WEAVER

19, 20. FIELD WORK. Credits and time to be arranged for arts students. One hour or eight days in second semester for mining engineers.
Professors LANDES, SAUNDERS, and Dr. WEAVER

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

MATHEMATICS

1a. PLANE TRIGONOMETRY AND ALGEBRA. Sem. 1-2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester.

2a. ANALYTICAL GEOMETRY AND ALGEBRA. Sem. 1-2, Cr. 4. Primarily for students in the Colleges of Engineering, Forestry and Mines. Supplementary work in algebra equivalent to one hour per week throughout the semester. Nichol's Analytic Geometry, Hawkes' College Algebra.

3a, 4a. CALCULUS FOR ENGINEERS. Sem. 1-2, Cr. 4. May be begun either semester. A first course in calculus with special reference to the needs of engineering students.

5a. APPLICATIONS OF DIFFERENTIAL AND INTEGRAL CALCULUS. For students in the College of Engineering, Forestry and Mines.

PHYSICS

1a. MECHANICS AND WAVE MOTION. Sem. 1 or 2, Cr. 4. This course must be accompanied by 1b.

Professor OSBORN and Dr. GRONDAHL

2a. LIGHT, HEAT, ELECTRICITY. Sem. 1 or 2, Cr. 4. This course must be accompanied by 2b.

Dr. GRONDAHL

1b. PHYSICS MEASUREMENT. Sem. 1 or 2, Cr. 2. One four-hour laboratory period. Six dollars deposit per year.

Mr. LESTER and Assistants

2b. PHYSICS MEASUREMENTS. Sem. 1 or 2, Cr. 1. One three-hour laboratory period.

Mr. LESTER and Assistants

POLITICAL AND SOCIAL SCIENCE

1. ELEMENTS OF ECONOMICS. Sem. 1-2, Cr. 4. Dr. McMAHON

CIVIL ENGINEERING

1. ENGINEERING DRAWING. Sem. 1-2, Cr. 2. Linear drawing; Roman and Gothic capital letters. Prerequisite: Plane geometry.

Assistant Professor HARRIS and —

3. ENGINEERING DRAWING. Sem. 1-2, Cr. 4. The elements of descriptive geometry, including the principles of shades, shadows and perspective. Prerequisite: Solid geometry, preceded or accompanied by drawing 1.

Assistant Professor HARRIS, Professor McCAUSTLAND, Mr. GLEASON, Mr. MUEHLSTEIN, Mr. WERNECKE and Mr. STRANDBERG

4. ENGINEERING DRAWING. Sem. 2, Cr. 2. Continuation of drawing 3. Problems and tracings.

20. PLANE SURVEYING. Sem. 1-2, Cr. 4. Class, field and office work. Prerequisites: Drawing 1 and mathematics 1a.

Mr. GLEASON, Mr. MUEHLSTEIN and Mr. NEWTON

23. TOPOGRAPHIC SURVEYING. Sem. 1, Cr. 3. Base line measurement. Reading, adjusting and computing triangulation systems. Methods of making topographic and hydrographic surveys, including phototopography and cartography. Prerequisites: Surveying 21, mathematics 4b.

Mr. MILLER

28. MINE SURVEYING. Sem. 1-2, Cr. 3. Use of instruments designed for mining work. Methods of carrying a meridian underground and underground practice. Surface surveying of mineral claims for patent. Prerequisite, 20.

Mr. NEWTON

41, 42. MECHANICS. Sem. 1-2, Cr. 5: 41. Sem. 1-2, Cr. 4: 42. Statics, dynamics and mechanics of materials. Prerequisites: Mathematics 4b, physics 1a.

Associate Professor MORE, Acting Assistant Professor SCHROEDER, Mr. ADLER, Mr. MUEHLSTEIN and Mr. WERNECKE

50. HYDRAULICS. Sem. 2, Cr. 4. Flow of water through pipes and orifices, over weirs and in open channels; energy, impulse and reaction of jets with application to impulse wheels. Review of hydrostatics. Preceded or accompanied by 42.

Assistant Professor HARRIS and Mr. STRANDBERG

ELECTRICAL ENGINEERING

6. ELECTRICAL ENGINEERING. Sem. 2, Cr. 3. The application of electricity to mining. For students in mining engineering.

Mr. MALLORY and Mr. WAGNER

MECHANICAL ENGINEERING

1. CARPENTRY AND WOODTURNING. Sem. 1-2, Cr. 2.

Mr. BEATTIE and Mr. THERKELSEN

3. FORGE AND FOUNDRY. Sem. 1-2, Cr. 2. Mr. KANE

4. MACHINE WORK. Sem. 1-2, Cr. 2. Mr. KANE

9. MINE TIMBER FRAMING. Sem. 2, Cr. 2. Mr. BEATTIE

10a. MACHINE DESIGN. Sem. 1-2, Cr. 1. First five weeks. For students taking mining engineering, an abridgment of 10.

Mr. THERKELSEN

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., Chicago, Professor of Botany.
WILLIAM MAURICE DEHN, Ph. D., Illinois, Assistant Professor of
Physiological Chemistry.
JOHN WEINZIRL, Ph. D., Wisconsin, Associate Professor of Bac-
teriology.
E. VICTOR SMITH, Ph. D., Northwestern, Assistant Professor of
Zoology and Physiology.
ALBERT HASKIN DEWEY, Ph. G., M. S., Washington, Instructor in
Pharmacy and Materia Medica.
GEORGE BURTON RIGG, B. S., A. M., Washington, Instructor in
Botany.
HARRY SIEGEL, Assistant in State Food and Drug Analysis.
EDITH HINDMAN, Ph. C., Washington, Assistant in State Food and
Drug Analysis.
AGNES FAY MORGAN, S. B., S. M., Chicago, Instructor in Chemistry.

FREDERICK MORGAN PADELFORD, 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. N. D., Strassburg, Professor of Mathe-
matics.
FREDERICK WILLIAM MEISNEST, Ph. D., Wisconsin, Professor of
German.

CURRICULA

Two curricula of study have been outlined. 1. A two-year course which prepares its graduates for responsible positions in the profession of pharmacy, and as pharmaceutical 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 pharmaceutical 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, zoology, 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 work of the four-year course forms an excellent foundation for the study of medicine. Many of our graduates go to eastern medical schools and find their pharmaceutical training of great help in their medical studies.

COLLEGE TRAINING A REQUIREMENT FOR REGISTRATION IN WASHINGTON

Copy of resolutions passed by the Washington State Board of Pharmacy at the meeting held in Seattle, December 27, 28, 29, 1911:

"Whereas, section 4 of the pharmacy law of the State of Washington, chapter 213, specifically states that the board of pharmacy may prescribe the preliminary education of applicants for examination, and whereas the board now assembled deems it proper that specific educational requirements should now be formulated; therefore, be it resolved, That on and after July 1st, 1913, the Washington State Board of Pharmacy shall require all applicants for examination as registered pharmacists to submit evidence of having satisfactorily completed one year of college work in a college of pharmacy recognized by the board, and on and after July 1st, 1914, the board shall require of said applicants for examination as registered pharmacists evidence of having graduated from a college of pharmacy embracing at least a two-year course and recognized by the board. Be it further resolved, That, since section 3 of the pharmacy law of the State of Washington, chapter 213, gives the board of pharmacy the power to approve certain colleges of pharmacy, this board shall recognize only the two state schools of pharmacy in Washington and such other schools and colleges in the country as hold membership in the American Conference of Pharmaceutical Faculties. Be it further resolved, That, since it is not the desire of the board of pharmacy to work hardship on any registered pharmacist now residing in another state who may in the future desire to become registered in the State of Washington, any pharmacist holding full registration papers obtained in another state prior to July 1st, 1912, shall be admitted to examination as candidate for registration in the State of Washington. Be it further resolved, That a copy of these resolutions shall be sent by the secretary to each registered pharmacist, registered assistant pharmacist and registered apprentice in the State of Washington, and to the Pharmaceutical Press of the United States on or before March 1, 1912."

ENTRANCE REQUIREMENTS

1. CANDIDATES FOR DEGREES

To be admitted clear, as candidate for a degree, in either the two or four-year course of the College of Pharmacy, the student must either (a) pass an examination based on a course amounting in the aggregate to fifteen units, or (b) present a certificate of having completed a four-year course in an accredited high school. Prospective students should mail to the Recorder of the University a detailed statement of studies completed in the high school. This statement must be signed by the principal of the high school. As a rule, the accredited school list of other state universities will be accepted by the University of Washington.

The required subjects are as follows:

	Units
*English	4
A foreign language.....	2
Algebra	1½
Plane geometry	1
Physics	1
History (American history preferred) or United States history and civics.....	1
Elective (see list of optional subjects on page 45).....	4½
Total.....	15

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.

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.

2. ENTRANCE REQUIREMENTS FOR STUDENTS NOT CANDIDATES FOR DEGREES

Students over twenty years of age, who can present evidence of having completed at least one year of high school work or its equivalent, 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.

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

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.

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 complete the studies outlined in the two-year course will be granted a certificate of graduation. This certificate, or one of the degrees (Ph. C., or B. S.), entitles the holder to take the state board of pharmacy examination for full registration as a pharmacist.

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 a knowledge of drugs is equally important with chemistry in the administration and enforcement of this legislation. The graduate in chemistry is not wholly qualified to act as 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 are needed to carry out the analytical processes involved in the enforcement of this legislation, but the number of men adequately trained is very limited. Students with high school training are urged to consider these opportunities and to prepare themselves for such positions. The dean of the College of Pharmacy is chemist for the Washington State Dairy and Food Commission and is also in close touch with the government food and drug work. Courses are offered that will fit students for this line of work.

LABORATORY DEPOSIT

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.

PHARMACY, MATERIA MEDICA AND CHEMISTRY LABORATORIES

Rooms devoted to pharmacy, materia medica and chemistry are located in Bagley Hall, a three-story fireproof building. Special sections are provided for pharmacy students in general, organic and qualitative chemistry. Work in prescription practice receives special attention in a room constructed and arranged as a model prescription pharmacy. The materia medica room contains a museum of several hundred samples of official and unofficial crude drugs. It also contains an extensive collection of commercial products manufactured and donated by the H. K. Mulford Company of Philadelphia, Pa. One room is given to drug assaying and food analysis. The examination of official food and drug samples for the state is under the direction of the Dean of the College of Pharmacy. A well equipped laboratory is devoted to this purpose. Pharmacy students taking botany, physiology and bacteriology have well equipped laboratories in Science Hall.

CORRESPONDENCE

Inquiries in regard to the College of Pharmacy may be addressed to the dean of the college or to the Recorder 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. WITH DEGREE OF PHARMACEUTICAL CHEMIST
2. WITH CERTIFICATE OF GRADUATION

FIRST YEAR, FIRST SEMESTER

	Hours Credit	Hours in Lec. & Rec.	Hours in Lab.
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

	Hours Credit	Hours in Lec. & Rec.	Hours in Lab.
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

	Hours Credit	Hours in Lec. & Rec.	Hours in Lab.
Chemistry 9	4	18	162
Materia medica 1.....	4	72	....
Pharmacy 3	2	36	....
Chemistry 3	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	....
Total for semester.....	16	198	270
Totals of required work.....	64	702	1314
Hours in lectures and laboratories.....			2016

3. WITH DEGREE OF BACHELOR OF SCIENCE

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.

4. 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).

DEPARTMENTS OF INSTRUCTION

PHARMACEUTICAL CHEMISTRY

PROFESSORS, JOHNSON, BYERS; ASSISTANT PROFESSOR DEHN; GRADUATE ASSISTANT MORGAN; ASSISTANTS, SIEGEL, HINDMAN.

1, 2. GENERAL CHEMISTRY. Sem. 1-2, Cr. 4. A course of two lectures and six hours laboratory work, including one hour of quiz per week. Deposit, ten dollars per semester.

Professor BYERS, Instructors and Assistants.

3, 4. ORGANIC CHEMISTRY. Sem. 1, Cr. 4; Sem. 2, Cr. 2. A lecture course on the chemistry of the compounds of carbon. Laboratory work on the preparation and testing of representative compounds. Deposit, ten dollars per semester.

Assistant Professor DEHN

8b. ELEMENTARY QUALITATIVE ANALYSIS. Sem. 2, Cr. 4. Two lectures and six laboratory hours per week. Deposit, ten dollars per semester.

Assistant Professor DEHN

9, 10. DRUG ASSAYING. Sem. 1, Cr. 1. In first semester 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. The second semester's work includes methods of quantitatively estimating the active constituents of crude drugs and their preparations and the testing of alkaloids. Deposit, ten dollars per semester.

Professor JOHNSON

11, 12. ALKALOIDS AND DRUG ASSAYING. Sem. 1-2, Cr. 2. A course for juniors or seniors in the study of alkaloids, and other plant principles and the analysis of medicinal preparations. Deposit, ten dollars per semester.

Professor JOHNSON

3, 14. FOOD ANALYSIS. Sem. 1-2, Cr. 4. First semester includes the study of the source, preparation, chemical nature and analysis of fats and oils of food and pharmaceutical use. The second semester includes the analysis of the various food products on the market. Methods of the Association of Official Agriculture Chemists are used. Laboratory, three afternoons per week. Deposit, ten dollars per semester.

Professor JOHNSON

15. TOXICOLOGY. (Detection of poisons). Sem. 1-2, Cr. 1. A laboratory course on the detection and estimation of poisons in animal tissues and practice in the preparation of testimony for legal cases. Deposit, five dollars per semester.

Professor JOHNSON

20a. PHYSIOLOGICAL CHEMISTRY. Sem. 2, Cr. 4. 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

PHARMACY

PROFESSOR JOHNSON, INSTRUCTOR DEWEY.

1. **THEORY AND PRACTICE OF PHARMACY.** Sem. 1, Cr. 4. The study of the principles of pharmaceutical operations, and the manufacture of such preparations as best illustrate these operations. Deposit, ten dollars per semester. Mr. DEWEY

2. **PHARMACEUTICAL PREPARATIONS.** Sem. 2, Cr. 4. Continuation of course 1. The study and manufacture of galencial and other preparations. Deposit, ten dollars per semester.

Mr. DEWEY

3. **U. S. PHARMACOPOEIA.** Sem. 1, Cr. 2. 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.** Sem. 2, Cr. 2. 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.** Sem. 1, Cr. 2. 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. Sem. 1-2, Cr.* A more detailed course in prescription practice and instruction in the many and varied operations of the dispensing counter. Deposit, according to hours.

Mr. DEWEY

7. **MANUFACTURING PHARMACY.** Sem. 1-2, Cr.* An advanced 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, according to hours.

Professor JOHNSON and Mr. DEWEY

8. **COMMERCIAL PHARMACY.** Either semester. Hours to be arranged. A study of the products manufactured by the leading pharmaceutical houses.

Mr. DEWEY

PHARMACOGNOSY, MATERIA MEDICA AND TOXICOLOGY

INSTRUCTOR DEWEY.

1. **PHARMACOGNOSY.** Sem. 1, Cr. 4. A study of crude drugs, their source, methods of collecting and preserving, identification, active constituents and adulteration. Mr. DEWEY

2. **THERAPEUTICS AND TOXICOLOGY.** Sem. 2, Cr.* A study of the action of chemicals, drugs and their preparations on the

* To be arranged.

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 E. VICTOR SMITH.

8. **ELEMENTARY PHYSIOLOGY.** Sem. 1, Cr. 4. 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

ASSOCIATE PROFESSOR WEINZIRL.

7, 8. **GENERAL AND MEDICAL BACTERIOLOGY.** Sem. 1-2, Cr. 4. 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. Prerequisites: Chemistry 1 year, botany or zoology 1 year. Five dollars deposit per semester.

Associate Professor WEINZIRL

BOTANY

INSTRUCTOR RIGG.

13. **PHARMACY BOTANY.** Sem. 1, Cr. 4. 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.** Sem. 2, Cr. 4. (a) A brief study of types of plants. (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.

GRADUATE SCHOOL

FACULTY.

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

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

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

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

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 PADELFORD, Ph. D., Yale, Professor of English.

ARTHUR SEWALL HAGGETT, Ph. D., Johns Hopkins, Professor of Greek.

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.

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

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

DAVID NYVALL, A. B., Gaelle Collège, Professor of Scandinavian Languages.

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

IRVIN M. GLEN, A. M., Oregon, Professor of Music.

HERBERT GALEN LULL, A. M., Washington, Associate Professor of Education.

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

- JAMES EDWARD GOULD, A. M., Harvard, Associate Professor of Mathematics.
- JOHN WEINZIRL, Ph. D., Wisconsin, Associate Professor of Bacteriology.
- HERMAN CAMPBELL STEVENS, Ph. D., Cornell, Associate Professor of Psychology.
- THOMAS K. SIDEY, Ph. D., Chicago, Assistant Professor of Latin and Greek.
- ALLEN ROGERS BENHAM, Ph. D., Yale, Assistant Professor of English.
- VANDERVEER CUSTIS, Ph. D., Harvard, Assistant Professor of Economics.
- FRANK MARION MORRISON, A. B., Michigan, Assistant Professor of Mathematics.
- WILLIAM MAURICE DEHN, Ph. D., Illinois, Assistant Professor of Physiological Chemistry and Toxicology.
- VERNON LOUIS PARRINGTON, A. B., Harvard, Assistant Professor of English.
- EDWARD MCMAHON, A. M., Wisconsin, Assistant Professor of American History.
- WILLIAM ALFRED MORRIS, Ph. D., Harvard, Assistant Professor of European History.
- JOSEPH KINMONT HAET, Ph. D., Chicago, Assistant Professor of Education.
- HANS JACOB HOFF, Ph. D., Illinois, Assistant Professor of German.
- ROBERT MAX GARRETT, Ph. D., Munich, Assistant Professor of English.
- EDWARD GODFREY COX, Ph. D., Cornell, Assistant Professor of English.
- STEVENSON SMITH, Ph. D., Pennsylvania, Assistant Professor of Orthogenics.
- E. VICTOR SMITH, Ph. D., Northwestern, Assistant Professor of Zoology.
- GEORGE WALLACE UMPHREY, Ph. D., Harvard, Assistant Professor of Spanish.
- HENRY LOUIS BRAKEL, A. M., Washington, Instructor in Physics.
- CHARLES EDWIN WEAVER, Ph. D., California, Instructor in Geology.
- ALLEN FULLER CARPENTER, A. M., Nebraska, Instructor in Mathematics.
- LARS OLAV GRONDAHL, Ph. D., Johns Hopkins, Instructor in Physics.
- GEORGE BURTON RIGG, A. B., Washington, Instructor in Botany.
- THERESA S. MCMAHON, Ph. D., Wisconsin, Instructor in Political and Social Science.
- ANNIE DALE BIDDLE, Ph. D., California, Instructor in Mathematics.

VICTOR LOVITT OAKES CHITTICK, A. M., Harvard, Instructor in English.

LEWIS IRVING NEIKIRK, Ph. D., Pennsylvania, Instructor in Mathematics.

JOHN WHITMORE, Ph. D., Yale, Instructor in Mathematics.

HENRY SLATER WILCOX, A. M., Harvard, Instructor in Psychology.

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.

There are also about fifteen graduate assistantships yielding \$450 each. These graduate assistants are expected to give about half time to such work as the head of the department may assign.

ADMISSION

Three classes of students are recognized in the graduate school:

1. Candidates for the master's degree.
2. Candidates for the doctor's degree.
3. Students not candidates for a degree.

A graduate of this University or of any other institution of equal rank will be given full graduate standing. In case the student is from a college whose requirements for graduation are not regarded by the dean as equivalent to those of the University of Washington, he must complete the deficiency in undergraduate work as specified by the committee on graduate courses, before being permitted to make application for an advanced degree.

Any graduate student who wishes to become a candidate for a degree must file an application with the dean of the graduate school, on a blank provided for the purpose, within two weeks after registration. When this application has received the approval of the committee on graduate courses or of the graduate faculty, and the applicant has been notified thereof, the student will be enrolled as a candidate for a degree.

DEGREES

THE MASTER'S DEGREE

Graduate students may receive the degree of master of arts or master of science by complying with the following requirements:

1. At least one year's work must be done in residence in undivided pursuit of the studies elected; or not less than two year's in residence, if the candidate is employed as a teacher or regularly engaged in any other occupation or profession. At

tendance during four summer schools may be accepted as the equivalent of one year in residence.

2. The candidate must elect a major subject and either one or two minors. He must earn not less than twenty-four credits, with a grade of A or B, at least one-half being in the major subject, and present a thesis which shall embody independent, though not necessarily original research. The total must represent the equivalent of at least thirty hours.

3. No work done in the major subject may be counted toward the master's degree, until the candidate for such degree has complied with the departmental requirement as to previous work in that subject, which in no case shall be less than twelve hours.

4. Upon completion of the work as outlined in the application, the candidate shall be examined by a committee consisting of three or more instructors representing all of the lines of study pursued by the applicant. The finding of this committee must be unanimous. The time and place of the examination, which shall be open to the faculty, shall be publicly announced at least three days in advance. After a conference of the examiners, the result of the examination shall be immediately announced to the candidate, and a formal report of the result shall be communicated to the committee on graduate courses, not later than the Wednesday preceding commencement day.

5. One copy of the thesis in typewritten or printed form (or library hand, in case the thesis is of such character that it cannot be typewritten), prepared and bound according to the conditions prescribed by the librarian, shall be deposited with the Bursar at the time of payment of the diploma fee.

THE DOCTOR'S DEGREE

Graduate students will be received as candidates for the degree of doctor of philosophy in chemistry and in other departments as their readiness to undertake the work may be announced.

Graduate students may receive the degree of doctor of philosophy by complying with the following requirements:

1. At least three years of graduate work, the last year of which must be spent in residence at the University of Washington. If a candidate is otherwise engaged in any regular employment, a correspondingly longer time will be required.

2. Evidence of a reading knowledge of both French and German and such other languages as individual departments may require. Evidence of sufficient attainment in these languages must be presented to the dean and, upon his approval, filed with the recorder at least one academic year before the degree is granted.

3. Completion of courses of study in a major and two minor subjects. The work in the minors to constitute one-third of the total course. The major subject, in addition to the regular courses, shall include the preparation of a thesis embodying the

results of a research which shall be a positive contribution to knowledge. This thesis must be approved by a committee appointed by the head of the major department, of which the instructor in charge of the thesis shall be a member, and also by the committee on graduate courses.

4. Oral examination in each of the minor subjects before a committee of three, including a representative of the major department. Certificates of the satisfaction of this requirement must be given before the candidate may be admitted to his major examination.

5. An exhaustive written examination in the major subject, not less than six hours in duration, no one session of which may exceed five hours.

6. An oral examination before a committee of three or more representatives of the major department, of not less than two hours. This examination must be approved by the entire committee. All examinations are open to members of the faculty.

7. Theses, or such parts thereof as may be approved by the committee on graduate courses, must be printed in a form approved by the librarian and supplied with title and biographical sketch and one hundred copies presented to the University library.

The completion of the requirements as specified shall be certified by the head of the major department not later than the Wednesday preceding commencement day.

The doctor's degree will not be granted to graduates of the University of Washington who have not spent two years in graduate work, or three years in undergraduate work, at some other institution.

For the present, instructors in the University of Washington shall not be received as candidates for the doctor's degree.

No Ph. D. degree will be conferred before June, 1914.

MASTER OF SCIENCE IN ENGINEERING

Courses leading to the degree of master of science in engineering are provided for students in civil engineering, electrical engineering, mechanical engineering, chemical engineering, and mining engineering.

For further information, see Bulletin of College of Engineering, or Bulletin of College of Mines.

MASTER OF SCIENCE IN FORESTRY

The graduate course in forestry covers two years and is designed especially for men who expect to enter the profession of forestry. But graduates of this University and of other institutions of equal rank, which offer courses in forestry, may complete it in one year, provided they have had at least thirty-two hours of technical forestry.

See Bulletin of College of Forestry.

ASTRONOMY

PROFESSOR MORITZ, ASSOCIATE PROFESSOR GOULD.

5. LEAST SQUARES Sem. 1, Cr. 2. The best methods for the adjustment of measurements and observations.

Associate Professor GOULD

6. ELEMENTS OF GEODESY. Sem. 2, Cr. 2. Must be preceded or accompanied by astronomy 4. Associate Professor GOULD

7, 8. ANALYTICAL MECHANICS. Sem. 1-2, Cr. 2. Mathematical treatment of the laws of force and motion.

Associate Professor GOULD

9, 10. ADVANCED ASTRONOMY. Sem. 1-2, Cr. 2-4 or 6. 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.

(b) THEORETICAL ASTRONOMY. The elements of celestial mechanics.

Associate Professor GOULD

BOTANY

PROFESSOR FRYE, ASSOCIATE PROFESSOR WEINZIRL, INSTRUCTOR RIGG.

7, 8. GENERAL AND MEDICAL BACTERIOLOGY. Sem. 1-2, Cr. 4. The structure, functions and distribution of the bacteria. Second semester given to disease bacteria. Prerequisites: Chemistry 1 year, botany 1 year, zoology 1 year.

Associate Professor WEINZIRL

15. PLANT PHYSIOLOGY. Sem. 1, Cr. 4. Lectures and laboratory work. Prerequisites: Botany 1, 2, Chemistry 1, 2.

Professor FRYE

16. FOREST PATHOLOGY. Sem. 2, Cr. 4. Diseases of trees.

Mr. HOTSON

17. SEEDS. Sem. 1, Cr. 4. Structure and physiology.

Mr. RIGG

20. PLANT HISTOLOGY. Sem. 2, Cr. 4. Preparation of slides for compound microscope. Study of plant tissues.

Professor FRYE

21. IMMUNOLOGY. Sem. 1, Cr. 1.

Associate Professor WEINZIRL

25, 26. ELEMENTARY AGRICULTURE FOR TEACHERS. Sem. 1-2, Cr. 4.

Mr. HOTSON

27, 28. BACTERIOLOGICAL ANALYSIS AND DIAGNOSIS. Sem. 1-2, Cr. 2.

Associate Professor WEINZIRL

29, 30. SANITARY PROBLEMS AND DIAGNOSTIC METHODS. Sem. 1-2, Cr. 2. Lectures accompanying with courses 27 and 28 constitute a full year's work, and may be taken separately.

Associate Professor WEINZIRL

31, 32. RESEARCH IN BACTERIOLOGY. Sem. 1-2, Cr. —. Open to qualified students, after consultation, either for satisfying thesis requirements or for credit only.

Associate Professor WEINZIRL

33, 34. BOTANICAL RESEARCH. Sem. 1-2, Cr. —. Open to qualified students, after consultation, either for satisfying thesis requirements or for credit only.

Professor FRYE and instructors.

35, 36. TEACHERS' COURSE. Sem. 1-2, Cr. 2. Two hours. Recitations and practice in teaching.

37, 38. JOURNAL CLUB. Sem. 1-2, Cr. 1. One hour. Reviews and discussions of current botanical literature.

Professor FRYE

CHEMISTRY

PROFESSOR BYERS, ASSOCIATE PROFESSOR BENSON, ASSISTANT PROFESSORS DEHN, ROSE; INSTRUCTOR TRUMBULL; DEAN JOHNSON, COLLEGE OF PHARMACY.

3, 4. ORGANIC CHEMISTRY. Sem. 1-2, Cr. 4. Lecture course. Laboratory work on the preparation and testing of representative compounds. Bernthsen-Sudborough's text used in connection with Sudborough-James's laboratory manual as laboratory guide.

Assistant Professor DEHN

5, 6. ADVANCED ORGANIC CHEMISTRY. Sem. 1-2, Cr. 4. Chemistry of volatile oils, dyestuffs, alkaloids and sugars. Special laboratory work can be arranged.

Assistant Professor ROSE

7. ORGANIC ANALYSIS AND GLASS BLOWING. Sem. 1-2, Cr. 2-4. A laboratory course of either two or four hours. Individual instruction.

Assistant Professor DEHN

10. FATS AND OILS. Sem. 1, Cr. 4. Laboratory, three afternoons per week.

Professor JOHNSON

11. FOOD ANALYSIS. Sem. 2, Cr. 4. Laboratory three afternoons per week.

Professor JOHNSON

15. WATER ANALYSIS. Sem. 1, Cr. 4. One lecture and twelve hours laboratory work per week in the analysis of water for both industrial and sanitary purposes.

Associate Professor BENSON

20, 21. PHYSIOLOGICAL CHEMISTRY. Sem. 1, Cr. 4. 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.

Assistant Professor DEHN

22. PHYSICAL CHEMISTRY. Sem. 1, Cr. 4. An elementary lecture course dealing with fundamental theories of chemistry based upon physical measurements. Three lectures and one laboratory period per week.

Dr. TRUMBULL

23. **ELECTRO CHEMISTRY.** Sem. 2, Cr. 4. 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.
Professor BYERS and Dr. TRUMBULL

25. **SEMINAR, ORGANIC.** Sem. 2, Cr. 2. The work consists of readings, reports of discussions based upon the chemical literature and designed to give practice in the use of the journals.

Assistant Professor DEHN

26. **INVESTIGATION.** Sem. 1-2, Cr. —. Any student who has completed at least three years' work in chemistry may 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 an advanced degree.

27. **CHEMICAL THEORY.** Sem. 2, Cr. 2. 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 fundamental laws and theories.

Professor BYERS

28. **ADVANCED ORGANIC PREPARATIONS.** Sem. 1-2, Cr. 4. A course prerequisite to organic research.

Assistant Professor DEHN

EDUCATION

PROFESSOR SISSON, ASSOCIATE PROFESSOR LULL, ASSISTANT PROFESSORS HART, SMITH, ACTING ASSISTANT PROFESSOR CLARKE.

6. **THE HIGH SCHOOL.** Sem. 2, Cr. 4. Historical development; course of study; student activities; social life and organization.

Professor SISSON

7. **EDUCATIONAL PSYCHOLOGY.** Sem. 1, Cr. 4. The social processes in educational psychology as distinguished from the intellectual processes.

Assistant Professor HART

8. **PSYCHOLOGY OF INSTRUCTION.** Sem. 2, Cr. 4. Those psychological elements which have direct application to teaching problems.

Associate Professor LULL

9. **PSYCHOLOGY AND EDUCATION OF BACKWARD AND DEFECTIVE CHILDREN.** Sem. 1, Cr. 4. Causes, diagnosis and treatment of mental retardation and deviation in children.

Assistant Professor SMITH

10. **SCHOOL SUPERVISION AND MANAGEMENT.** Sem. 1, Cr. 4. For those who are preparing for supervision, principalships or teaching positions.

Associate Professor LULL

11. **ADMINISTRATION OF EDUCATION IN THE UNITED STATES.** Sem. 1, Cr. 2. The important problems of educational administration in the United States, national, state and local.

Associate Professor LULL

15, 16. EDUCATIONAL CLASSICS. Sem. 1-2, Cr. 2. The educational writings of great thinkers.

Acting Assistant Professor CLARKE

18. SOCIAL ASPECTS OF EDUCATION. Sem. 2, Cr. 2. The life of the community as the background of all the work of the school.

Assistant Professor HART

21, 22. SEMINAR IN THEORY OF EDUCATION. Professor SISSON

23, 24. SEMINAR IN ADMINISTRATION. Sem. 1-2. Time and credit to be arranged.

Associate Professor LULL

26. HISTORY OF EDUCATION IN THE UNITED STATES. Sem. 2, Cr. 4. From 1647 to the present; a study of the growth of elementary, secondary and to some extent higher education.

Associate Professor LULL

28. PROBLEMS IN VOCATIONAL EDUCATION. Sem. 2, Cr. 2.

Assistant Professor HART

35, 36. SEMINAR. ADVANCED PROBLEMS IN EDUCATIONAL PSYCHOLOGY. Sem. 1-2, Cr. 2.

Assistant Professor HART

37, 38. INDIVIDUAL PROBLEMS. Sem. 1-2. All instructors in the department will direct advanced students in individual reading and research.

ENGLISH

PROFESSOR PADELFORD, ASSISTANT PROFESSORS BENHAM, MILLIMAN, PARRINGTON, GARRETT, COX; INSTRUCTOR CHITTICK.

19. AMERICAN LITERATURE. Sem. 1, Cr. 4. The literary production of America before 1820.

Assistant Professor PARRINGTON

20. AMERICAN LITERATURE. Sem. 1, Cr. 4. Nineteenth century American culture as revealed in the literature.

Assistant Professor PARRINGTON

21. CHAUCER AND HIS CONTEMPORARIES. Sem. 1, Cr. 2. Emphasis is laid on the literary rather than the linguistic characteristics of the period.

Mr. CHITTICK

22. ENGLISH LITERATURE FROM 1400 TO 1579. Sem. 2, Cr. 2. The late mediaeval and early renaissance literary production.

Mr. CHITTICK

23, 24. SOCIAL IDEALS IN ENGLISH LITERATURE. Sem. 1-2, Cr. 4. A study of model commonwealths, and of such other literature as illustrates the growth of English social and economic thought.

Assistant Professor BENHAM

33, 34. OLD AND MIDDLE ENGLISH. Sem. 1-2, Cr. 3.

Assistant Professor GARRETT

37. HISTORY OF ENGLISH LITERATURE. Sem. 1, Cr. 4. The development of English literature with special attention to sources.

Assistant Professor BENHAM

38. SEMINAR. Sem. 1-2, Cr. 1-4. Spenser.

Professor PADELFORD

39. ARISTOTLE'S POETICS. Sem. 1-2, Cr. 2. An introduction to literary criticism.

Assistant Professor COX

FRENCH

PROFESSOR FREIN.

14, 15. OLD FRENCH READING. Sem. 1-2, Cr. 4. Elements of French grammar, and translations from Old French into modern French of the texts in Bartsch, *Chrestomathie de l'Ancien Français*.
Professor FREIN

16, 17. HISTORY OF OLD FRENCH LITERATURE. Sem. 1-2, Cr. 2. Open only to those who have a reading knowledge of Old French. Those who have had course 14 will ordinarily be prepared to follow the work. Course given in French.
Professor FREIN

18, 19. FRENCH HISTORICAL GRAMMAR. Sem. 1-2, Cr. 2. Lectures on Old French phonology and morphology.
Professor FREIN

GEOLOGY

PROFESSOR LANDES, ASSISTANT PROFESSOR SAUNDERS, INSTRUCTOR WEAVER.

12. VULCANISM AND METAMORPHISM. Sem. 1, Cr. 2. Two lectures or recitations per week. A general discussion of the theories and principles of volcanic phenomena and of metamorphism.
Dr. WEAVER

13. OPTICAL CRYSTALLOGRAPHY. Sem. 1, Cr. 4. Two recitations and two laboratory periods per week.
Dr. WEAVER

14. GEOLOGY OF WASHINGTON. Sem. 1, Cr. 2. Two lectures or recitations per week.
Professor LANDES

15. ECONOMIC GEOGRAPHY OF WASHINGTON. Sem. 2, Cr. 2. Two lectures or recitations per week.
Professor LANDES

16. PETROGRAPHY. Sem. 2, Cr. 4. Two recitations and two laboratory periods per week. A study of the distinguishing characteristics of the different groups and species of rocks with practice in their determination by modern petrographical methods.
Dr. WEAVER

17. ECONOMIC GEOLOGY. Sem. 2, Cr. 4. Four recitations per week.
Professor LANDES

18. PALEONTOLOGY. Sem. 1, Cr. 4. Three recitations and one laboratory period per week. Chiefly for students in geology and mining.
Dr. WEAVER

19, 20. FIELD WORK. Sem. 1-2, Cr. Hours and credits to be arranged.
Professors LANDES, SAUNDERS and Dr. WEAVER

21, 22. ADVANCED PETROGRAPHY. Sem. 1-2, Cr. Hours and credits to be arranged.
Dr. WEAVER

23, 24. ADVANCED PALEONTOLOGY. Sem. 1-2, Cr. Hours and credits to be arranged.
Dr. WEAVER

25, 26. RESEARCH WORK. Sem. 1-2, Cr. Hours and credits to be arranged. Professors LANDES, SAUNDERS and Dr. WEAVER

GERMAN

PROFESSOR MEISNEST AND ASSISTANT PROFESSOR HOFF.
INSTRUCTOR ECKLEMAN.

21, 22. STORM AND STRESS PERIOD Sem. 1-2, Cr. 2-4. (Omitted in 1912-13).
Professor MEISNEST

23, 24. ROMANTIC SCHOOL. Sem. 1-2, Cr. 2-4. (Omitted in 1912-13).
Professor MEISNEST

25, 26. NINETEENTH CENTURY. Sem. 1-2, Cr. 2-4. The drama and novel. Primarily Kleist, Grillparzer, Hebbel, Ludwig, Raabe, Keller, Storm, C. F. Meyer. Assigned readings, reports and lectures.
Dr. ECKLEMAN

31, 32. MIDDLE HIGH GERMAN. Sem. 1-2, Cr. 2. Grammar and selected readings. Comparison of mediaeval with modern German. Paul's *Mittelhochdeutsche Grammatik*. *Nibelungenlied*, *Gottfried's Tristan and Isolde* and selections from *Walter von der Vogelweide*.
Assistant Professor HOFF

33. GOTHIC. Sem. 1, Cr. 2. (Omitted in 1912-13.)
Assistant Professor HOFF

34. OLD HIGH GERMAN. Sem. 2, Cr. 2. (Omitted in 1912-13.)
Assistant Professor HOFF

GREEK

PROFESSOR HAGGETT.

3. HOMER. Sem. 1, Cr. 4. Selections from the *Odyssey*.
Professor HAGGETT

4. PLATO. Sem. 2, Cr. 4. *Apology*, *Crito*, and parts of the *Phaedo*.
Professor HAGGETT

11. ADVANCED READING COURSE. Sem. 1, Cr. 2. Rapid reading of the entire work (or a considerable portion) of some one author, or extensive work in some one department of Greek literature.
Professor HAGGETT

12. ADVANCED READING COURSE. Sem. 2, Cr. 2. Continuation of course 11.
Professor HAGGETT

HISTORY

PROFESSORS MEANY, RICHARDSON; ASSISTANT PROFESSORS
McMAHON, MORRIS.

PROFESSOR GOWEN.

Students must have had at least one year of history to elect any course in this group.

11, 12. ENGLISH CONSTITUTIONAL HISTORY. Sem. 1-2, Cr. 2. The development of the legal and governmental institutions of the English people to the present time. 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

13, 14. FRANCE TO 1515. Sem. 1-2, Cr. 2. (Alternates with 41, 42. Omitted 1912-13.) Assistant Professor MORRIS

15, 16. THE RENAISSANCE AND REFORMATION. Sem. 1-2, Cr. 2. The Renaissance and Reformation will be treated primarily as intellectual movements and considered in their relations to the intellectual development of Europe. Professor RICHARDSON

17, 18. PRUSSIA AND NORTHERN EUROPE. (Omitted, 1912-13.) Professor RICHARDSON

19, 20. HISTORY OF FRANCE FROM THE REFORMATION TO THE FRENCH REVOLUTION. Sem. 1-2, Cr. 2. 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.

Professor RICHARDSON

21. THE FRENCH REVOLUTION AND NAPOLEONIC ERA. Sem. 1, Cr. 4. 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.

Professor RICHARDSON

22. EUROPE SINCE 1814. Sem. 2, Cr. 4. 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. 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. Professor RICHARDSON

23, 24. ECONOMIC AND SOCIAL HISTORY OF THE AMERICAN COLONIES. (Omitted 1912-13.) Assistant Professor McMAHON

25. HISTORY OF THE UNITED STATES, 1783-1828. Sem. 1, Cr. 4. 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. Sem. 2, Cr. 4. 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. Sem. 1, Cr. 4. A general study of the Civil war and the period of reconstruction.

Assistant Professor McMAHON

28. THE HISTORY OF NATIONAL DEVELOPMENT. Sem. 2, Cr. 4. 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.** Sem. 1, Cr. 4. 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. Professor MEANY

30. **DEVELOPMENT OF THE PACIFIC.** Sem. 2, Cr. 4. History of the countries bordering upon the Pacific ocean, with special reference to the changes now in progress of development. Professor MEANY

31, 32. **HISTORY OF AMERICAN DIPLOMACY.** Sem. 1-2, Cr. 2. 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.** Sem. 1-2, Cr. 2. From the earliest voyages to the settlement and organization of the territories. Professor MEANY

35. **THE EVOLUTION OF CHINA—BEFORE THE MANCHU CONQUEST.** Sem. 1, Cr. 2. Professor GOWEN

36. **THE EVOLUTION OF CHINA—MODERN ERA.** Sem. 2, Cr. 2. Professor GOWEN

37. **THE EVOLUTION OF JAPAN—FEUDAL ERA.** Sem. 1, Cr. 1. Professor GOWEN

38. **THE EVOLUTION OF JAPAN—MODERN ERA.** Sem. 2, Cr. 1. Professor GOWEN

40. **METHODS OF TEACHING HISTORY.** Sem. 2, Cr. 2. 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

41, 42. **THE MAKING OF THE ENGLISH CONSTITUTION.** Sem. 1-2, Cr. 2-4. The topic to be developed during the year 1912-13 is the rise of the English judicial system. Open to graduates and to a few seniors by special permission. Hours to be arranged. (Given in alternate years with 43, 44.) Assistant Professor MORRIS

43, 44. **ENGLAND UNDER THE TUDORS.** Professor RICHARDSON

45, 46. **SEMINAR IN AMERICAN HISTORY.** Sem. 1-2, Cr. 2. One evening a week. This course is primarily for graduates or other advanced students who may be admitted by permission of the professor. Assistant Professor McMAHON

47, 48. **JOINT SEMINAR.** Sem. 1-2, Cr. 2. Designed for study and reports upon the problems in the historical, political, and legal developments 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

LATIN

PROFESSOR THOMSON, ASSISTANT PROFESSOR SIDEX.

5. HORACE, Satires and Epistles. JUVENAL, Satires. Sem. 1, Cr. 2. Professor THOMSON
6. TACITUS. Selected books of The Annals. Sem. 2, Cr. 2. Professor THOMSON
7. CAESAR. Bell. Gall. V-VII and Bell. Civile. SUETONIUS, Julius Caesar. Sem. 1, Cr. 2. Assistant Professor SIDEX
8. SALLUST, Catiline. VERGIL, Bucolics and Georgics, Ancient Lives of Vergil. Sem. 2, Cr. 2. Assistant Professor SIDEX
9. TEACHERS' COURSE. Sem. 1, Cr. 2. Practice in writing Latin. Review of the portions of CAESAR, CICEBO, VERGIL usually prescribed in high schools. Teaching by members of the class under the supervision of the instructor. Assistant Professor SIDEX
10. TEACHERS' COURSE. Sem. 2, Cr. 2. Course 9 continued. Visits will be made to schools where Latin is taught and reports of the teaching observed will be presented by members of the class. Assistant Professor SIDEX
18. LUCRETIVS. Books I and III; CICEBO, Tusculan Disputations I and IV. Sem. 1, Cr. 2. Professor THOMSON
19. CICEBO, De Officiis. SENECA, Moralia. Sem. 2, Cr. 2. Professor THOMSON
20. QUINTILIAN. I, X, XII. Sem. 1, Cr. 2. Professor THOMSON
21. TACITUS. Histories I, II. Sem. 2, Cr. 2. Professor THOMSON
22. STATIUS, Silvae; MARTIAL, Epigrams. Sem. 1, Cr. 2. Professor THOMSON
23. TACITUS, Dialogus. Sem. 2, Cr. 2. Professor THOMSON

MATHEMATICS

PROFESSOR MORITZ, ASSOCIATE PROFESSOR GOULD, ASSISTANT PROFESSORS MORRISON, GAVETT, INSTRUCTORS CARPENTER, NEIKIRK, BIDDLE, WHITMORE.

- 7, 8. ANALYTIC MECHANICS. Sem. 1-2, Cr. 2. Mathematical treatment of the laws of force and motion. Associate Professor GOULD
- 9, 10. VECTOR ANALYSIS.* Sem. 1-2, Cr. 2. Assistant Professor GAVETT
11. ORDINARY DIFFERENTIAL EQUATIONS. Sem. 1, Cr. 2. A first course. Special attention is given to the solutions of equa-

* Not given in 1912-13.

tions of the first and second order. Determination of constants of integration from initial conditions. Applications to physics, chemistry and astronomy. Mr. NEIKIRK

12. PARTIAL DIFFERENTIAL EQUATIONS. Sem. 1, Cr. 2. 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 the same with given boundary conditions. Must be preceded by 11.

Dr. NEIKIRK

13, 14. PROJECTIVE GEOMETRY.* Sem. 1-2, Cr. 2.

Mr. CARPENTER

15, 16. FUNCTIONS OF THE COMPLEX VARIABLE. Sem. 1-2, Cr. 2. The theories of Cauchy, Weierstrass and Riemann. Conformal representation, integrability, etc. Associate Professor MORRISON

17, 18. ELLIPTIC FUNCTIONS.* Sem. 1-2, Cr. 2.

Associate Professor MORRISON

19. DIFFERENTIAL GEOMETRY.* Sem. 1, Cr. 4.

Professor MORITZ

20. MODERN ANALYTICAL GEOMETRY.* Sem. 2, Cr. 4.

Professor MORITZ

23, 24. NON-EUCLIDEAN GEOMETRY. Sem. 2, Cr. 2.

Assistant Professor GAVETT

25, 26. THEORY OF NUMBERS. Sem. 1-2, Cr. 2. Introductory course. Divisibility of numbers, the totient function, congruences, the theorems of Fermat, Euler and Wilson; the theory of quadratic residues.

Dr. BIDDLE

27, 28. THERMODYNAMICS. Sem. 1-2, Cr. 2. Mathematical treatment following the method of J. W. Gibbs. Dr. WHITMORE

30, 31. DESCRIPTIVE GEOMETRY AND CURVE TRACING. Sem. 1-2, Cr. 2. For students in advanced mathematics. Theoretical treatment of the principles underlying graphic methods.

Mr. CARPENTER

32, 33. THEORY OF EQUATIONS. Sem. 1-2, Cr. 3. Includes the Galois theory and the theory of invariants. Professor MORITZ

34. 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.

36. SEMINAR. Sem. 1-2. Required of students working for the master's degree in mathematics. Credit to be determined.

Professor MORITZ

* Not given in 1912-1913.

PHILOSOPHY

PROFESSOR SAVERY, ASSOCIATE PROFESSOR STEVENS, ASSISTANT
PROFESSOR SMITH, INSTRUCTORS DUCASSE, WILCOX.

7. **PHILOSOPHY OF SCIENCE.** Sem. 1-2, Cr. 2. The fundamental laws and concepts of the sciences—mathematical, physical and biological. Interpretation of the scientific view of the world and its place in the human economy. Primarily for majors in science.

Professor SAVERY or Mr. WILCOX

8. **HISTORY OF RELIGION.** Sem. 1-2, Cr. 2. The nature, origin and early development of religion, and its advanced types in Brahmanism, Buddhism, Confucianism, Zoroastrianism, and Judaism.

Mr. DUCASSE

9. **PHILOSOPHY OF RELIGION.** Sem. 1-2, Cr. 2. (Not offered, 1912-13.)

10. **PHILOSOPHY IN ENGLISH POETRY OF THE NINETEENTH CENTURY.** Sem. 1-2, Cr. 2. Conceptions of the universe, evolution, the destiny of man, the individual and social ideal in Wordsworth, Shelley, Emerson, Browning, Tennyson, Fitzgerald's Omar Khayyam, James Thomson, Arnold, Swinburne and Whitman. Some account of Carlyle, Ruskin and Morris.

Professor SAVERY

11. **ESTHETICS.** Sem. 1-2, Cr. 2. The nature of beauty and its typical forms in art. The sublime, the tragic, the comic, the grotesque and allied esthetic forms. History of art; social theories of art.

Mr. WILCOX

12. **METAPHYSICS.** Sem. 1-2, Cr. 4. (1) The meaning and tests of truth; (2) theories of the universe, the self, the material world and God; (3) pessimism, optimism and the evolution and destiny of man.

Professor SAVERY

13. **SEMINARY: THE PHILOSOPHY OF BERGSON.** Sem. 1-2, Cr. 3. Interpretation and criticism of Bergson's works.

Professor SAVERY

16. **PRINCIPLES OF PSYCHOLOGY.** Sem. 1-2, Cr. 3. A systematic study. Students are urged to precede this by physiological psychology.

Associate Professor STEVENS

17. **PHYSIOLOGICAL PSYCHOLOGY.** Sem. 2, Cr. 4. The human brain and spinal cord, demonstration of the motor region of the cortex, summation of stimuli, inhibition, rate of transmission of the nerve impulse, Weber's law and space perception. One lecture, one recitation, two laboratory periods.

Associate Professor STEVENS

18. **EXPERIMENTAL PSYCHOLOGY.** Sem. 2, Cr. 4. Training in methods and results. Mainly qualitative experiments upon mental states and the association of ideas. One lecture, one recitation and two laboratory periods.

Mr. WILCOX

19. **GENETIC PSYCHOLOGY.** Sem. 1, Cr. 3. (1) Child psychology, the mental development of the child; and (2) race psy-

chology, the evolution of mind in animals and in the human race.

Mr. WILCOX

20. ABNORMAL PSYCHOLOGY. Sem. 2, Cr. 3. Sleep, dreams, hypnotisms, mediumships, possessions, hallucinations, motor automatisms, double personality and the subconscious.

Associate Professor STEVENS

21, 22. RESEARCH IN PSYCHOLOGY. Sem. 1-2, Cr. 2. Opportunity for original investigation. Associate Professor STEVENS

25. PSYCHOLOGY OF EXCEPTIONAL CHILDREN. Sem. 1, Cr. 4. Experimental methods of tests and methods of instruction.

Assistant Professor SMITH

PHYSICS

PROFESSOR OSBORN, INSTRUCTORS BRAKEL, GRONDAHL.

6. VIBRATORY PHENOMENA AND SOUND. Sem. 2, Cr. 4. The course takes up the development and discussion of the mathematical expressions for wave-motions and various types of vibrations.

Professor OSBORN

7. LIGHT. Sem. 1, Cr. 4. This course aims to discuss the more important optical researches and their mathematical theory in elementary form. (Not given in 1912-13.)

Professor OSBORN

8, 9. ELECTRICITY. Sem. 1-2, Cr. 4. (Not given in 1912-13.) See 5 a for 1912-13.

Mr. BRAKEL

16. THEORETICAL MECHANICS. Sem. 1-2, Cr. —. (Not given in 1912-13.)

Dr. GRONDAHL

17. THEORETICAL ELECTRICITY. Sem. 1, Cr. 3. Mr. BRAKEL

18. ADVANCED OPTICS. Sem. 2, Cr. 3. Professor OSBORN

20. HIGH TEMPERATURE THERMOMETRY. Sem. 2, Cr. 1.

Dr. GRONDAHL

21. ELECTRO-CHEMISTRY AND THEORIES OF E. M. F. (Not given in 1912-13.)

Mr. BRAKEL

22. CONDUCTION OF ELECTRICITY THROUGH GASES AND RADIO ACTIVITY. Sem. 1, Cr. 2.

Professor OSBORN

23. THEORY OF ELECTRONS. Sem. 2, Cr. 1.

Mr. BRAKEL

POLITICAL AND SOCIAL SCIENCE

PROFESSORS SMITH, BEACH, ASSISTANT PROFESSOR CUSTIS,
INSTRUCTOR McMAHON.

10. PUBLIC FINANCE AND TAXATION. Sem. 2, Cr. 4. Special attention will be given to the problems now before the United States and the several states, particularly Washington.

Assistant Professor CUSTIS

21, 22. POLITICAL THEORIES. Sem. 1-2, Cr. 2. A study of the political ideas that have influenced constitutional development and legislation in England and the United States.

Professor SMITH

29. SOCIAL AMELIORATION. Sem. 1, Cr. 4. A study of the attempt of society under the present industrial system, to effect improvement in the life of the less fortunate classes.

Professor BEACH

30. SOCIAL PSYCHOLOGY. Sem. 2, Cr. 4. The growth and nature of custom and convention, and the formation of public opinion. It is also desirable that the student should have had philosophy 15.

Professor BEACH

33, 34. JOINT SEMINAR. Sem. 1-2, Cr. 2. 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. PRINCIPLES OF ECONOMICS. Sem. 1, Cr. 4. A study of the economic laws governing the production, distribution, and exchange of wealth, with special reference to present day problems.

Assistant Professor CUSTIS

37, 38. SOCIAL INVESTIGATION. Sem. 1-2, Cr. 2. A practical course designed for social workers.

Dr. McMAHON

39. ECONOMIC ORGANIZATION. Sem. 1, Cr. 2. A study of socialism and other plans for the reorganization of society.

Assistant Professor CUSTIS

40. CORPORATION FINANCE. Sem. 2, Cr. 2. Must be preceded or accompanied by 8.

Assistant Professor CUSTIS

42. SEMINAR IN LABOR LEGISLATION. Sem. 2, Cr. 2.

Professor BEACH and Dr. McMAHON

SPANISH

PROFESSOR OBER, ASSISTANT PROFESSOR UMPHREY.

11, 12. HISTORY OF SPANISH LITERATURE. Sem. 1-2, Cr. 2.
Professor OBER

13, 14. CERVANTES. Sem. 1-2, Cr. 2. (Omitted 1912-13.)

19, 20. SPANISH READINGS. Sem. 1-2, Cr. 2. Advanced. Written reports.
Professor OBER

21, 22. THE SPANISH DRAMA FROM THE SIXTEENTH CENTURY DOWN TO THE PRESENT TIME. Reading of plays by the most important dramatists; collateral reading and reports; lectures.
Assistant Professor UMPHREY

23. SPANISH LYRIC POETRY FROM THE EARLIEST TIMES DOWN TO THE PRESENT DAY. Two hours. Reading of selections from the principal poets; reports on special topics; lectures.
Assistant Professor UMPHREY

24. THE SPANISH BALLAD. Lectures on the origin and development; reading of ballads selected from the Romanceros; reports on special topics.
Assistant Professor UMPHREY

25, 26. OLD SPANISH. Philology. History of Spanish Literature to the Fifteenth century. Reading of the Poema del Cid and of selections from other Early Spanish writings; reports on special topics.
Assistant Professor UMPHREY

ZOOLOGY

PROFESSOR EMERITUS JOHNSON, PROFESSOR KINCAID, ASSISTANT PROFESSOR E. VICTOR SMITH, INSTRUCTOR OSTERUD.

3, 4. VERTEBRATE ANATOMY. Sem. 1-2, Cr. 4. Comparative structure of vertebrates.
Assistant Professor SMITH

5. NORMAL HISTOLOGY. Sem. 1, Cr. 4. Mammalian histology, especially for pre-medical students.
Mr. OSTERUD

6. COMPARATIVE HISTOLOGY. Sem. 1, Cr. 4. Mr. OSTERUD

7. EMBRYOLOGY. Sem. 2, Cr. 4. Comparative developmental history of vertebrates.
Mr. OSTERUD

8. NEUROLOGY. Sem. 2, Cr. 4. Comparative structure and genesis of sense organs. To be given on alternate years with 8a.
Assistant Professor SMITH

8a. NEUROLOGY. Sem. 2, Cr. 4. The structure and genesis of the central nervous system.
Assistant Professor SMITH

17, 18. **GENERAL ENTOMOLOGY.** Sem. 1-2, Cr. 4. Introduction to study of insects, their structure, classification, ecology and economic relations.
Professor KINCAID

19, 20. **MUSEUM AND FIELD WORK.** Sem. 1-2, Cr. 4. Systematic investigation of the local fauna including studies based upon material in the state museum.
Professor KINCAID

21, 22. **RESEARCH.** Sem. 1-2. Students capable of carrying on independent research will be allowed to do so under the direction of the instructors in charge.

SUMMER SESSION

The ninth annual summer session at the University of Washington will begin June 24th, 1912, and end August 2nd. 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 session 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. Students registering after July 1st will not be permitted to earn more than four credits except with the written permission of all their instructors and the Director.

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 session 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.

REGISTRATION

Registration will begin Monday morning, June 24th. All students should enroll the first day. All deposits and fees must be paid to the Bursar at the time of registration.

FEEES**REGISTRATION**

A fee of ten dollars (\$10) is required of each student registering in the summer session.

CHANGE OF REGISTRATION

After June 29th a student asking for a change in the subjects elected will be required to pay one dollar for each change.

LABORATORY

Special laboratory fees are charged in the science departments. See department announcements.

MUSIC

In the courses in music, where individual instruction predominates, special fees are charged. See music announcements, p. 102.

REFUNDING OF FEES

No reduction or refunding of fees will be made because of late registration or early leaving. No one may have the privilege of attending classes without registering in the summer school. Open lectures, however, are free to all.

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 room during the summer, and these may in some instances be rented for a 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 Bursar's office.

LIBRARY

The University Library, containing 47,793 carefully chosen volumes of reference, is now housed in a separate building, the former beautiful Washington State Building of the Exposition. The usefulness of the library and the comfort of the students are greatly increased by the enlarged quarters.

Students will also have access to the city library of 125,000 volumes, which is a general library of great value.

REGISTER OF STUDENTS

GRADUATE SCHOOL

<i>Name of Student</i>	<i>Home Address</i>
Adams, Florence M.....	Seattle
M. A., University of Washington, 1905.	
Ballard, Jessie A.....	Seattle
A. B., Nebraska Wesleyan University, 1910.	
Bass, Emma A.....	Seattle
A. B., University of Washington, 1911.	M. A., German.
Bennett, Guy Vernon.....	Seattle
A. B., University of Kansas, 1901.	M. A., History.
Boyd, Grace M.....	Hastings, Nebr.
A. B., Hastings College, 1902.	M. A., Mathematics.
Boyles, Page R.....	Seattle
A. B., University of Washington, 1911	
Brayton, Fannie E.....	Seattle
A. B., University of Wisconsin, 1903.	
Carey, Elizabeth	Seattle
A. B., University of Washington, 1911.	M. A., English.
Challis, Bertha M.....	Watsonville, Mich.
A. B., University of Washington, 1910.	
M. A., University of Washington, 1911.	
Crim, M. Katherine.....	Seattle
A. B., Cornell College, Iowa, 1902.	M. A., English.
Culmer, Myrtle A.....	Seattle
A. B., Ohio Wesleyan University, 1902.	M. A., Botany.
Dalgity, Annie	Seattle
A. B., University of Washington, 1907.	M. A., Botany.
Dewey, Albert H.....	Seattle
B. S., University of Washington, 1909.	
M. S., University of Washington, 1911.	
Dootson, Charlotte	Everett
A. B., University of Washington, 1910.	M. A., German.
Douglas, Robert W.....	Seattle
A. B., University of Michigan, 1903.	M. S. in Forestry.
Ericson, Oliver F.....	Cleburne, Kansas
A. B., Bethany College, Kansas, 1910.	M. S. in Forestry.
Fawcett, D. Franklin.....	Seattle
Otterbein University, Ohio.	
Finley, Madge	Seattle
A. B., University of Washington, 1911.	M. A., Mathematics.
Fischer, Adelaide D.....	Seattle
A. B., University of Washington, 1909.	M. A., German.
Fischer, Peter	Vienna, Austria
B. S. in Forestry, Aschaffenburg School of Forestry, Germany.	

Fitch, Helen M.....	Sun Prairie, Wis.
A. B., University of Wisconsin, 1910.	M. A., German.
Flett, Clara B.....	Seattle
A. B., University of Wisconsin, 1884.	
Floyd, Agnes W.....	Seattle
A. B., University of Washington, 1907.	
Foster, Percival H.....	Lincoln, Mass.
A. B., Harvard University, 1911.	
Fraser, Eva F.....	Seattle
A. B., University of Washington, 1911.	
Giblin, Chester E.....	Hoquiam
A. B., University of Colorado, 1908.	M. A., Physics.
Grondal, Bror L.....	Lindsborg, Kansas
A. B., Bethany College, Kansas, 1910.	M. S. in Forestry.
Grindrod, Ione	Ellensburg
A. B., University of Washington, 1911.	M. A., English.
Hartman, Frank A.....	Seattle
A. B., University of Kansas, 1905.	
M. A., University of Kansas, 1909.	
Helminger, Charles Louis.....	Seattle
Ph. B., German Wallace College, 1910.	M. A., French.
Hill, Harry H.....	Carrollton, Ohio
A. B., University of Wyoming, 1911.	Ph. D., Chemistry.
Hillis, Mary Osborne.....	Seattle
A. B., Oberlin College, 1904.	
Hoepfner, Josephine	Seattle
M. A., Washington State College, 1908.	
Hornibrook, Cynthia J.....	Goldendale
A. B., Willamette University, 1910.	M. A., English.
Jackson, Blanche G.....	Seattle
A. B., University of Washington, 1911.	M. A., English.
Jordan, Louise	Seattle
A. B., DePauw University, 1910.	
Kahan, Rose	Seattle
A. B., University of Washington, 1908.	
Karrer, Enoch	Roslyn
A. B., University of Washington, 1911.	M. A., Physics.
Karrer, Sebastian	Roslyn
A. B., University of Washington, 1911.	M. A., Physics.
Kirkwood, Elizabeth T.....	Seattle
A. B., Kansas State University, 1908.	
Korstad, Mrs. Mary Green.....	Seattle
A. B., University of Washington, 1911.	M. A., Zoology.
Laizure, Grant A.....	Seattle
A. B., Ohio State University, 1909.	M. A., Chemistry.
Langdon, Seth C.....	Bosler, Wyoming
B. S., Northwestern University, 1911.	Ph. D., Chemistry.
Lewis, Herbert Henry.....	Seattle
A. B., University of Washington, 1908.	M. A., History.
Lindborg, Linda Wilkie.....	Seattle
A. B., University of Washington, 1911.	M. A., German.

McCarney, Margaret	Seattle
A. B., University of Washington, 1909.	
M. A., University of Washington, 1911.	
McCutchen, Lydia M.	Seattle
A. B., University of Iowa, 1902.	
McKibben, Irene M.	Seattle
Ph. B., University of Chicago, 1905.	M. A., History.
Madison, Lillian	Kent
A. B., University of Washington, 1910.	M. A., Mathematics.
Mathieu, Edward	Brockton, Mass.
A. B., Harvard University, 1910.	
Mathieu, Mae	Seattle
A. B., University of Washington, 1910.	M. A., French.
Millican, Charles W.	Seattle
A. B., University of Washington, 1911.	M. A., History.
Mott, Edna R.	Seattle
A. B., University of Washington, 1909.	
Neal, Nellie Nevada.	New Bedford, Pa.
Ph. B., Grove City College, Pennsylvania, 1907.	M. A., Education.
Newton, Earl B.	Seattle
A. B., University of Washington, 1907.	M. A., Zoology.
Norton Grace C.	Seattle
A. B., University of Washington, 1906.	M. A., Latin.
Packard, Earl L.	Tacoma
A. B., University of Washington, 1911.	M. A., Geology.
Park, Lical	Seattle
A. B., University of Washington, 1911.	M. A., Botany.
Plath, Otto E.	Harney, Ore.
A. B., Northwestern University, Winconsin, 1910.	M. A., German.
Post, Frances E.	Syracuse, New York
A. B., University of Washington, 1911.	M. A., History.
Rigg, George Burton.	Seattle
B. S., University of Iowa, 1896.	
M. A., University of Washington, 1909.	
Robinson, Earl Dunn.	Canby, Ore.
B. S. in C. E., Purdue University, 1908.	M. S. in Civil Engineering.
Ross, Helen M.	Seattle
A. B., University of Washington, 1911.	
Runner, Joseph James.	Seattle
A. B., University of Nebraska, 1907.	M. A., Geology.
Small, Lloyd L.	Seattle
A. B., University of Washington, 1911.	M. A., Mathematics.
Stamm, Samuel Alexander.	Seattle
B. S. in C. E., Ohio Northern University, 1909.	M. S. in Forestry.
Stanton, Edgar A.	Seattle
A. B., University of Washington, 1910.	
Stetson, Fred L.	Seattle
A. B., University of Washington, 1911.	M. A., Education.
St. Onge, J. Arthur.	Seattle
A. B., University of Washington, 1911.	
Streator, Gertrude Inez.	Seattle
A. B., University of Washington, 1909.	M. A., English.

Sveinson, Mekkin	Seattle
A. B., University of Washington, 1908.	M. A., French.
Templeton, Mrs. Fred M.	Seattle
A. B., University of Oregon, 1898.	
Therkelsen, Eric	Portage
B. S., University of Washington, 1911.	M. S. in Elec. Engineering.
Thompson, Claude S.	Seattle
B. S. in Mining Engineering, University of Washington, 1910.	
Wagoner, Lovisa Catharine.	Seattle
A. B., University of Washington, 1910.	M. A., English.
Waterbury, Ivan C.	Chicago, Ill.
Ph. B., University of Chicago, 1898.	M. S. in Forestry.
York, Conrad E.	Outlook
A. B., Franklin College, Indiana, 1906.	
Zebell, Sophia M.	St. Joseph, Mich.
A. B., Albion College, 1908.	
Zeller, Sanford M.	Seattle
B. S., Greenville College, 1909.	M. A., Botany.
Zimmerman, Grace B.	Seattle
A. B., University of Washington, 1909.	

COLLEGE OF ARTS AND SCIENCES

ABBREVIATIONS

CLASSES

'12 Senior
'13 Junior
'14 Sophomore

'15 Freshman
Sp. Special Student
Ext. Extension Student

*Name of Student and Rank**Home Address*

Abbott, Edson A., '15	Seattle
Adair, Grover Charles, '12	Littlerock
Adams, Jay A., '14	Leavenworth
Adams, Edwin E., '15	Seattle
Ainslie, Elsie, '15	Seattle
Ake, Mary F., '14	Mountain Home, Idaho
Alben, Ellen, '15	Vancouver
Alben, Nellie Edna, '15	Vancouver
Albitz, Alice Blanche, '14	Seattle
Alleman, Lottie, '15	Seattle
Allen, Marjorie, '13	Milwaukee, Wis.
Allen, Ruth Abigail, '12	Seattle
Aller, Curtis C., '15	Wapato
Almack, L. Velenthol, '12	Seattle
Ames, Laura, '13	Poulsbo
Amidon, Mabel J., '14	Seattle
Anderson, Ada C., '13	Seattle
Anderson, Agnes M., '13	Seattle
Anderson, Alice O., '14	Bellingham
Anderson, Clarence Ray, '15	Spokane
Anderson, Grace, '15	Seattle
Anderson, Harry F., '13	The Dalles, Ore.
Anderson, Herman Carl, '14	Mt. Vernon

Anderson, Hilding C., '15.....	Mt. Vernon
Anderson, Hulda Ingrid Christina, '14.....	Orofino, Idaho
Anderson, Victoria, '14.....	Renville, Minn.
Andrews, Elsie, '12.....	Newberg, Ore.
Angevine, Lorin, '15.....	Cedar Cottage, B. C.
Angle, Robert C., '14.....	Shelton
Argo, Arnold Clarence, '12.....	McMinnville, Ore.
Armstrong, J. Chester, Jr., '14.....	Seattle
Arney, Charles E., '15.....	Boise, Idaho
Arthun, Mabel V., '15.....	Seattle
Ashton, Fred W., '12.....	Seattle
Aspinwall, Mabel G., '13.....	Seattle
Athen, Luna P., '12.....	Seattle
Aust, H. Ted, '15.....	Seattle
Austin, M. Beatrice, '15.....	Seattle
Autzen, Alice A., '15.....	Portland, Ore.
Auzias de Turenne, Almar, '13.....	Seattle
Axtell, Ruth C., '14.....	Bellingham
Ayres, Harry W., '15.....	Tacoma
Babcock, Grace E., '15.....	Port Angeles
Badley, Blanche, '15.....	Pendleton, Ore.
Balley, Frank H., '14.....	Snohomish
Bain, Helen R., '15.....	Seattle
Baker, Marguerite, '14.....	Seattle
Balch, Anna C., '12.....	Seattle
Baldrige, Ethel Leona, '12.....	Seattle
Baldwin, Sara E., '13.....	Ellensburg
Balkema, Richard R., '13.....	Seattle
Ballard, Bethel P., '14.....	Seattle
Ballard, Nora J., '13.....	Seattle
Banks, Bertha M., '13.....	Seattle
Barash, Leah, '15.....	Seattle
Barber, Ruth R., '14.....	Seattle
Bardell, Ethel M., '12.....	Seattle
Barnes, Lellwyn V., '14.....	Waterman
Barnes, Maud, '15.....	Sunnyside
Barney, Ruby M., '14.....	Seattle
Barr, Rosalind Marion, '14.....	Spokane
Barrett, Philip E., '15.....	Tacoma
Barter, Etta E., '15.....	Seattle
Barto, Thomas C., '14.....	Seattle
Bash, Mary I., '14.....	Seattle
Bash, Virginia, '14.....	Seattle
Baske, Hugo F. A., '15.....	Davenport
Baskouski, Mary, '15.....	Anaconda, Mont.
Batcheller, Elva L., '15.....	Seattle
Bauer, Ethel E., '15.....	Seattle
Bayer, Ralph W., '14.....	Seattle
Beach, Ivesa M., '15.....	Shelton
Beatty, Ila, '15.....	Seattle
Beck, J. Dillard, '15.....	Seattle
Becklem, Leona, '15.....	Seattle

Bedell, Mary E., '14.....	Seattle
Beeler, Hazel M., '13.....	Seattle
Beers, Harry Edwin, '15.....	Baker, Ore.
Begg, Ruth, '15.....	Seattle
Benjamin, Ralph J., '13.....	Seattle
Bennett, Fred, '14.....	Vancouver
Berge, J. Hallard, '13.....	Davenport
Berry, James Fiske, '14.....	Hoquiam
Bertch, Amy L., '14.....	Seattle
Bickford, Ethel M., '13.....	Portland, Ore.
Biggs, Katherine, '12.....	Seattle
Bird, Byron M., '15.....	Seattle
Birks, Margaret E., '14.....	Tacoma
Blake, Marion O., '15.....	Portland, Ore.
Bloom, Verda N., '13.....	Seattle
Blossom, Marguerite, '14.....	Seattle
Boddy, Pearl M., '12.....	Seattle
Bohn, Herman Carl, '13.....	Seattle
Bond, Sidney G., '15.....	Chehalis
Bonney, Catherine A., '15.....	Seattle
Bonsall, Opal I., '14.....	Spokane
Bonsall, Vera V., '13.....	Spokane
Borrill, Marjorie, '12.....	Seattle
Bouillon, Victor J., '13.....	Seattle
Bouillon, Victorine M., '15.....	Seattle
Bouton, E. Fay, '12.....	Vancouver
Bovingdon, John, '15.....	Seattle
Bowdoin, Blanche V., '15.....	Seattle
Bowers, Marion R., '15.....	Spokane
Bowman, Claire, '14.....	Seattle
Boyd, Louise B., '14.....	Portland, Ore.
Boyd, T. Henry, '13.....	Portland, Ore.
Brace, Maude, '15.....	Seattle
Brainard, Donna F., '15.....	Seattle
Brigham, Ermie B., '12.....	Seattle
Brinck, Raoul A., '13.....	Anacortes
Bronson, Deming, '15.....	Seattle
Bronson, Doris, '15.....	Seattle
Bronson, Ira L., '15.....	Seattle
Brotherton, Francys, '14.....	Tacoma
Browne, Beryl I., '15.....	Edmonds
Brown, Blossome, '15.....	Seattle
Brown, David Edward, '15.....	Cœur d'Alene, Idaho
Brown, L. Albia, '12.....	Seattle
Brown, Suzanne M., '15.....	Wenatchee
Bruce, Harriett L., '13.....	Seattle
Brunner, Earl Clinton, '14.....	Post Falls, Idaho
Bryan, Helen A., '15.....	Seattle
Bryant, Willis R., '15.....	Seattle
Budden, Agnes M., '13.....	Seattle
Bull, John Alva, '14.....	Ellensburg
Bull, Leland, '15.....	Ellensburg

Bunnel, Esther, '14.....	Seattle
Burford, Waldo E., '15.....	Seattle
Burke, Margaret Ruth, '13.....	South Bend
Burkheimer, Florence, '15.....	Seattle
Burnett, Meyer, '14.....	Seattle
Burnett, Mollie, '12.....	Seattle
Burns, Josepha B., '14.....	Seattle
Burson, James W., '15.....	Seattle
Burt, Nellie L., '14.....	Twin Falls, Idaho
Bustrack, Martha, '15.....	Olympia
Buzzelle, Mary Charlotte, '13.....	Sedro Woolley
Cadwell, Clytie L., '15.....	Seattle
Cady, Osman H., '15.....	Seattle
Cahill, Marie, '15.....	Seattle
Cairns, Marjorie, '15.....	Seattle
Calkins, Frances M., '15.....	Seattle
Cameron, Anne B., '14.....	White Salmon
Campbell, Archibald, '13.....	Seattle
Campbell, Eleanor B., '15.....	Seattle
Campbell, Howard A., '15.....	Port Angeles
Campbell, Mary C., '15.....	Seattle
Campbell, Pansy E., '14.....	Seattle
Canfield, A. Clerice, '14.....	Seattle
Canine, Howard A., '15.....	Seattle
Cardle, Maynard M., '14.....	Everett
Carey, Harold D., '13.....	Medford, Ore.
Carlander, Juliana, '15.....	Seattle
Carlberg, Edward F., '15.....	Wenatchee
Carpenter, Hazel B., '15.....	Seattle
Carr, Arthur E., '15.....	Seattle
Carrigan, Paul, '14.....	Seattle
Carroll, Levi B., '14.....	Seattle
Carse, Elta, '15.....	Ferndale
Carson, Ida H., '13.....	Lewiston, Idaho
Casey, Ralph D., '14.....	Seattle
Cayo, Eugene F., '12.....	Seattle
Chadwick, Stephen F., '15.....	Olympia
Chambers, Clarence Conrad, '15.....	Centralia
Chapman, Aral D., '15.....	Kirkland
Charles, Fannie, '12.....	Puyallup
Chase, Mildred H., '13.....	Everett
Cheney, Audrey, '15.....	Seattle
Child, Pauline P., '15.....	Spokane
Child, Laura Theo, '12.....	Spokane
Chisholm, T. Blanche, '14.....	Seattle
Chittenden, Eleanor M., '14.....	Seattle
Christesen, Ruth A., '12.....	Seattle
Christofferson, O. Harry, '15.....	Tacoma
Churchill, Frederick A., '14.....	Seattle
Churchyard, Charlotte, '15.....	Tacoma
Clare, Ethel Regina, '15.....	Seattle
Clark, Charles Walter, '12.....	Kirkland

Clark, J. Earle, '14.....	Seattle
Clifford, Earl V., '14.....	Tacoma
Clifford, Raymond W., '12.....	Tacoma
Clift, Ruby M., '14.....	Selah
Cline, Esther, '13.....	Seattle
Close, Frankie A., '15.....	Seattle
Cochran, Ralph C., '12.....	Snohomish
Coe, Charles Rollit, '14.....	Seattle
Coe, Frantzel, '14.....	Seattle
Coe, Winifred E., '15.....	Seattle
Coffman, Edith M., '14.....	Chehalis
Cohron, Lenore, '15.....	Seattle
Cohrs, Theodore, '15.....	Seattle
Collier, Helen, '12.....	Wenatchee
Collins, Lillian E., '14.....	Seattle
Colvin, Grace, '15.....	Tacoma
Conner, Hazel, '14.....	Olympia
Conner, Helen M., '15.....	Seattle
Conner, Jack, '15.....	Seattle
Conner, Marcia, '15.....	New Westminster, B. C.
Cook, Inez C., '14.....	Bellingham
Cook, Jessie Gordon, '14.....	Vancouver, B. C.
Cook, J. Geraldine, '14.....	Seattle
Cook, Proctor, '15.....	Tacoma
Corbitt, Marsh M., '15.....	Seattle
Corgiat, John J., '15.....	Berkeley, Cal.
Corlett, Ruth E., '14.....	Seattle
Corwin, Hazel I., '14.....	Seattle
Coryell, George K., Jr., '13.....	Seattle
Costello, Mary C., '15.....	Spokane
Conger, William W., '15.....	Seattle
Covington, Dorothy, '15.....	Seattle
Cowley, Bess, '12.....	Signonier, Ind.
Cowley, William M., Jr., '15.....	Seattle
Cox, Julia V., '12.....	Toppenish
Cox, Lola L., '14.....	Toppenish
Crawford, Edward I., '15.....	Seattle
Cremer, Henry, '15.....	Seattle
Crowley, Alberta, '15.....	Vancouver
Culbertson, Josephine, '13.....	Dayton
Culton, Helen I., '15.....	Seattle
Cusick, Jack H., '14.....	Richmond Beach
Cutter, Evelyn, '15.....	Seattle
Dabney, Elmer S., '14.....	Seattle
Dabney, Helen, '15.....	Seattle
Daly, Ben H., '14.....	Seattle
Dallam, Kate B., '13.....	Oroville
Daniels, Ethel, '12.....	Seattle
Darnell, Fred, '15.....	Seattle
Daubney, Lucy A., '12.....	Centralia
Davidson, Sadie, '13.....	Seattle
Davies, L. Wayne, '15.....	Seattle

Davies, Myvanwy, '12.....	Seattle
Davis, May E., '15.....	Bismark, N. D.
Dawson, Ruth L., '15.....	Seattle
Day, Florence A., '14.....	Seattle
Day, Veronica C., '12.....	Spokane
Deering, Tam, '12.....	Snohomish
Dent, Margaret, '15.....	Seattle
dePledge, Ruth G., '13.....	Colfax
deSpain, Ethelyn A., '15.....	Dunn
deTourville, Audrey, '14.....	Seattle
Devine, Grace M., '15.....	Seattle
Diamond, Rose E., '13.....	Columbus, Mont.
Dickinson, Lillian, '14.....	Parma, Idaho
Dickson, David H., '15.....	Seattle
Dickson, Gordon H., '14.....	Seattle
Dill, M. Beryl, '13.....	Seattle
Doheny, Geraldine, '15.....	Seattle
Dolson, Mae, '14.....	Snohomish
Donald, Mary L., '15.....	Tacoma
Donaldson, Mildred, '14.....	Seattle
Donaway, A. May, '14.....	Seattle
Donnell, Georgia M., '15.....	Snohomish
Donovan, Katherine M., '15.....	Enumclaw
Dorgan, Mary E., '15.....	Seattle
Douglas, Clinton R., '14.....	Seattle
Douglas, Walter T., '13.....	Seattle
Dougherty, Dola M., '15.....	Seattle
Downer, Mary A., '15.....	Seattle
Downie, Willis I., '15.....	Seattle
Doxy, William I., '14.....	Seattle
Drake, Ethel M., '13.....	Seattle
Driver, S. Marion, '15.....	Wamic, Ore.
Drum, Dorothy F., '14.....	Seattle
Drum, Rachel, '15.....	Seattle
Drummond, Jessie S., '14.....	Tacoma
Dysart, Lloyd B., '15.....	Centralia
Easton, Martin H., '15.....	Bellingham
Earhart, S. Darragh, '14.....	Medford, Ore.
Eaves, Anna W., '15.....	Lewiston, Idaho
Eberle, Wynn R., '12.....	Vancouver
Eckstorm, Lucile Marie, '14.....	Seattle
Eddy, Beula L., '14.....	Sumner
Edgerton, Floyd W., '14.....	Puyallup
Edmonds, Rupert O., '15.....	Mt. Vernon
Edris, Ned Curtis, '15.....	Spokane
Eggleston, Gertrude B., '15.....	Seattle
Eisenbels, Josephine O., '15.....	Port Townsend
Elder, Wilbur L., '15.....	Skykomish
Eldred, Andrew J., '14.....	Seattle
Ellefson, Elven T., '12.....	Seattle
Elliott, Annabelle, '13.....	Seattle
Elliott, Bertram R., '14.....	Vancouver, B. C.

Elliot, Jean S., '14.....	Seattle
Elliot, Muriel Gertrude, '14.....	Seattle
Ellis, J. Ruth, '15.....	Seattle
Ellis, Russell D., '13.....	Seattle
Ellsperman, Winifred Louise, '14.....	Blaine
Emery, Ethel A., '15.....	Seattle
Enegren, Helen M., '14.....	Seattle
Erickson, Elsie, '12.....	Seattle
Esterly, Katherine A., '15.....	Seattle
Ettelson, Sadie, '12.....	Sprague
Evans, Frank S., '15.....	Seattle
Evans, Ruth P., '12.....	Tacoma
Evans, Virginia H., '12.....	Tacoma
Everett, A. Lillian, '15.....	Seattle
Fairburn, Orville G., '15.....	Fairbanks, Alaska
Farley, Nell, '15.....	Bellingham
Farnham, Frances E., '12.....	Ellensburg
Febiger, George L., '15.....	Spokane
Felder, Herman A., '14.....	Toppenish
Felt, Julia I., '12.....	Seattle
Fettke, Margaret E., '14.....	Tacoma
Fifer, Eva L., '15.....	Seattle
Firth, Mildred, '14.....	Seattle
Fisher, C. Lucile, '15.....	Spokane
Fisher, David M., '15.....	Seattle
Fisken, M. Carolyn, '15.....	Spokane
Fix, John Penn, '14.....	Lewiston, Idaho
Fix, Katherine I., '15.....	Lewiston, Idaho
Fleming, Esther F., '14.....	Seattle
Fleming, Florence E., '13.....	Seattle
Fletcher, Elizabeth B., '14.....	Tacoma
Fletcher, Gladys M., '14.....	Seattle
Fletcher, Hazel V., '12.....	Seattle
Fogarty, Helen K., '15.....	Spokane
Ford, Katherine M., '14.....	Port Blakeley
Fowler, Louise H., '15.....	Seattle
Fowler, Stella M., '12.....	Bellingham
Fox, Roy C., '15.....	Seattle
Frame, Paul W., '15.....	Seattle
France, Georgia M., '15.....	Hoquiam
Frank, Ruth A., '15.....	Seattle
Franklin, Edward S., '15.....	Seattle
Frasch, Leona, '14.....	Seattle
Frater, Helen, '12.....	Seattle
Frederickson, E. Josephine, '13.....	Meriden, Conn.
Fredson, Dora E., '15.....	Shelton
Freeburn, Louise C., '15.....	Tacoma
Freaser, Laura L., '14.....	Helena, Mont.
French, Ellene, '15.....	Seattle
Frew, Rosamond, '15.....	Seattle
Freyd, Bernard, '14.....	Seattle
Friant, Josephine Nellie, '14.....	Seattle

Friedman, Harry Joseph, '15.....	Seattle
Fritz, Chester William, '13.....	Seattle
Fugitomi, Egi, '15.....	Seattle
Fulton, Orra S., '15.....	Quilcene
Fussy, A. Fay, '15.....	Seattle
Gabbart, Gertrude M., '15.....	Seattle
Gabel, Marie, '14.....	Seattle
Galley, Helen, '15.....	Seattle
Galehouse, Edith I., '15.....	Seattle
Garland, Martha M., '15.....	Seattle
Garvey, Erma C., '14.....	Seattle
Gast, Francis M., '15.....	Tacoma
Gay, Donald W., '15.....	Seattle
Gay, Ruth E., '14.....	Seattle
Gellatly, Florence, '15.....	Wenatchee
George, V. Blanche, '14.....	Sunnyside
Gerhardt, Cella, '15.....	Seattle
Getz, Carl H., '13.....	Tacoma
Gibboney, Beatrice C., '15.....	Bremerton
Gibson, Grant M., '13.....	Issaquah
Gilday, Cora E., '14.....	Blaine
Ginnold, Doris L., '14.....	Seattle
Gladden, Orvis C., '15.....	Seattle
Glen, Juanita, '15.....	Port Angeles
Glockler, George, '15.....	Seattle
Goodlick, Samuel, '14.....	Seattle
Goodheart, Geraldine, '15.....	Bellingham
Goodner, Grace E., '12.....	Seattle
Goodnow, Marion, '13.....	Seattle
Goodro, Katherine Josephine, '15.....	Olympia
Gordon, Elizabeth H., '15.....	Seattle
Gottfeld, Alice, '15.....	Olympia
Gourman, David Z., '14.....	Seattle
Gowen, Vincent H., '12.....	Seattle
Grace, Clarence M., '12.....	Chillicothe, Mo.
Graham, George H., '15.....	Seattle
Grant, Henry M., '15.....	Orillia
Gray, C. Harold, '13.....	Seattle
Gray, Isabel M., '15.....	Spokane
Greenwood, Lyle A., '15.....	Bellingham
Greenwood, Ray, '15.....	Seattle
Greffoz, Hortense P., '15.....	Seattle
Gregory, S. Burr, '14.....	Puyallup
Grier, Gladys C., '14.....	Spokane
Griffin, Hazel B., '13.....	Seattle
Griffin, Tracy E., '14.....	The Dallas, Ore.
Griffith, Ruth H., '13.....	Seattle
Griffiths, Burke M., '15.....	Seattle
Griffiths, Ruth, '15.....	North Yakima
Griffiths, Thomas E., '14.....	Seattle
Grignon, Jessie I., '14.....	Seattle
Grimmer, Marie Ethlyn, '15.....	Spokane

Groves, Mary L., '14.....	Seattle
Guild, Grace, '14.....	Seattle
Gulliksen, Edna L., '14.....	Seattle
Gwilym, Gertrude, '14.....	Seattle
Halferdahl, Alice, '14.....	Seattle
Hall, W. Athol, '15.....	Sprague
Hall, Ethel E., '14.....	Seattle
Hall, Eva R., '15.....	Seattle
Hall, L. Merle, '15.....	Seattle
Ham, Hazel M., '15.....	Spokane
Hamilton, Gladys G., '14.....	Seattle
Hamilton, Juanita, '15.....	Seattle
Hamilton, Violet E., '15.....	Seattle
Hamley, Gladys, '15.....	Pendleton, Ore.
Hammer, Paul S., '15.....	Tacoma
Hanagata, Shozo, '15.....	Seattle
Hankins, Ferne, '13.....	Seattle
Hanley, Charlotte J., '14.....	Tacoma
Hannon, R. Roger, '15.....	Seattle
Hanson, Ethel A., '12.....	Seattle
Hanson, Harry P., '15.....	Tacoma
Hanson, Mathea, '14.....	Seattle
Hanson, R. Isabel, '15.....	Seattle
Hardman, Cecilia, '15.....	Seattle
Harkins, Marjorie, '14.....	Seattle
Harper, Robert M., '14.....	Seattle
Harris, Anna, '14.....	Wenatchee
Harris, Ardenvoir, '13.....	Wenatchee
Harris, John J., '14.....	Seattle
Harris, J. Waldo, '14.....	Kelso
Harris, Laura L., '15.....	Seattle
Harris, Marjorie, '12.....	Seattle
Harrison, Frank, '15.....	Seattle
Harrison, A. Myrtle, '15.....	Astoria, Ore.
Hassett, Bessie M., '15.....	Seattle
Hastings, Clara, '12.....	Seattle
Hastings, Mabel, '15.....	Seattle
Hathaway, Howard, '15.....	Everett
Havens, Mareta, '14.....	Seattle
Hayden, Marion Lamont, '15.....	Spokane
Heg, Henry T., '15.....	Seattle
Heiteshu, W. Raymond, '15.....	Seattle
Heitman, Albert Henry, '14.....	Trinity, N. C.
Henderson, Harold H., '15.....	Seattle
Henry, Charles LeVerne, '14.....	Seattle
Henry, William, '15.....	Roslyn
Hensel, Emilie T., '13.....	Seattle
Henson, Alice P., '13.....	Seattle
Herrick, C. Barrett, '15.....	Seattle
Hess, Gladys F., '15.....	Seattle
Heston, LaRhue M., '14.....	Seattle
Heyes, Lucy J., '15.....	Seattle

Higgins, Herbert G., '15.....	Vancouver
Higgins, Nellie L., '13.....	Vancouver
Hile, Edith E., '14.....	Seattle
Hill, Elizabeth, '13.....	Tacoma
Hilstrom, Theresa A., '15.....	Vancouver
Hilton, Edmund W., '14.....	Seattle
Hindle, Margaret R., '15.....	Spokane
Hipkoe, George A., '13.....	Seattle
Hively, Zeller Michael, '15.....	Prince Rupert, B. C.
Hoard, Mary G., '14.....	Seattle
Hobi, Agnes M., '14.....	South Bend
Hodge, Alma, '14.....	Tacoma
Hoffman, Edward William, '14.....	Seattle
Hoffman, Harry A., '13.....	Ellensburg
Holeman, Beulah J., '12.....	Hughson, Cal.
Holmberg, Carl Arthur, '15.....	Marysville
Holmes, Anna S., '15.....	Edmonds
Holmes, Ione M., '14.....	Seattle
Holt, G. Russell, '15.....	Auburn
Hopkins, Viola B., '15.....	Everett
Horsley, Clara, '13.....	Hillyard
Horsley, William H., '14.....	North Yakima
Horton, Lucy S., '14.....	Marshfield, Ore.
Hosom, Desmond, '14.....	Seattle
Houck, Zenna, '14.....	Puyallup
Houlahan, A. Aileen, '13.....	Seattle
Houser, March H., '15.....	Jerry
Howard, Alma B., '15.....	Seattle
Hoxie, Olive Grace, '13.....	Seattle
Hoyle, Herman P., '12.....	Waverly, Nebr.
Hubble, Hazel Winifred, '15.....	Seattle
Hughes, Dan E., '15.....	Seattle
Hunt, M. Jean, '15.....	Seattle
Hunter, Lila A., '12.....	Seattle
Hunter, Stella T., '14.....	Island, Ore.
Hurd, Annie May, '15.....	Seattle
Hurd, Laura A., '14.....	Mt. Vernon
Husby, Joseph O., '15.....	Arlington
Hutchinson, Orrel E., '14.....	Seattle
Hutchinson, Pearl Irene, '15.....	Seattle
Hylander, Wallace, '15.....	Chehalis
Iffland, Kathryn Margaret, '12.....	Port Townsend
Ikeda, Chochi, '14.....	Kurayohi, Japan
Ingersoll, Edna I., '12.....	Seattle
Ingersoll, Louise J., '14.....	Seattle
Irvine, Ethel M., '13.....	Seattle
Irvine, Margaret I., '15.....	Seattle
Jaadan, Nels, '13.....	Seattle
Jacobs, Claude V., '14.....	Puyallup
Jacobson, Julia, '15.....	Seattle
Jacobson, Rose E., '15.....	Seattle
Jacobus, Margaret E., '13.....	Tacoma

Jamieson, Ida M., '15.....	Spokane
Jensen, Alvin L., '15.....	Spokane
Johanson, Edna T., '15.....	Tacoma
Johnson, Agnes V., '13.....	Seattle
Johnson, Anna H., '15.....	Seattle
Johnson, Clyde L., '15.....	Spokane
Johnson, Emma Sophia, '14.....	Spokane
Johnson, Marian E., '15.....	Seattle
Johnson, Ruth F., '15.....	North Yakima
Johnson, Sidney E., '14.....	Bellingham
Johnson, Winifred Josephine, '14.....	Seattle
Johnston, Rolland B., '14.....	Seattle
Johnstone, Margery R., '15.....	Seattle
Joiner, Winnie D., '12.....	Seattle
Jones, Avis L., '14.....	Hartline
Jones, Minabell, '15.....	Seattle
Jones, Pauline, '15.....	Seattle
Jones, Zola M., '14.....	Bremerton
Jorgensen, Peter W., '15.....	Seattle
Kadushin, Sarah L., '15.....	Seattle
Kahan, Osaf E., '15.....	Seattle
Kangley, Helen A., '14.....	Seattle
Kangley, Lucy, '15.....	Seattle
Karrer, Clara B., '13.....	Roslyn
Karrer, Joanne L., '15.....	Roslyn
Kawai, Soichi, '14.....	Yanai, Japan
Keene, Gertrude B., '15.....	Seattle
Keesling, Nelle, '12.....	Tacoma
Kelchner, Del Roy, '15.....	Seattle
Kenison, Ralph B., '15.....	Twisp
Kenward, Hazel D., '14.....	Seattle
Kern, Carrie, '14.....	North Yakima
Kerr, Lelah Belle, '14.....	Seattle
Kettenbach, Marie E., '14.....	Lewiston, Idaho
Keyes, Ruth M., '12.....	Seattle
Kiddle, Netta Marie, '13.....	Island City, Ore.
Kilty, Irene M., '12.....	Seattle
Kincaid, Airdrie L., '15.....	Seattle
Kinnaird, Lottie A., '15.....	Hood River, Ore.
Kinne, Verle E., '14.....	Seattle
Klaeboe, Olga, '15.....	Seattle
Knapp, Clarence E., '15.....	Seattle
Knapp, Dora E., '15.....	Everett
Knapp, Ralph R., '13.....	Seattle
Knight, J. Ernest, '15.....	Port San Luis, Cal.
Knight, James Russell, '15.....	Seattle
Knox, Gertrude, '15.....	Olympia
Knupperburg, H. Mae, '15.....	Seattle
Kobayashi, Nuinosuke, '15.....	Seattle
Koenig, James V., '14.....	Seattle
Koester, Christine M., '14.....	Seattle
Kohler, Liela, '14.....	Seattle

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Kraus, Ada, '15.....	Seattle
Kruse, Lizzie Ida, '15.....	Granite Falls
Lacey, Allen M., '12.....	Colfax
Laden, Ruth E., '12.....	Seattle
Lai, William K., '14.....	Seattle
Laird, Zora, '14.....	Seattle
Landsburg, Gertrude Olive, '15.....	Treadwell, Alaska
Lang, Edward M., '14.....	Seattle
Larson, Loui K., '14.....	Tacoma
Laughlin, Jim A., '15.....	Mt. Vernon
Lawrence, Cassie, '15.....	Chehalis
Lawrence, Edna B., '12.....	Seattle
Leader, Edwin, '15.....	Portland, Ore.
Leader, Elmer W., '15.....	Portland, Ore.
Learned, Hazel, '13.....	Port Townsend
Lee, Palma, '15.....	Everett
Leonard, Elma K., '15.....	Tacoma
Levine, Ruth, '15.....	Republic, Mich.
Lewis, J. Crawford, '15.....	Naches
Lewis, Ethel, '14.....	Seattle
Lewis, Florence, '14.....	Seattle
Lewis, Jessie M., '15.....	Wenatchee
Lewis, Ruth M., '15.....	Seattle
Lewis, Sol H., '12.....	Seattle
Lichty, Ethel, '14.....	Seattle
Lilliequist, Lillie C., '15.....	Spokane
Lincoln, Mattie J., '15.....	Seattle
Lind, Algodt, '12.....	Seattle
Lind, Ralph R., '15.....	Seattle
Lindborg, Arthur E., '14.....	Seattle
Lipscomb, Roy S., '12.....	Seattle
Littlefield, Leah I., '13.....	Seattle
Livingston, Carl D., '13.....	Seattle
Lonergren, Irma C., '15.....	Portland, Ore.
Long, Ruby O., '14.....	Cashmere
Loring, Mildred W., '12.....	Seattle
Losee, Etta, '15.....	Snohomish
Lovejoy, Herbert C., '14.....	Seattle
Lovejoy, Winifred, '14.....	Seattle
Lovejoy, Lorna J., '13.....	Seattle
Lovejoy, M. Agnes, '12.....	Seattle
Lund, Mabel A., '14.....	Seattle
Lunn, Wilma Irene, '15.....	Auburn
Lybecker, Gus, '15.....	Plaza
Lyon, D. Dee, '14.....	Weiser, Idaho
McArdle, Alice, '15.....	Quilcene
McCabe, Helen, '15.....	Seattle
MacCallum, A. Ruth, '14.....	Seattle
McCann, Adam John, '15.....	Seattle
McCann, Richard J., '14.....	Seattle
McClain, Mary E., '15.....	Sunnyside

McClarren, Mabel L., '14.....	Seattle
McClelland, G. Zell, '15.....	Seattle
McClure, William Benton, '14.....	Spokane
McCollough, Esther M., '14.....	Seattle
McCormick, J. Emmett, '15.....	Seattle
McCoy, Horace L., '12.....	Portland, Ore.
McCready, J. Harry, '14.....	Clarkston
McCulloch, H. Margaret, '15.....	Seattle
McDonald, Hazel A., '14.....	Seattle
MacDougall, J. Bruce, '15.....	Seattle
McDowell, Sadie B., '14.....	Bellevue
McEntee, Mary E., '15.....	Spokane
McEvoy, James P., '15.....	Skykomish
McFee, Joel N., '15.....	Seattle
McFee, John, '15.....	Seattle
McGee, Eva, '13.....	Seattle
McGee, Mattie, '15.....	Seattle
McGinnis, Minnie Irene, '13.....	Waterville
McGlaulin, March, '14.....	Hoquiam
McHugh, Edward, '15.....	Seattle
McKay, A. Mabel, '15.....	Arlington
McKillican, Anna, '15.....	Edmonds
McKillican, Ethel, '15.....	Edmonds
McKinley, Charles, '13.....	Vancouver
McKinley, Robin S. A., '12.....	Spokane
MacKinnon, Goff, '14.....	Seattle
McLean, Berenice, '14.....	Seattle
McLean, Dollie, '13.....	Seattle
McLean, L. Blanche, '13.....	Seattle
McLean, Murray, '14.....	Seattle
McLean, Victoria, '15.....	Seattle
McMurray, Fred A., '15.....	Seattle
McMurtrey, Jos. Patton, '14.....	Seattle
McNamara, Eugene J., '14.....	Edmonds
McNaughton, Corabel, '12.....	Seattle
McNeil, Jno. W., '15.....	Seattle
McNiven, Colin, J., '15.....	Seattle
MacPherson, William, '14.....	Cashmere
McQuigg, Harry M., '13.....	Pasadena, Cal.
Macaulay, Margaret, '14.....	Deming
Macdonald, Jeannette A., '15.....	Seattle
Macdonald, Marion O., '15.....	Seattle
Mackintosh, Jessie, '15.....	Seattle
Macklem, Marjorie G., '14.....	Seattle
Madigan, Gladys M., '14.....	Seattle
Magillcuddy, Martha, '15.....	Seattle
Maguire, Ernest L., '15.....	Seattle
Mahler, Mrs. Eva E., '12.....	Seattle
Major, Archie M., '13.....	Seattle
Major, Ralph D., '12.....	Seattle
Malloy, Frank B., '15.....	Waterville
Malmo, Clarence O., '15.....	Seattle

Malone, Marshall W., '14.....	Linnton, Ore.
Malony, Catherine Alice, '15.....	Seattle
Maney, Richard S., '14.....	Seattle
Mann, Jerome S., '15.....	Linnton, Ore.
Mann, A. Viola, '12.....	Olympia
Manson, Marcus W., '15.....	Puyallup
Mantz, Helen O., '15.....	Seattle
Markey, Frances, '15.....	Seattle
Marland, George M., '15.....	Seattle
Marsh, Olivemay, '14.....	Seattle
Mason, Elizabeth, '13.....	Seattle
Mason, C. Glen, '15.....	Waitsburg
Mason, Harrison W., '14.....	Seattle
Mathieu, George E., '14.....	Seattle
Mathieu, Irene, '14.....	Seattle
Mathews, Byrl, '13.....	Ellensburg
Matson, Helen A., '15.....	Seattle
Matthews, M. Lucile, '15.....	Seattle
Matzger, Nathan, '15.....	Seattle
Meacham, Orpha H., '15.....	Seattle
Meany, Margaret, '15.....	Seattle
Mearns, Edith H., '14.....	Seattle
Mecklem, A. Merrill, '14.....	Olympia
Meissner, Laurentine, '13.....	Seattle
Meredith, Frank, '15.....	Tacoma
Middleton, Tressa A., '15.....	Seattle
Milburn, Roszelle, '15.....	Spokane
Miles, Florence E., '13.....	Alberni, B. C.
Millay, Francis E., '13.....	Chewelah
Miller, Anna Dorothy, '13.....	Tacoma
Miller, Della T., '15.....	Seattle
Miller, Elvena, '15.....	Bellingham
Miller, Leah, '14.....	Seattle
Miller, J. Merrill, '15.....	Seattle
Miller, Ruth, '15.....	Seattle
Minnis, Marjorie E., '15.....	Seattle
Mitchell, B. Esther, '15.....	Seattle
Mitchell, Edith B., '13.....	Seattle
Mitchell, Marie, '14.....	Seattle
Mitchell, Ruby, '15.....	Seattle
Mobeck, Agnes M., '12.....	Seattle
Mohn, Esther, '13.....	Bothell
Mohr, George J., '15.....	Seattle
Monfort, Grace E., '14.....	Seattle
Monfort, Laura B., '15.....	Seattle
Moody, Adelaide, '12.....	Everett
Moody, Ruth A., '12.....	Seattle
Moore, Elsie Virginia, '13.....	Seattle
Moore, Helen S., '15.....	Seattle
Moore, Helene, '15.....	Seattle
Morehead, Elizabeth, '15.....	Nahcotta
Morgan, Helen C., '14.....	Marcus

Morgan, Ora P., '14.....	Juneau, Alaska
Morissetti, Harry E., '15.....	Tacoma
Morrison, Bessie M., '15.....	Seattle
Morse, Mabel V., '13.....	Puyallup
Moser, John R., '15.....	Seattle
Mourant, Ethel M., '14.....	Hoquiam
Mowers, Lulu I., '14.....	Blaine
Moyer, Lillian A., '14.....	Seattle
Munter, Placie, '15.....	Spokane
Murchison, M. Kathleen, '15.....	Seattle
Murphy, Bertha R., '15.....	Burns, Ore.
Murphy, Golda L., '14.....	Forest Grove, Ore.
Myer, Bernice, '15.....	Seattle
Myers, Margaret, '14.....	Seattle
Nakai, Gentok, '15.....	Seattle
Nakao, Yoshihito J., '13.....	Seattle
Neander, Joseph E., '13.....	Braham, Minn.
Neill, Frank W., '14.....	Seattle
Neiman, G. Paul, '14.....	Wichita, Kas.
Nell, Mabel I., '14.....	Anaconda, Mont.
Nelson, Arthur E. L., '14.....	Seattle
Nelson, Elizabeth K., '14.....	Seattle
Nelson, Eva, '14.....	Seattle
Nelson, Harry B., '14.....	Seattle
Nelson, Verne, '15.....	Seattle
Nethercutt, Ruth A., '14.....	Lake Geneva, Wis.
Neumen, Frances H., '14.....	Seattle
Neumann, Rosamond, '13.....	Seattle
Newton, Cornelia, '15.....	Seattle
Nichols, Robert, '15.....	Tacoma
Nickerson, John Harding, '14.....	Seattle
Nigh, Alice, '14.....	Tacoma
Noble, Frederic C., '15.....	Granite Falls
Noble, G. Bernard, '14.....	Oregon City, Ore.
Noderer, Ruth L., '15.....	Seattle
Noel, Clyde F., '14.....	Snohomish
Norton, Joe, '13.....	Mt. Vernon
Norton, John Eugene, '15.....	Tacoma
Nunn, Frances A., '15.....	Seattle
O'Bar, Alleen H., '15.....	Seattle
O'Connor, Bernard L., '14.....	Philadelphia, Penn.
O'Donnell, Gretchen M., '12.....	Seattle
Ohlson, David, '13.....	Seattle
Oldfield, Helen I., '14.....	Tacoma
Oleson, Carrie Elvida, '15.....	Seattle
Olson, Jennie Almeda, '15.....	Seattle
Olson, Almeda, '15.....	Mt. Vernon
O'Neill, Hertha J., '15.....	Castle Rock
O'Neill, J. Philip, '15.....	Seattle
Ooghe, Arthur E., '15.....	Seattle
Orner, Pearl L., '14.....	Seattle
Osawa, Masu, '15.....	Seattle

Osborne, Ezra M., '14.....	Seattle
Ottesen, May S., '15.....	Seattle
Overmeyer, Carlesta C., '15.....	Seattle
Owen, Fenimore E., '14.....	Spokane
Owen, Neva E., '14.....	Seattle
Palmer, Ben B., '14.....	Seattle
Palmer, Esther R., '15.....	Seattle
Palmerton, Donald F., '15.....	Seattle
Palmerton, Hallie L., '15.....	Seattle
Parker, A. Leila, '15.....	Seattle
Parker, Catherine Anna, '15.....	Seattle
Parker, Kathleen E., '12.....	Seattle
Parker, Roscoe S., '14.....	Seattle
Parks, George S., '15.....	Seattle
Parlin, Hazel E., '15.....	Concrete
Parr, Marie F., '15.....	Seattle
Patton, Clotilde, '14.....	Everett
Patton, Gerald S., '14.....	Seattle
Pauley, Linna L., '13.....	Seattle
Paulhamus, Alice N., '15.....	Sumner
Paulson, Carl Wilhelm, '13.....	Seattle
Pendleton, Ross L., '14.....	Everett
Pennell, Louise F., '15.....	Seattle
Perry, Gladys, '15.....	Seattle
Perry, Herbertine, '14.....	Seattle
Peterson, Elinor B., '13.....	Nampa, Idaho
Peterson, D. M. Chester, '15.....	Seattle
Peterson, Mabel A., '12.....	Seattle
Peterson, Reuben J., '14.....	Seattle
Pettibone, L. Anita, '15.....	Seattle
Pettibone, Jennie A., '13.....	Seattle
Pettit, Ada Mildred, '15.....	Tacoma
Pettit, Minnie, '15.....	Hoquiam
Pierson, B. Beatrice, '15.....	Seattle
Pierson, Carolyn, '14.....	Kirkland
Pingry, Madeline M., '14.....	Sedro Woolley
Pinkerton, Helen, '13.....	Tacoma
Piro, Victor, '15.....	Cle Elum
Platt, Imogene B., '14.....	Seattle
Plummer, Alice G., '14.....	Seattle
Poe, Willis, '15.....	Wenatchee
Pollock, Elizabeth, '12.....	Forest Grove, Ore.
Poole, Jessie L., '15.....	North Yakima
Porter, Margaret Alice, '14.....	Columbus, Mont.
Porter, Reynolds M., '15.....	Seattle
Potter, Edith L., '14.....	Seattle
Potter, Elizabeth, '15.....	Seattle
Powell, Charles J., '15.....	Seattle
Prater, J. Will, '12.....	Ellensburg
Pratt, Frank L., '14.....	Seattle
Price, William K., '14.....	Outlook
Prothero, J. Kate, '15.....	Seattle

Proulx, Camillia Eglantine, '14.....	Seattle
Proulx, Erminia Olive, '14.....	Seattle
Pryde, Joel J., '15.....	Aberdeen
Pryor, Leland M., '15.....	Centralia
Puckett, Lucille E., '13.....	Spokane
Pullen, Chester C., '15.....	Skagway, Alaska
Purdy, Florence W., '15.....	Tacoma
Pusey, Edna M., '15.....	Seattle
Quilliam, Elsie Beatrice, '14.....	Tacoma
Radford, Marion A., '13.....	Seattle
Rains, Lester E., '15.....	Tacoma
Ramage, Muriel, '15.....	Spokane
Ramseyer, Walter C., '13.....	Seattle
Randall, Bernice Hazel, '14.....	Marysville
Randell, Laura, '13.....	Seattle
Randolph, Hazel F., '14.....	Seattle
Ratcliffe, Ruth E., '14.....	Cheney
Rauen, John P., '14.....	Antigo, Wis.
Rawson, Ralph F., '15.....	Seattle
Reding, Eugenia, '13.....	Spokane
Reeder, Margaret A., '13.....	Spokane
Reekie, Martha E., '13.....	Seattle
Reeves, Zelma, '13.....	Wenatchee
Reichert, Mae M., '15.....	Seattle
Reinberg, Alida H., '12.....	Seattle
Reynolds, Ann Pauline, '15.....	Seattle
Reynolds, E. Avanelle, '14.....	Seattle
Reynolds, Helen Irene, '15.....	Seattle
Rhodes, Eva G., '15.....	Seattle
Rice, Mildred E., '15.....	Centralia
Rice, Stuart A., '12.....	Longbranch
Richards, Vera M., '12.....	Tacoma
Richmond, Mrs. Agnes Norby, '15.....	Renton
Riddle, Helen J., '15.....	Seattle
Ringer, Frances C., '14.....	Sedro Woolley
Riordan, Jerry, '14.....	Vancouver
Roberts, George W., '15.....	Walla Walla
Roberts, J. Vincent, '12.....	North Yakima
Roberts, Mary C., '12.....	Seattle
Robertson, Katharine C., '13.....	Seattle
Robinson, Hazel E., '15.....	Waterford, N. Y.
Rodgers, Irene, '15.....	Bothell
Roe, Nellie Virginia, '14.....	Monroe
Romney, Winifred, '12.....	Hamilton, Mont.
Rosaaen, Evelyn H., '14.....	Seattle
Rosaaen, J. Douglas, '14.....	Seattle
Rose, Sadie L., '15.....	Seattle
Rosenstein, Julia V., '15.....	Genesee, Idaho
Ross, Catherine I., '12.....	Everett
Ross, Robert H., '15.....	Lowell
Rounds, Philo H., '15.....	Walla Walla
Roy, Hattie, '12.....	Seattle

Rupert, Rhea, '15.....	Aberdeen
Ryan, Helen C., '15.....	Seattle
Ryan, Marie L., '13.....	Seattle
Ryan, Russell N., '15.....	Seattle
Sackett, Margaret J., '14.....	Seattle
Sallberg, Milcent C., '13.....	Seattle
Sander, Dorothy Louise, '15.....	Cœur d'Alene, Idaho
Sargent, Noel, '15.....	Seattle
Sargison, Geneva E., '15.....	Shelton
Saunderson, Laura, '15.....	Seattle
Saunderson, Ruth, '14.....	Seattle
Sauter, Jean, '15.....	Seattle
Sauter, R. Marie, '12.....	Seattle
Savage, Anthony, '15.....	Roslyn
Scarff, Lestina Meda, '14.....	Seattle
Schmitz, Emma, '15.....	Seattle
Schmitz, Henry, '15.....	Seattle
Schneider, Hugo H., '12.....	Monroe
Schneider, Rebecca, '12.....	Seattle
Schumacher, Wilhelmina, '13.....	Santa Ana, Cal.
Schwartz, George L., '15.....	Seattle
Scott, Irving H., '15.....	Puyallup
Scott, Oma B., '14.....	Seattle
Semmen, Florence I., '14.....	Aberdeen
Serley, Oscar M., '15.....	Lewiston, Idaho
Seydell, Grace Viola, '14.....	Seattle
Shackleford, Charlotte, '14.....	Tacoma
Shadinger, Gail B., '13.....	Snohomish
Shaff, Louise, '14.....	Lewiston, Idaho
Shanedling, Joseph, '15.....	Vancouver
Shannon, Clare, '15.....	Seattle
Shaw, Ernest T., '12.....	Tacoma
Shaw, G. Cleighton, '15.....	Snohomish
Shawler, Florence, '14.....	Spokane
Shelton, Alice M., '12.....	Seattle
Shelton, Annah L., '13.....	Seattle
Shepard, Sarah, '15.....	Lakeside
Sherman, Florence, '12.....	Seattle
Sherrick, Johnson, '12.....	Edmonds
Shipley, Ethelyn, '15.....	Seattle
Siemens, Margaret, '14.....	Seattle
Sifton, Edith, '15.....	Seattle
Skinner, Helen B., '15.....	Tacoma
Sleicher, R. Ruth, '13.....	Chehalis
Smalley, R. B., '15.....	Seattle
Smith, Bernice E., '14.....	Chelan
Smith, Bess, '14.....	Seattle
Smith, Charles L., '15.....	Auburn
Smith, Charles M., '14.....	Provo, Utah
Smith, Edna N., '15.....	Seattle
Smith, Fern, '14.....	Seattle
Smith, Jay C., '14.....	Seattle

Smith, Lindabel, '15.....	Seattle
Smith, L. Louise, '13.....	Seattle
Smith, Orton A., '15.....	Warden
Smith, Roxy M., '14.....	Seattle
Snow, Myra L., '15.....	Seattle
SoRelle, Vivian, '15.....	Bellingham
Sorensen, Beatrice M., '13.....	Everett
Soule, John A., '13.....	Portage, Mont.
Sowerby, Mina, '14.....	Juneau, Alaska
Sowers, Joe M., '15.....	Seattle
Spannagel, Edna G., '14.....	Spokane
Spaulding, Helen E., '15.....	Seattle
Spencer, Edith, '15.....	Seattle
Spicer, Cecil, '14.....	Portland, Ore.
Springer, Mabel, '15.....	Olympia
Staatz, Karl S., '14.....	Tacoma
Stacy, Eloise, '13.....	North Yakima
Stafford, Charles A., '15.....	Seattle
Stahl, Eleanor E., '14.....	Seattle
Stamey, Myrtle Anone, '15.....	Prosser
Statler, Gladys G., '13.....	Seattle
Stauffer, J. Cassius, '15.....	Waterville
Stebbins, Paul R., '15.....	Tacoma
Steele, Helen, '14.....	Seattle
Stephens, Eleanor S., '14.....	Spokane
Stetson, Harold D., '15.....	Savanna, Ill.
Stevens, Dwight N., '15.....	Crocker's Lake
Stevens, Robert W., '12.....	Seattle
Stevens, William Parberry, '13.....	Portland, Ore.
Stevenson, Janet Elizabeth, '12.....	Seattle
Stilwell, Mrs. Esther Meacham, '15.....	Seattle
Stine, Minnie, '15.....	Hoquiam
St. John, L. H., '14.....	Snohomish
Stone, Frances A., '15.....	Vancouver
Strase, Anna E., '13.....	Seattle
Streeter, Mildred, '14.....	Seattle
Strong, Clara, '14.....	Seattle
Stuart, George P., '14.....	Monroe
Stuart, Mildred M., '15.....	Seattle
Stuchell, Helen, '15.....	Everett
Stuen, Ole, '13.....	Seattle
Sturgis, Cyrus Cressy, '13.....	Pendleton, Ore.
Sullivan, K. Callie, '15.....	Butte, Mont.
Sully, Bernice A., '14.....	Seattle
Sutherland, D'Loss, '15.....	Spokane
Swartz, Florence, '15.....	Granite Falls
Sweeney, Alice Katherine, '15.....	Seattle
Sweet, Elsie S., '14.....	Bellingham
Sweet, Sabra Godfrey, '12.....	Seattle
Swope, Helen, '15.....	Seattle
Tachell, Maude, '15.....	Renton
Talbot, Caroline B., '14.....	Seattle

Talbott, W. Ivan, '14.....	Ellensburg
Tamura, Teijiro, '14.....	Shiga, Japan
Tanner, Beth E., '13.....	Seattle
Taylor, Elizabeth M., '14.....	Seattle
Taylor, Harold B., '14.....	Seattle
Taylor, Howard Hollrod, '13.....	Seattle
Taylor, Laura E., '14.....	Seattle
Taylor, Marion O., '14.....	Tacoma
Taylor, Martha S., '15.....	Seattle
Teel, Gladys A., '12.....	Bellingham
Terry, Clayton A., '15.....	Tacoma
Thaanum, Margaret G., '14.....	Seattle
Thomas, Ellen Anne, '12.....	Seattle
Thomas, Lucile, '15.....	Seattle
Thomas, Maurine, '15.....	Seattle
Thompson, Lucille, '13.....	Tacoma
Thompson, Luciole, '15.....	Seattle
Thompson, Nellie C., '13.....	Everett
Thomson, Marion W., '14.....	Seattle
Thoren, Arnold V. N., '14.....	Seattle
Thorpe, Blanche Marie, '13.....	Ellsworth, Kas.
Thurmond, Viola A., '12.....	Seattle
Tibbits, Edna M., '13.....	Seattle
Tinling, Don K., '15.....	Seattle
Tolhurst, Bessie, '13.....	Livingston, Mont.
Tolman, Leland, '15.....	Spokane
Tomlinson, Louise A., '14.....	Seattle
Tomlinson, Margaret M., '14.....	Seattle
Totten, William Phelps, '14.....	Seattle
Towsley, E. Edna, '12.....	Seattle
Trenholm, Howard Andrew, '15.....	Seattle
Trenholme, Lottie A., '14.....	Seattle
Tretheway, Bessie L., '15.....	Butte, Mont.
Tronsrud, Anna C., '15.....	Kirkland
Truesdell, Gladys E., '13.....	Vancouver
Tsao, Mien, '12.....	Canton, China
Turnbull, George S., '14.....	Seattle
Turner, Ruth, '15.....	Seattle
Turpin, Harold L., '15.....	Seattle
Upper, Barrington M., '15.....	Seattle
Valentine, Mrs. Eulalie B., '13.....	Brussels, Belgium
Valentine, Marguerite, '13.....	Casey, Iowa
VanDyke, John, '15.....	Seattle
Vincent, Ruth V., '15.....	Seattle
Vinsonhaler, Elizabeth, '15.....	Seattle
Wagner, Katharine B., '15.....	Seattle
Wagoner, Ruth M., '14.....	Seattle
Walte, Netta M., '14.....	Seattle
Wallace, Adeline M., '13.....	Bellingham
Wallace, Mary A., '14.....	Seattle
Waller, Philip Robert, '14.....	Seattle
Walsh, Mamie C., '15.....	Wenatchee

Walske, Max C., '15.....	Auburn
Wand, Thomas H., '13.....	Seattle
Wapato, Louie C., '15.....	Chelan
Ward, H. W., '14.....	Centralia
Ward, Mary D., '15.....	Seattle
Ward, Montague R., '15.....	Seattle
Ware, Elsie, '13.....	Seattle
Warren, Anna P., '14.....	Seattle
Waugh, J. Ruggles, '13.....	Seattle
Waynick, Dean D., '14.....	Spokane
Weaver, Ora, '15.....	Myrtle Creek, Ore.
Webb, H. Fay, '15.....	Tacoma
Weber, Horace A., '15.....	Spokane
Wegener, Raymond Arthur, '15.....	Tacoma
Weisfield, Leo, '14.....	Seattle
Welch, Julia, '15.....	Seattle
Welch, V. Olive, '15.....	Tacoma
West, Bonnie Lee, '13.....	Lewiston, Idaho
West, Dorothy, '15.....	Twin Falls, Idaho
West, Irene, '14.....	Seattle
Westaby, Charles H., '15.....	North Yakima
Westberg, Elvira, '15.....	Everett
Westervelt, Margaret, '14.....	Seattle
Wetherby, Loren A., '15.....	Tacoma
Wharton, V. Marie, '13.....	Everett
Wheat, Laura R., '12.....	Seattle
White, Esther, '14.....	Seattle
White, Gerald R., '15.....	Seattle
White, Lena, '15.....	White Horse, Yukon Terr.
White, Marjorie, '15.....	Seattle
White, May, '14.....	Seattle
White, Roy W., '15.....	Seattle
White, Willard D., '15.....	Seattle
Whitham, Ruth E., '12.....	Seattle
Whitlock, Marion A., '15.....	Tacoma
Wiborg, R. A., '15.....	Seattle
Wiburg, Martha, '13.....	Bellingham
Wiester, Grace M., '15.....	Wenatchee
Wight, Ada S. L., '12.....	Seattle
Wilbur, Alvira, '15.....	Seattle
Wilkie, Florence M., '15.....	Seattle
Willard, Gladys F., '14.....	Tacoma
Willard, Richard C., '14.....	Seattle
Wille, Vinnie J., '15.....	Seattle
Wille, Vivian B., '15.....	Seattle
Willemmin, Leon G., '15.....	Portland, Mich.
Williams, Annie J., '15.....	Butte, Mont.
Williams, Charlotte M., '15.....	Seattle
Williams, M. Louise, '15.....	Seattle
Williams, Warner E., '13.....	Seattle
Willis, Ora P., '14.....	Seattle
Willson, Catharine N., '14.....	Seattle

REGISTER OF STUDENTS

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Willson, Lovina, '13.....	Olympia
Wilsey, W. Ralph, '14.....	Asotin
Wilson, Frank T., '13.....	Ellensburg
Wilson, Harry, '15.....	Vancouver, B. C.
Wilson, Isabel M., '15.....	Seattle
Wilson, John Newton, '15.....	Seattle
Wilson, Marie H., '14.....	Seattle
Wilson, Maud, '14.....	Seattle
Wilson, Ralph R., '13.....	Ellensburg
Wilson, T. Burl, '15.....	Burlington
Windust, Marie, '13.....	Dayton
Wingate, Alma Martha, '12.....	Seattle
Winter, H. Earle, '14.....	Everett
Witteman, Ida R., '13.....	Seattle
Woelffen, Frederick A., '14.....	Lewiston, Idaho
Woods, Arra, '15.....	Seattle
Worden, Will, '15.....	Post Falls, Idaho
Worsham, Edwin Hodge, '15.....	Evansville, Ind.
Worthington, Grace, '15.....	Quilcene
Wright, I. Fayette, '12.....	Seattle
Wright, H. Garner, '14.....	Seattle
Wright, June M., '14.....	Tacoma
Wright, Robert C., '15.....	Seattle
Yagy, James R., '15.....	Seattle
Yerger, Bessie Pearl, '15.....	Seattle
Young, George E., '15.....	Sumner
Young, Gertrude M., '14.....	Seattle
Younger, J. Arthur, '15.....	Kirkland
Yontz, Mrs. May Pardee, '12.....	Seattle
Zinkie, Marjorie J., '14.....	Seattle

COLLEGE OF ARTS AND SCIENCES

UNCLASSIFIED STUDENTS

<i>Name of Student and Rank</i>	<i>Home Address</i>
Adams, Sherred W., Sp.....	Seattle
Allen, Mildred A., Ext.....	Seattle
Allen, Zelda Esther, Ext.....	Seattle
Anderson, Katharine, Ext.....	Stanwood
Anderson, Pearl E., Sp.....	Spokane
Anthony, Julia E., Ext.....	Seattle
Arnold, E. Rosena, Ext.....	Seattle
Austin, Fannie M., Ext.....	Bellingham
Austin, George R., Ext.....	Seattle
Avery, Edna I., Ext.....	Seattle
Ayers, Jessie C., Sp.....	Seattle
Bachmann, Rose M., Sp.....	Seattle
Bain, Lois, Sp.....	Portland, Ore.
Baker, Elmyra, Sp.....	Seattle
Baksh, Elahi, Sp.....	Seattle
Barnhard, Emma C., Ext.....	Tacoma
Barrett, Emma B., Ext.....	Seattle

Bassetti, Fred M., Sp.....	Turin, Italy
Benham, Bess, Ext.....	Shelby, Iowa
Bennett, Mary J., Sp.....	Seattle
Berkley, Grace E., Ext.....	Tacoma
Birkman, Agnes, Ext.....	Seattle
Blackmore, Beulah, Ext.....	Tacoma
Bleyker, Mary, Ext.....	Tacoma
Blough, Allie, Ext.....	Seattle
Bolles, William B., Ext.....	Seattle
Borst, Anna B., Ext.....	Peru, Nebr.
Botton, Mrs. Margaret C. M., Sp.....	Seattle
Bowlby, Mary, Sp.....	Seattle
Brewer, Mary A., Ext.....	Tacoma
Britten, Hazel F., Sp.....	Seattle
Brooke, Sallie, Ext.....	Tacoma
Brown, Helen Ruth, Sp.....	Valdez, Alaska
Bryan, Clara M., Ext.....	Seattle
Burcham, Stella S., Sp.....	Seattle
Burns, Anna E., Sp.....	Seattle
Burr, Margaret, Ext.....	Seattle
Burgess, D. Cecilia, Ext.....	Tacoma
Burhaus, Lina, Ext.....	Tacoma
Burns, Omar Allen, Ext.....	Seattle
Burmer, Eva H., Ext.....	Tacoma
Byerly, Marian, Ext.....	Seattle
Cahall, Mrs. Ora Dell, Sp.....	Seattle
Carson, Mrs. Rose B., Sp.....	Seattle
Case, Charles Albert, Sp.....	Tacoma
Caskin, Ivanilla, Ext.....	Seattle
Caughey, Lois E., Ext.....	Seattle
Chatham, Virginia, Sp.....	Seattle
Chesney, Bertha Winifred, Ext.....	Tacoma
Chratham, Selma, Ext.....	Tacoma
Clark, Alice Edith, Ext.....	Hanford
Clark, Leta, Sp.....	Warrensburg, Mo.
Clifton, Lois, Ext.....	Tacoma
Cooper, Mary B., Ext.....	Seattle
Cooper, Mrs. G. W., Ext.....	Tacoma
Corbett, Nora M., Ext.....	Seattle
Corgiat, Stephen A., Sp.....	Berkeley, Cal.
Cosher, Elizabeth M., Ext.....	Seattle
Coulon, Agnes, Ext.....	Seattle
Couture, Agnes, Sp.....	Litchfield, Minn.
Cowen, Anna, Ext.....	Tacoma
Cowen, Mary S., Ext.....	Tacoma
Crawford, Samuel Leroy, Sp.....	Fairbanks, Alaska
Cross, Irene M., Ext.....	Seattle
Culver, Ida, Ext.....	Holdenville, Okla.
Cunningham, Gertrude, Ext.....	Tacoma
Cutter, Elmina I., Ext.....	Tacoma
Cwake, Margaret M., Ext.....	Tacoma
Dahl, Florence, Ext.....	Seattle

Dally, Marie E., Ext.....	Tacoma
Darrow, Lillian, Ext.....	Tacoma
Darrow, Retta, Ext.....	Tacoma
Davidson, Harriet M., Ext.....	Tacoma
Davidson, Ivy I., Ext.....	Tacoma
Davis, Malcolm L., Sp.....	Sheridan, Ind.
Dawson, Grace E., Sp.....	Seattle
Denniston, Emma M., Ext.....	Seattle
Denniston, Mary E., Ext.....	Manchester
DeReamer, Teresa V., Ext.....	Tacoma
Dickson, John C., Ext.....	Seattle
Dolloff, Hattie C., Ext.....	Tacoma
Donoghue, Lucy Catherine, Ext.....	Seattle
Drake, Nellie G., Ext.....	Delavan, Wis.
Drips, Will E., Sp.....	Olympia
Dunn, Elizabeth M., Ext.....	Tacoma
Duskin, Bernard S., Ext.....	Seattle
Eaton, Delmar Rosalind, Ext.....	Seattle
Eaton, Mary M., Ext.....	Tacoma
Eisentraut, Dora Alice, Ext.....	Seattle
Ellsworth, Isabella, Ext.....	Tacoma
Erchinger, Hazel H., Ext.....	Tacoma
Essberg, David, Sp.....	Gothenburg, Sweden
Ferree, Nita J., Ext.....	DeWitt, Iowa
Fish, Rev. Edw. B., Sp.....	Seattle
Fletcher, W. O., Ext.....	Seattle
Flink, Edith M., Ext.....	Tacoma
Forsythe, Mell, Ext.....	Tacoma
Fowler, Marguerite E., Sp.....	Seattle
Fraser, Mabel, Sp.....	Port Blakeley
Freer, Grant B., Sp.....	Seattle
French, Mrs. Jennie M., Ext.....	Tacoma
Friars, Mrs. R. E., Ext.....	Tacoma
Fulcher, Mrs. Ida M., Sp.....	Nashville, Tenn.
Gahogan, Lillian M., Ext.....	Tacoma
Gaiser, John G., Ext.....	Tacoma
Garlick, Wynne Norton, Ext.....	Tacoma
Garretson, Henry M., Ext.....	Tacoma
Gibson, Clayton Edgar, Ext.....	Seattle
Gist, Arthur S., Ext.....	Seattle
Grafton, Clara Agnes, Sp.....	Seattle
Gregory, Mrs. Morton, Ext.....	Tacoma
Griffin, Jessie R., Ext.....	Tacoma
Griffith, Donna E., Ext.....	Tacoma
Gruell, Edna, Ext.....	Seattle
Hall, May, Ext.....	Tacoma
Hamburg, Thea, Sp.....	Germany
Hammond, Carrie, Ext.....	Tacoma
Hannibal, Harold, Sp.....	San Jose, Cal.
Harding, Helen T., Sp.....	Seattle
Hartman, Harold, Sp.....	Seattle

Hartman, H. Mae, Ext.....	Seattle
Hatch, Harriet, Ext.....	Tacoma
Haus, Emily, Ext.....	Chico
Hay, Reuben, Ext.....	Tacoma
Headington, Mrs. Laura M., Sp.....	Spokane
Heaton, Edna, Sp.....	Seattle
Henderson, George C., Sp.....	Medford, Ore.
Henry, Margie, Ext.....	Tacoma
Hill, Athel G., Ext.....	Puyallup
Hill, Ida, Ext.....	Tacoma
Hoover, Ralph L., Sp.....	Hoquiam
Hopkins, Ella R., Ext.....	Des Moines, Iowa
Hopkins, Frances M., Ext.....	Des Moines, Iowa
Hornibrook, Sadie, Sp.....	Goldendale
Howard, Harlow E., Ext.....	Seattle
Hudson, Mrs. Blanche, Ext.....	Tacoma
Huelsdonk, Mrs. Gertrude, Sp.....	Seattle
Huggett, Ruth, Ext.....	Ashby, Miss.
Hunt, Charlotte R., Ext.....	Seattle
Irwin, Mary Jane, Ext.....	Tacoma
Iverson, Anna, Ext.....	Olympia
Jackson, Margareta E., Sp.....	Seattle
Jaquins, Luella, Sp.....	Riverside, Cal.
Jerdee, Inger C., Sp.....	Kiesling
Johnson, Addie C., Ext.....	Tacoma
Johnson, Edith, Ext.....	Tacoma
Johnson, Lida M., Ext.....	Dixon, Ill.
Jones, Clinton W., Sp.....	Tacoma
Jones, Eva G., Ext.....	Tacoma
Joyce, Mabel A., Ext.....	Seattle
Judd, Mrs. Anna P., Ext.....	Tacoma
Kane, Mrs. Susan M., Sp.....	Seattle
Kelley, Grace M., Ext.....	Tacoma
Kelly, Richard P., Ext.....	Tacoma
Kemper, Mrs. Augusta H., Ext.....	Seattle
Kennedy, Nellie May, Ext.....	Tacoma
Kennedy, Stella E., Sp.....	Seattle
Knapton, M. Alice, Ext.....	Seattle
Kniseley, J. M., Ext.....	Seattle
Krikos, Alex., Sp.....	Seattle
Krishna, R., Sp.....	India
Langtry, Florence N., Ext.....	Seattle
LaPrad, Elspeth, Ext.....	Tacoma
Lange, Edward G., Ext.....	Tacoma
Lawatschek, Elly W., Sp.....	Seattle
Lee, Nellie, Ext.....	Tacoma
LeMay, Ray B., Ext.....	Homer, Minn.
Lentz, Katherine, Sp.....	Marietta, Ohio
Lenzen, Mayme, Ext.....	Chicago, Ill.
Leim, Stella Bangs, Ext.....	Tacoma
Loveless, Frances B., Ext.....	Seattle

Lynch, Agnes, Ext.....	Weiser, Idaho
McCall, M. Pearl, Sp.....	Fairfield, Ill.
McClure, Mary E., Sp.....	Seattle
McCullins, Clara, Ext.....	Seattle
McCrimmon, Charles Hugh, Sp.....	Butte, Mont.
McCulloch, Isabel, Ext.....	Seattle
McDonnell, Alberta, Ext.....	Tacoma
MacFarland, Winifred, Ext.....	Tacoma
McIntosh, Isabel, Ext.....	Des Moines, Iowa
McMurtrie, Bertie, Ext.....	Tacoma
McNett, Frank Everett, Sp.....	Chelan
Mallett, Alice, Sp.....	Ontario, Ore.
Mann; Boyd U., Sp.....	Seattle
Marble, Frank A., Sp.....	Seattle
Marston, C. May, Ext.....	Seattle
Martin, Mary B., Ext.....	Tacoma
Maxam, Elsie, Ext.....	Tacoma
Mero, Louise, Sp.....	Seattle
Mierswa, Clara, Ext.....	Tacoma
Miller, Belle, Sp.....	Sabetha, Kas.
Miller, Hortense V., Sp.....	Seattle
Miller, Sidney R., Sp.....	Seattle
Millican, Alfred Clay, Ext.....	Seattle
Minton, Mary A., Ext.....	Tacoma
Misrow, Jogesh Chander, Sp.....	Calcutta, India
Mitchell, Ethel, Ext.....	Tacoma
Mitchell, James Buckley, Ext.....	Tacoma
Moore, Rolla W., Ext.....	Indianapolis, Ind.
Mott, Zurah Jean, Ext.....	Seattle
Nachant, Mrs. Frances, Sp.....	Seattle
Nachtsheim, Louise Agnes, Ext.....	Tacoma
Nakamura, Juro, Sp.....	Kochiken, Japan
Negley, Hulda P., Ext.....	Seattle
Nelson, Ethel, Ext.....	Tacoma
Nelson, Laura, Ext.....	Norman
Nelson, Stanley A., Sp.....	Seattle
Noel, Jacqueline, Ext.....	Tacoma
Norton, Parker L., Sp.....	Kingfield, Maine
Nourse, Joseph D., Sp.....	Tacoma
Nutley, Minnie A. E., Ext.....	Tacoma
Oakley, Enola I., Ext.....	Seattle
Oakley, Mary, Ext.....	Seattle
Olsan, William David, Ext.....	Elma
Osgood, Mrs. Etta Haley, Sp.....	Philadelphia, Penn.
Osmond, Edith F., Ext.....	Tacoma
Osmond, Louise M., Ext.....	Tacoma
Patton, Gypsie N., Ext.....	Tacoma
Pearce, Stella E., Ext.....	Seattle
Peck, Mrs. Charlotte G., Sp.....	Orange, Conn.
Perin, Melva, Ext.....	Tacoma
Perkins, Lola I., Ext.....	Tacoma

Peters, Harold E., Sp.....	South Bend
Peterson, Elma M., Ext.....	Seattle
Peterson, Florence E., Ext.....	Tacoma
Phelps, Harriett N., Ext.....	Tacoma
Pletke, Ella V., Ext.....	Tacoma
Poage, William Courtney, Ext.....	Tacoma
Polly, Elizabeth A., Ext.....	Tacoma
Pollock, William G., Sp.....	Summerland, B. C.
Porter, Jean, Ext.....	Seattle
Powell, Mrs. Mary, Ext.....	Tacoma
Prichard, Caroline Louise, Ext.....	Tacoma
Pritchard, Frank A., Sp.....	Seattle
Randall, Vernon A., Sp.....	Tacoma
Reid, Jane F., Ext.....	Tacoma
Reif, Lucy M., Ext.....	Tacoma
Rockford, Lelah, Sp.....	Seattle
Rose, Bertha, Ext.....	Tacoma
Ross, Hugh C., Sp.....	Seattle
Rust, Mary A., Ext.....	Tacoma
Ryder, Carolyn, Ext.....	Tacoma
Sanders, Gertrude E., Ext.....	Seattle
Sawyer, Dalza, Ext.....	Tacoma
Scally, Camille W., Sp.....	Seattle
Schiemann, Elsie, Sp.....	Kirkland
Scholes, Emma D., Ext.....	Tacoma
Scholes, Josephine T., Ext.....	Tacoma
Scholes, Marion E., Ext.....	Tacoma
Scholes, Stella, Ext.....	Tacoma
Searing, Katharine S., Sp.....	Seattle
Severance, Martha, Ext.....	Tacoma
Seymour, Charlotte, Sp.....	Seattle
Sheer, Mary A., Sp.....	Seattle
Simmons, Anna L., Ext.....	Seattle
Simmons, Elma, Ext.....	Seattle
Simmons, Mary, Ext.....	Seattle
Smith, Bertha Stewart, Ext.....	Seattle
Smith, Edna, B., Ext.....	St. Joseph, Mich.
Smith, Julia F., Ext.....	Tacoma
Smith, M. Adelaide, Ext.....	Tacoma
Smith, P. Charles, Sp.....	San Jose, Cal.
Smith, Verna E., Ext.....	Montezuma, Iowa
Sorenson, Sara B., Ext.....	Seattle
Sperlin, Ottis B., Ext.....	Tacoma
Stanley, B. Mable, Sp.....	Seattle
Stanley, Winfield J., Ext.....	Tacoma
St. John, James Irving, Sp.....	Snohomish
Stone, Ella Gertrude, Sp.....	Seattle
Stone, Emma D., Ext.....	Clinton, Iowa
Stuart, Mrs. Harry, Ext.....	Tacoma
Sutton, Chloe, Sp.....	Port Orchard
Suwalsky, Augusta, Ext.....	Seattle

Talcott, A. Newell, Sp.....	Seattle
Tanaka, Torao, Sp.....	Matsumoto, Japan
Thomas, M. Adelaide, Ext.....	Seattle
Thomas, Mary Esther, Ext.....	Seattle
Thompson, Grace Ella, Ext.....	Tacoma
Thorpe, Ray, Sp.....	Ellsworth, Kas.
Tower, Nellie B., Sp.....	Marshfield, Ore.
Tripler, Mrs. Emma S., Ext.....	Tacoma
Trumbull, Frances J., Sp.....	Seattle
Tucker, Edith A., Ext.....	Seattle
Turner, Pauline E., Ext.....	Bremerton
Tyler, M. Estella, Ext.....	Seattle
Udall, Mrs. Nina Powell, Ext.....	Tacoma
Unger, Nell A., Ext.....	Tacoma
Unthank, Minnie, Ext.....	Tacoma
Vaill, Mabel, Sp.....	Seattle
VanAmburgh, Harriette, Sp.....	Kansas City, Mo.
Vandercook, Anna, Ext.....	Tacoma
VanLaningham, Clara Mildred, Sp.....	Seattle
Van Winkle, Marjorie E., Sp.....	Issaquah
Walker, Ruth, Ext.....	Seattle
Walsted, Mary B., Ext.....	Crookston, Minn.
Wayne, Leah J., Ext.....	Tacoma
Wellman, Homer Dudley, Sp.....	Chelan
Wente, Olive, Sp.....	Manistee, Mich.
Whittier, Irma, Sp.....	Riverton
Wilkinson, Madge W., Sp.....	Port Blakeley
Williamson, Harry L., Sp.....	Bellingham
Wilson, Lena E., Ext.....	Tacoma
Wiltheis, M. Statira, Sp.....	Seattle
Wineland, M. Maude, Ext.....	Tacoma
Withers, Mrs. Guy, Ext.....	Tacoma
Wood, Dorcas J., Ext.....	Tacoma
Yamane, Masuo, Sp.....	Seattle
Zastavinikovic, Karola de, Sp.....	Seattle
Zaugg, Flora, Ext.....	Tacoma
Zimmerman, Mrs. Mollie B., Sp.....	Seattle
Zinn, George J., Sp.....	Seattle

COLLEGE OF ENGINEERING

ABBREVIATIONS

CLASSES

'12 Senior

'13 Junior

'14 Sophomore

'15 Freshman

COURSES

C. E. Civil Engineering

E. E. Electrical Engineering

M. E. Mechanical Engineering

Ch. E. Chemical Engineering

*Name of Student, Rank and Department**Home Address*

Ames, Chester R., '15, M. E.	Sedro Woolley
Anderson, C. Walter, '14, C. E.	Seattle
Anderson, Edwin C., '14, C. E.	Seattle
Anderson, Juanita A., '14, C. E.	Kirkland
Anderson, Woodworth, '15, M. E.	Seattle
Ashim, Leland E., '14, E. E.	Seattle
Astel, George B., '15, E. E.	Stanwood
Baer, Harold E., '13, E. E.	Seattle
Barash, Sidney P., '14, E. E.	Seattle
Bardin, Harry M., '14, E. E.	Kalispell, Mont.
Barlow, Russell C., '15, C. E.	Tacoma
Bash, F. Edwin, '15, Ch. E.	Seattle
Batchelder, Harold S., '15, Ch. E.	Spokane
Baumgartner, M. Earl, '14, C. E.	Seattle
Bean, Ellis H., '14, C. E.	Portland, Ore.
Beltz, Cris E., '15, M. E.	Aberdeen
Bessesen, Ben B., '14, E. E.	Toppenish
Betterton, Cherrill R., '15, C. E.	Victoria, B. C.
Bigelow, Paul T., '14, E. E.	Edmonds
Bird, Louis L., '15, E. E.	Seattle
Bissell, Adison G., '15, Ch. E.	Tacoma
Blair, Homer O., '13, E. E.	Tacoma
Bliss, J. Bernard, '13, E. E.	Seattle
Bond, Clarke, '14, E. E.	Seattle
Bowen, Hiram, '14, E. E.	Raymond
Bowman, Blaine, '15, M. E.	Tacoma
Bradford, Alford J., '14, C. E.	Seattle
Bringhurst, Horace M., '12, C. E.	Seattle
Brokaw, Clyde W., '15, C. E.	Stanwood
Brooks, Donald B., '14, Ch. E.	Pasadena, Cal.
Brown, Earle T., '13, E. E.	Centrallia
Brown, Herbert, '15, E. E.	Custer
Burbank, Sidney R., '15, E. E.	Seattle
Burns, Alfred A., '15, C. E.	Seattle
Bush, George P., '15, E. E.	Seattle
Callard, N. Harding, '15, E. E.	Seattle
Cameron, James F., '15, C. E.	Seattle
Campbell, Kenneth, '15, C. E.	Bellingham
Canright, Jesse T., '14, C. E.	St. Johns, Ore.
Carr, Ernest C., '15, E. E.	Seattle
Chapman, Asa B., '13, C. E.	Seattle
Chilberg, Lawrence J., '15, E. E.	Mt. Vernon

Chin, Ham Kee, '15, C. E.	Seattle
Chouinard, William J., '13, C. E.	Everett
Churchill, Charles H., '14, E. E.	Friday Harbor
Cleaves, Harold E., '12, Ch. E.	Seattle
Collier, Ira L., '14, C. E.	Wenatchee
Colvin, Harvey, '15, C. E.	Roza
Conley, Benjamin P., '15, Ch. E.	Seattle
Conner, Elmer A., '12, C. E.	Seattle
Cook, Elias Columbus, '15, C. E.	Edmonds
Conner, Ray C., '15, M. E.	Tacoma
Coy, Roy, '13, E. E.	Seattle
Cragan, Calvin, '15, C. E.	Idaho Falls, Idaho
Craig, Charles Henry, '15, C. E.	Clarkston
Crites, H. Newton, '14, Ch. E.	Bellingham
Dana, Clyde A., '15, C. E.	Seattle
Dana, Forest C., '14, C. E.	Seattle
Daniels, Noah Aaron, '15, C. E.	Seattle
Danner, Albert L., '14, E. E.	Seattle
Darland, Alvin F., '14, E. E.	Tacoma
Darrin, Marc, '12, Ch. E.	Bellingham
Davis, Cecil C., '15, C. E.	Seattle
Dean, Chester, '14, C. E.	Hoquiam
DeMoss, Sam, '14, C. E.	Seattle
Denham, Emerson P., '15, E. E.	Seattle
Derham, Peter F., '15, E. E.	Pocatello, Idaho
Devine, Richard, '15, E. E.	Pendleton, Ore.
Dickinson, Raymond E., '15, C. E.	Bellingham
Dingwall, James A., '14, E. E.	Drummond, Mont.
Dodds, John Milton, '15, E. E.	Seattle
Dow, A. Jay, '14, C. E.	Seattle
Drips, Arthur N., '14, E. E.	Olympia
Driscoll, Thomas, Jr., '14, C. E.	Bremerton
Drummond, Wallace G., '15, C. E.	Seattle
Dudley, William Lyle, '12, M. E.	Seattle
Dunlap, Clarence, '12, M. E.	LaConner
Eakins, M. R., '14, C. E.	Seattle
Eernisse, J. Guy, '14, M. E.	Vashon
Ericson, Carl F., '15, C. E.	Seattle
Erickson, George L., '15, M. E.	Seattle
Eshelman, Wallace C., '14, Ch. E.	Seattle
Evans, Donald H., '13, C. E.	Seattle
Faas, John Casper, '15, Ch. E.	Seattle
Fallis, Robert Marshall, '15, E. E.	Spirit Lake, Idaho
Farmer, Albert M., '14, C. E.	Seattle
Faulkner, Ralph B., '15, E. E.	Aberdeen
Fenton, Arthur R., '14, M. E.	Seattle
Fifer, Walter, '14, E. E.	Seattle
Finch, J. Leslie, '15, M. E.	Boise, Idaho
Fistadt, Hugh A., '13, C. E.	Caruthersville, Mo.
Flagg, A. Tremayne, '15, C. E.	Seattle
Flagg, Herbert J., '12, C. E.	Seattle
Fleischhauer, J. Harold, '15, C. E.	Seattle

Flodin, John, '13, M. E.	Seattle
Foran, Harold G., '15, C. E.	Montera
Forbes, F. Barstow, '13, E. E.	Seattle
Fotheringham, Gay, '15, C. E.	Seattle
Fox, Frank G., '14, M. E.	Brant, Alta
Frankland, James, '14, C. E.	Seattle
French, Boyd E., '13, E. E.	Cashmere
Germond, Ray, '15, E. E.	Menlo
Gilkey, Frank, '14, C. E.	Edison
Goldsmith, Edward D., '14, Ch. E.	Puyallup
Goodfellow, James B., '15, M. E.	Seattle
Goodfellow, William Forrest, '15, M. E.	Seattle
Gordon, Claude P., '14, E. E.	Bellevue
Grady, Roger J., '14, E. E.	Oklahoma City, Okla.
Green, Lloyd W., '15, C. E.	Spokane
Greene, Roy L., '12, C. E.	Centralia
Greene, Taylor M., '14, M. E.	Seattle
Griffith, H. Maynard, '14, C. E.	Seattle
Guernsey, Harold J., '15, Ch. E.	Prosser
Guha, Dakshina Ranjan, '14, M. E.	Seattle
Hadeen, Edward A., '15, C. E.	Seattle
Harlow, Robert, '14, M. E.	Portland, Ore.
Hart, Stadden S., '15, M. E.	Seattle
Hartman, Dwight, '12, M. E.	Seattle
Hartson, Joseph Tracy, '14, C. E.	Tacoma
Hassenmiller, Wilford S., '12, C. E.	North Yakima
Hawley, Don M., '14, M. E.	Seattle
Hawthorne, George E., '14, C. E.	Seattle
Hazelet, Craig P., '14, C. E.	Cordova, Alaska
Hazelton, Harry B., '14, M. E.	Bellingham
Hedlund, David Arthur, '13, C. E.	Spokane
Herrick, John S., '13, Ch. E.	Seattle
Higgins, William Stephen, '15, C. E.	Davenport
Hill, Norman, '15, C. E.	Port Townsend
Hinton, Warren D., '15, C. E.	Seattle
Hoover, Russell, '15, C. E.	Hoquiam
Hopkins, Hubert V., '14, Ch. E.	Seattle
Hougen, Olav A., '15, Ch. E.	Tacoma
Houlahan, Francis L., '15, Ch. E.	Seattle
Howard, A. Leighton, '14, Ch. E.	Bellevue
Howard, Henry C., Jr., '14, Ch. E.	Seattle
Howe, William Bell White, '15, M. E.	Seattle
Huestis, Robert, '14, C. E.	Seattle
Hughes, Guy F., '15, E. E.	Endicott
Hunt, George Elwood, '14, C. E.	Seattle
Hutchinson, Thomas M., '14, C. E.	Seattle
Hutton, William L., '13, M. E.	Portland, Ore.
Izumi, Ichisaburo, '13, E. E.	Seattle
Jacobs, George E., '15, M. E.	Puyallup
Jahn, Emil C. B., '15, C. E.	Davenport
Jaxthelmer, Don C., '15, C. E.	Everett
Johnson, Ruben E., '15, M. E.	Tacoma

Jones, M. Luther, '13, E. E.	Seattle
Joubert, Lloyd P., '15, E. E.	Enumclaw
Kaneko, Takayoshi, '13, Ch. E.	Achigasaki, Japan
Keeler, Otis E., '14, E. E.	Seattle
Kelliher, John W., '14, M. E.	Ilwaco
Kellogg, Ruth, '15, C. E.	Wenatchee
Kendall, Percy, '15, C. E.	Port Orchard
Kerry, Harold E., '14, C. E.	Seattle
Kilbourne, Kenneth A., '15, E. E.	Seattle
King, George H., Jr., '14, C. E.	Seattle
Kirschner, Karl K., '15, M. E.	Seattle
Kittredge, Frank A., '12, C. E.	Seattle
Koehler, Ben A., '13, C. E.	Wenatchee
Koren, Walter A., '13, M. E.	Spokane
Kuga, Kohei, '14, E. E.	Seattle
Lamb, Earl Frederick, '15, E. E.	Toppenish
Land, Paul C., '15, C. E.	Seattle
Lane, John W., '14, Ch. E.	Seattle
Lee, Robert E., '15, M. E.	Colville
Lew, Don G., '15, C. E.	Seattle
Lew, Soun H., '15, M. E.	Seattle
Lewis, Isaac I., '14, Ch. E.	Naches
Lieben, Howard C., '14, C. E.	Seattle
Lincoln, Rolland W., '14, C. E.	Seattle
Little, Horace S., '15, E. E.	Vancouver, B. C.
Livingston, Larry F., '14, Ch. E.	Seattle
Love, William D., '14, M. E.	Seattle
McAbee, Ralph B., '15, C. E.	Seattle
McCaustland, Gwynne G., '15, C. E.	Seattle
McChesney, Donald F., '15, M. E.	Seattle
McCoombs, John, '15, C. E.	Seattle
McCormick, W. Flavius, '15, E. E.	Mt. Vernon
McCoy, Ray, '13, E. E.	Seattle
McDougall, Roy S., '15, M. E.	Seattle
McGillicuddy, Jerry A., Jr., '15, C. E.	Aberdeen
McIntyre, Harry J., '15, M. E.	Metaline Falls
McIntyre, Syd, '15, M. E.	Sedro Woolley
McMorris, Alfred W., '15, C. E.	Seattle
McNeill, Kenneth B., '15, C. E.	Montesano
McRobbie, Henry William, '14, E. E.	Seattle
Maass, John Lyman, '13, E. E.	Seattle
Mabee, George E., '15, C. E.	Seattle
Mansfield, Austin G., '12, C. E.	Bellingham
Manson, Harry E. P., '14, C. E.	Dockton
Marble, Ivan C., '15, C. E.	Seattle
Marcy, Charles G., '15, E. E.	Montesano
Marsh, Louis, '15, M. E.	Kirkland
Martin, Walter G., '14, C. E.	Wapato
Marts, Hazlett B., '14, C. E.	Wichita, Kas.
Maryatt, Roy, '15, E. E.	Seattle
Masako, Juro Frank, '15, C. E.	Seattle
Matson, Herman Albert, '14, M. E.	Bellingham

Matzger, G. Waite, '14, M. E.....	Dayton
Maxwell, Wallace, '13, M. E.....	Seattle
Mead, Donald G., '15, M. E.....	Everett
Miller, E. Clarence, '14, E. E.....	Seattle
Milton, Earl W., '15, E. E.....	Sunnyside
Momb, James P., '14, C. E.....	Seattle
Morgan, Evan, '15, C. E.....	Seattle
Mori, Nathaniel R., '15, E. E.....	Seattle
Morrison, Ray R., '14, E. E.....	Wenatchee
Mullen, Roger B., '12, E. E.....	Lakebay
Murphy, J. Clark, '15, C. E.....	Nampa, Idaho
Naber, Alexander H., '12, C. E.....	Mansfield
Nakasawa, George K., '15, E. E.....	Niigata, Japan
Nelson, Wendell M., '12, E. E.....	Seattle
Newberry, A. Percival, '13, E. E.....	Kirkland
Newell, Pearl, '14, C. E.....	Seattle
Noble, George B., '14, E. E.....	Tacoma
Olson, Oscar A., '14, C. E.....	Brooklyn, N. Y.
O'Meara, John D., '15, C. E.....	Seattle
Oppermann, Conrad J., '15, C. E.....	Tacoma
Osborne, Edward G., '15, C. E.....	Bellingham
Osterberg, A. Erwin, '15, Ch. E.....	Seattle
Palmer, George S., '13, E. E.....	Ellensburg
Park, Quails W., '14, M. E.....	Seattle
Pease, Eugene I., '12, E. E.....	Tacoma
Pederson, Edward A., '14, E. E.....	Port Blakeley
Perry, Edgar R., '13, E. E.....	Seattle
Perry, Edward P., '15, E. E.....	Outlook
Peters, Frank W., '13, E. E.....	Seattle
Peters, Howard W., '14, C. E.....	Bellingham
Phelps, Klein, '14, C. E.....	Tacoma
Polson, Albert W., '15, E. E.....	Mt. Vernon
Post, Frank B., '13, E. E.....	Seattle
Potter, Lionel W., '15, C. E.....	Seattle
Pullen, Royal R., '12, M. E.....	Skagway, Alaska
Purdy, Frank M., '14, C. E.....	Tacoma
Rader, Ray, '14, E. E.....	Oakland, Ore.
Range, Walker, '12, C. E.....	Seattle
Rapp, Albert F., '15, C. E.....	Seattle
Rathvon, Haldy, '14, M. E.....	Marysville
Reierson, Thomas, '14, M. E.....	Portland, Ore.
Rengstorff, Erwin Henry, '15, E. E.....	Enumclaw
Reynolds, Arnold Charles, '12, C. E.....	Seattle
Rhodes, Amos W., '15, C. E.....	Centralia
Rhodes, Charles L., '15, E. E.....	Seattle
Rich, Wilson Atkinson, '15, E. E.....	Port Townsend
Ricksecker, Harris, '15, C. E.....	Seattle
Ridenour, Emsley M., '15, Ch. E.....	Seattle
Roberts, C. Rodney, '12, C. E.....	Seattle
Robinson, Ralph C., '15, C. E.....	Seattle
Robinson, Wilber H., '15, E. E.....	Spokane
Roe, Arthur O., '14, M. E.....	Everett

Rogers, Foy O., '13, E. E.	Centralia
Rose, Albert C., '14, C. E.	Seattle
Royal, J. Millard, '14, M. E.	Skagway, Alaska
Ruggles, William Walker, '14, C. E.	Seattle
Russell, Edgar F., '14, M. E.	Seattle
Salto, Nohichiro, '14, Ch. E.	Gunma, Japan
Sakuma, Jiro, '15, E. E.	Saga, Japan
Sanborn, Henry R., '15, M. E.	Seattle
Schively, Edward Dixon, '15, M. E.	Olympia
Schreuder, Otis, '15, M. E.	Seattle
Schulze, Benjamin F., '15, E. E.	Seattle
Schwabland, George, '13, Ch. E.	Seattle
Scott, Earle, '15, C. E.	Seattle
Shanley, Earl, '15, E. E.	Bellingham
Shave, S. Richard, '12, E. E.	Seattle
Shaw, Melvin C., '14, M. E.	Arletta
Smith, Corwin Day, '13, Ch. E.	Seattle
Smith, Frederick J., '15, E. E.	Seattle
Smith, George S., '14, E. E.	Centralia
Smith, Roy E., '12, C. E.	Bannock, Idaho
Smith, William D., '12, C. E.	Seattle
Snoddy, Benjamin L., '15, E. E.	Arlington
Sorensen, Bert, '14, E. E.	Bellingham
Sorensen, Edgar P., '15, M. E.	Bellingham
Sparger, Fred R., '14, C. E.	Seattle
Spencer, Roscoe D., '15, C. E.	Thatcher
Spicer, C. Lewis, '15, M. E.	Camas
Stanwick, Charles A., '13, E. E.	Seattle
Starkey, Frank W., '15, C. E.	Seattle
Starr, Truman, A., '14, C. E.	Auburn
Stetson, Harold D., '15, C. E.	Savanna, Ill.
Stending, Paul H., '15, C. E.	Walla Walla
Stewart, Alexander D., '15, C. E.	Richmond Beach
Stillson, George H., '13, Ch. E.	Seattle
Stocking, Frank M., '15, C. E.	Olympia
Stoppelman, Fred Henry, '14, E. E.	South Bend
Strandberg, Arthur M., '15, C. E.	Seattle
Strandberg, Edwin L., '14, C. E.	Seattle
Strandberg, C. Henry, '15, C. E.	Seattle
Stutevoss, Albert H., '15, M. E.	Seattle
Swanson, Sigurd, '14, C. E.	Port Ludlow
Swartz, Albert William, '13, C. E.	Granite Falls
Swartz, Leo, '13, C. E.	Granite Falls
Sylliaasen, Melvin O., '13, C. E.	Seattle
Tegtmeyer, Arthur W., '14, C. E.	Sunnyside
Thwing, Edward Payson, '14, E. E.	Seattle
Tottory, Satoshi, '13, E. E.	Seattle
Towne, Josiah M., '15, M. E.	Seattle
Tremper, Bailey, '14, Ch. E.	Seattle
Tripple, George, '13, E. E.	Seattle
Tuttle, Walter W., '15, E. E.	Harper
Upper, Ewart, S., '14, E. E.	Orillia

Upton, William B., '13, C. E.	Seattle
Vaille, Frank, Jr., '14, C. E.	Seattle
VanHorn, Robert, '15, C. E.	Seattle
VanZandt, John Parker, '15, E. E.	Seattle
Viele, Morris M., '13, C. E.	Orillia
Vierhus, Alexander McK., '15, E. E.	Everett
Waite, Clement, '12, C. E.	Vancouver
Walker, Fred S., '15, E. E.	Delta, Colo.
Waller, Harold H., '13, C. E.	Seattle
Walsh, Francis, '13, E. E.	Portland, Ore.
Walsh, Gerald Roland, '14, C. E.	Tacoma
Warner, Edgar L., '15, E. E.	Weiser, Idaho
Watanuki, Tayaharu, '13, E. E.	Japan
Way, William F., '12, C. E.	Seattle
Weaver, Ralph B., '15, Ch. E.	Tacoma
Wehmhoff, Byron L., '15, Ch. E.	Tacoma
Wheeler, Leon H., '13, M. E.	Ellensburg
White, Chris, '13, C. E.	Anacortes
White, Jess, '15, C. E.	Seattle
Whiting, D. Lyn, '13, M. E.	Seattle
Whitman, William Charles, '15, C. E.	Seattle
Wilkins, A. Avery, '15, C. E.	Seattle
Willard, Alf. Christian, '15, C. E.	Stanwood
Williams, Lawrence J., '13, C. E.	Seattle
Wisner, Raymond Rex, '12, E. E.	Seattle
Woodbury, Rae B., '15, E. E.	Everett
Yeast, Ray C., '15, C. E.	Portland, Ore.
Yoshioka, Masa, '15, E. E.	Komatsu, Japan
Zimmerman, Harry C., '15, C. E.	Fox Lake, Wis.

SPECIAL STUDENTS

Ashe, James Anthony, M. E.	Granite Falls
Bains, Umrao Singh, E. E.	Mahilpus, India
Ball, Doric T. J., C. E.	Port Angeles
Birrell, Charles Gordon, E. E.	Bradford, England
Coombs, Donald G., C. E.	Tacoma
Costello, W. Emmett, C. E.	Mt. Vernon
Crell, Julius J., C. E.	Seattle
Dunkle, Robert E., E. E.	Seattle
Durham, William Worth, M. E.	Seattle
Fowler, Harold D., C. E.	Seattle
Fowler, Harry Erb, C. E.	Seattle
Garman, Thomas Lytle, Ch. E.	Oak Park, Ill.
Gooderham, John W., E. E.	Seattle
Graham, Robert, Ch. E.	Seattle
Howard, George B., M. E.	Seattle
Huelsdonk, Adolph, E. E.	Seattle
Hunt, Hubert N., E. E.	Burlington
Izhuroff, Basil A., E. E.	Kortkeross, Russia
LaChappelle, Oliver W., M. E.	Mineral
Lilygren, Ernest W., C. E.	Seattle
Linvog, Ole, E. E.	Seabold

Lorente, Bernard J., E. E.	Estella, Spain
Mueller, Walter H., C. E.	Seattle
Nakamura, Massawo K., M. E.	Hirosima, Japan
Nakanishi, Shibeji, E. E.	Nagoya, Japan
Payne, Charles Albert, E. E.	Snohomish
Reynolds, George E., E. E.	Seattle
Rosenkranz, John Max, M. E.	Chicago, Ill.
Rothenhoefer, Louis, E. E.	Seattle
Sant, Bhalchandra S., E. E.	Seattle
Smith, Theodore Castle, E. E.	Seattle
Trenwith, James H., E. E.	Seattle
Uplap, Govind P., Ch. E.	Sholapur, India
Whaley, Fred G., C. E.	Spokane

COLLEGE OF FORESTRY

ABBREVIATIONS

CLASSES

'12 Senior	'15 Freshman
'13 Junior	Sp. Special Student
'14 Sophomore	S. C. Short Course Student

<i>Name of Student and Rank</i>	<i>Home Address</i>
Anderson, Clarence, '12	Hoquiam
Barton, George Rex, '14	Harlem, Mont.
Bell, Cecil P., '14	Eugene, Ore.
Billingslea, J. Howell, Jr., '15	Westminster, Md.
Bonney, Parker S., '13	Seattle
Byler, C. Archie, '15	Shelton
Cahill, William S., '14	Chicago, Ill.
Caywood, Noel F., '14	Everett
Clark, Ralph W. K., '15	Seattle
Cooper, James Gordon, '15	Hoquiam
Curry, Fred S., '15	Ellsworth, Kas.
DeCamp, Lee R., '15	Mason, Mich.
Dorman, Harry S., '15	Everett
Eberle, Sidney S., '14	Vancouver
Elich, Walter F., '12	Chicago, Ill.
Erb, Edgar M., '14	Seattle
Escher, Wiley E., '13	Seattle
Evans, W. Vincent, '15	Livingston, Mont.
Field, Newton, '13	Chelan
Fifield, Elbridge G., '15	Everett
Gibson, Edward B., '13	Seattle
Gilbert, George W., '13	Seattle
Graham, Paul, '13	Alamosa, Colo.
Greider, F. Carleton, '15	Spokane
Hancock, Virgil K., '13	Coupeville
Harpham, Edward Everett, '14	Roseburg, Ore.
Hutton, George W., '13	Portland, Ore.
Kalback, Taylor P., '13	Seattle
Klobucher, Frank J., '14	Seattle

Knox, Harry L., '15.....	Olympia
Lee, Wilson, '15.....	Seattle
McCutcheon, John T., '15.....	Chehalis
McKibben, Vinton M., '14.....	Seattle
Macaulay, Norman G., '14.....	Deming
Martin, G. Hamilton, Jr., '13.....	Spokane
Mercer, F. Bernard, '15.....	Portland, Ore.
Million, Ten, '14.....	Seattle
Monks, Howard I., '14.....	Bonnors Ferry, Idaho
Morgan, Jos. George G., '12.....	Seattle
Moulton, William R., '15.....	Aberdeen
Mueller, Moritz L., '14.....	Seattle
Murnen, Edgar J., '13.....	Tacoma
Northrup, Layton L., '15.....	Chicago, Ill.
O'Leary, Edmond, '15.....	Mt. Vernon
Ottestad, Justin Walter, '12.....	Portland, Ore.
Redman, Kenneth, '14.....	Lexington, Mass.
Renier, Earl S., '14.....	Bremerton
Robinson, Ben W., '15.....	Blaine
Roys, Allyn G., '14.....	Saginaw, Mich.
Schmaelzle, Karl J., '15.....	Charleston, Ill.
Schoeller, Jacob Diehl, '14.....	Los Angeles, Cal.
Sorley, Frank M., '15.....	Wenatchee
Stuart, Phillip A., '14.....	Seattle
Sutton, Jesse William, '15.....	Port Orchard
Sutton, Wayne Campbell, '14.....	Seattle
Vetter, George B., '15.....	Seattle
Watson, Russell, '13.....	St. Paul, Minn.
Wellington, Leland S., '14.....	Julian, Cal.
Williams, John Sanford, '15.....	Jeffersonville, Ohio
Wilton, G. Lawrence, '15.....	Seattle
Wright, Farnsworth, '14.....	Reno, Nevada
Wright, Newell L., '13.....	Bellingham

UNCLASSIFIED

Allison, William E., S. C.....	Mitchell, Ore.
Alexander, J. Beverley, S. C.....	Sedro Woolley
Blankinship, H. B., S. C.....	Lewis
Bouman, A. William, S. C.....	Minneapolis, Minn.
Brenner, Robert Patterson, S. C.....	Astoria, Ore.
Cline, Roland L., S. C.....	Lakeside
Collier, George L., Sp.....	Wenatchee
Cook, Arthur F., Sp.....	Seattle
Crofe, Henry William, S. C.....	Tacoma
Cuff, Ivan A., S. C.....	California
Dickerson, B. H., S. C.....	Lyle
Diver, Clayton, S. C.....	Methow
Durland, Charles A., Sp.....	Norfolk, Nebr.
Gillenwater, Orville C., S. C.....	Mitchell, Ore.
Gorham, George C., S. C.....	Seattle
Ham, Arthur M., S. C.....	Seattle
Harris, Calvin W., S. C.....	Acme

Heiserman, C. Arthur, S. C.....	Port Williams
Holdsmith, Robert P., S. C.....	Lansing, Mich.
Jamison, Ernest, S. C.....	Okanogan
Johnson, Ham C., Sp.....	Seattle
Kerby, E. S., S. C.....	Prospect, Ore.
Kilts, Floyd C., S. C.....	Gloversville, N. Y.
Kinnune, Charles E., S. C.....	Issaquah
Kistner, Benjamin H. G., Sp.....	Seattle
Kloe, Arthur E., S. C.....	Seattle
Lewis, Daniel, S. C.....	Randle
Lewis, James Bright, S. C.....	Port Townsend
Logan, James, S. C.....	Walloomsac, N. Y.
McConnell, Fred J., Sp.....	Seattle
McPeak, C. E., S. C.....	Portland, Ore.
Moore, Ernest J., S. C.....	Cripple Creek, Colo.
Moore, Stephen A., S. C.....	Medford, Ore.
Ross, Charles Arthur, S. C.....	Custer, Ill.
Simmons, Grover C., S. C.....	Millard, W. Va.
Skaar, Chris N., S. C.....	Carson
Skaar, Elbert T., S. C.....	Carson
Smith, R. E. Kan, Sp.....	Sumpter, Ore.
Townsend, Henry Harold, S. C.....	Keokuk, Iowa
Van Vleck, F. Wayne, S. C.....	Seattle
Welman, Louis, S. C.....	Appleton, Wis.
Williams, E. George, S. C.....	Tower
VonWronsky, Arthur A., S. C.....	Seattle

SCHOOL OF LAW

ABBREVIATIONS

CLASSES

'14 First Year
'13 Second Year
'12 Third Year

Sp. Special Student
N. Night Student

<i>Name of Student and Rank</i>	<i>Home Address</i>
Angevina, Fred R., '12.....	Missoula, Mont.
Armstrong, Robert W., '14.....	Seattle
Barnett, G. Dolph, '14.....	North Yakima
Barto, Joseph A., '13.....	Seattle
Beltz, Frederick A., '14.....	Aberdeen
Biggs, Statira G., '12.....	Bellingham
Black, Lloyd L., '12.....	Everett
Bouton, William C., '13.....	Vancouver
Bozorth, Claude A., '13.....	Woodland
Briskey, John W., '14.....	Cashmere
Brockett, Earl M., '14.....	Seattle
Brooks, Z. Olds, '14.....	Goldendale
Brown, Edwin J., '12.....	Seattle
Burkheimer, Clark W., '13.....	Seattle
Burns, Edgar Floyd, '12.....	Spokane
Butcher, Owen, '14.....	Seattle

Calderhead, Samuel J., '14.....	Seattle
Campbell, Arthur Clinton, '13.....	Chelan
Campbell, Arthur Eugene, '12.....	Richmond Beach
Carroll, Jay F., '13.....	Seattle
Chabot, Edwin F., '12.....	Walla Walla
Chesterley, J. Frederick, '12.....	North Yakima
Clark, Clyde H., '14.....	Centralia
Clark, James Francis, '12.....	Coupeville
Coyle, William J., '12.....	Seattle
Cushman, Arthur W., '14.....	Valdez, Alaska
Davis, Harold V., '12.....	Spokane
Dawson, Lewis R., '14.....	Seattle
Deane, Charles H., '12.....	Seattle
Denney, Robert G., '12.....	Everett
Donley, Levy B., '13.....	Marcus
Douglas, Malcolm, '14.....	Spokane
Dowd, Van M., '13.....	Tacoma
Driftmier, Ben, '12.....	Clarinda, Iowa
Dunbar, John H., '13.....	Olympia
Emmons, Ralph C., '14.....	Seattle
Fairbrook, Glenn J., '14.....	North Yakima
Fenton, Robert D., '14.....	Little Rock, Ark.
Fisher, Walter F., '14.....	Lynden
Fitzgerald, Charles R., '13.....	Salt Lake, Utah
Flint, Charles O., '12.....	Port Townsend
Ford, Mathias H., '14.....	Seattle
Frater, John A., '13.....	Seattle
Gamble, Lex, '14.....	Seattle
Gates, James Roberts, '13.....	Manchester, Iowa
Godsave, Alfred V., '14.....	Ontario, Cal.
Goodglick, Herman, '14.....	Seattle
Gore, Lester O., '14.....	Kalama
Gray, Charles R., '12.....	Higgins, Texas
Greene, Helen M., '14.....	Seattle
Griffin, Arthur R., '14.....	Seattle
Griffin, Van C., '12.....	Tuscaloosa, Ala.
Grimm, Huber E., '12.....	Centralia
Grimm, Warren O., '12.....	Centralia
Gruber, Edwin, '14.....	Winlock
Hagen, Dudley H., '14.....	Spokane
Haight, James A., Jr., '14.....	Seattle
Hamilton, Fred E., '13.....	Seattle
Hammond, Thomas G., '13.....	Wellsville, O.
Hardy, M. Warren, '14.....	Seattle
Harri, Fritz F., '12.....	Seattle
Harrington, Gerald Francis, '13.....	O'Neill, Nebr.
Harris, William Herbert, '13.....	Vancouver
Hartson, Nelson T., '12.....	Tacoma
Havel, Jos., '14.....	Tacoma
Hayfield, Matk F., '14.....	Spokane
Hemphill, Clarence J., '14.....	Auburn
Henton, Newton, '14.....	Ellensburg

Hergert, Otis B., '12.....	Seattle
Hickingbottom, Fred H., '12.....	Seattle
Hillen, A. Reuben, '12.....	Auburn
Hoover, Glenn E., '12.....	Hoquiam
Hughes, Charles D. T., '13.....	Blaine
Husby, Peter, '12.....	Stanwood
Johnson, James Edward, '13.....	Seattle
Jones, Harry L., '12.....	Arlington
Keenan, Edmund M., '13.....	Seattle
Kennedy, A. C., '14.....	Puyallup
Kennedy, Palmer, '12.....	Tacoma
Kenney, Samuel E., '14.....	Bryn Mawr
Lambuth, B. Letcher, '13.....	Seattle
Lind, Arthur, '14.....	Seattle
Lonergan, Pierce F., '14.....	Seattle
McCallum, J. David, '14.....	Seattle
McCoy, Edward Marion, '13.....	Seattle
Mackey, Russell A., '12.....	Seattle
March, John Gordon, '12.....	Tacoma
Marshall, John E., '12.....	Deming
Meacham, Eugene M., '13.....	Seattle
Molin, Louis A., '12.....	Seattle
Mooers, Clifford H., '14.....	Seattle
Morrison, H. Lorne, '14.....	Anacortes
Mucklestone, Melville, '12.....	Seattle
Murphy, Thomas F., '12.....	Montevideo, Minn.
Murray, Ernest K., '13.....	Roy
Nafe, Arthur Edward, '12.....	Seattle
Nakai, Kiyoshi, '14.....	Sakae, Japan
Navarre, Guy F., '14.....	Everett
Nesbit, Leslie C., '14.....	Ellensburg
Newton, Clifford W., '13.....	Everett
Nieder, Mandel, '14.....	Seattle
Niesz, Paul B., '14.....	Seattle
Norris, Carl H., '12.....	Seattle
Ohnick, Benj. S., '13.....	Seattle
Pardoe, Wallace F., '12.....	Seattle
Parker, William Edward, '14.....	North Yakima
Patterson, Tom S., '14.....	Seattle
Patten, John P., '14.....	Seattle
Perl, Herman, '14.....	Seattle
Pierce, Ahira E., '12.....	Seattle
Price, J. Chauncey, '13.....	Sifton
Quigley, Kenneth R., '14.....	Seattle
Robertson, Edward W., '12.....	Spokane
Robison, Mabel Bass, '14.....	Seattle
Roudebush, Rex S., '13.....	Portage, Mont.
Royal, Ralph H., '12.....	Skagway, Alaska
Schively, Hugh P., '13.....	Olympia
Schwartz, Morris J., '12.....	Bellingham
Severyns, William B., '12.....	Prosser

Severyns, Andrew, '13.....	Prosser
Shepherd, James Harvey, '13.....	Adrian, Mich.
Shotwell, Lyman R., '13.....	Seattle
Sieler, Herbert H., '12.....	Spokane
Sipprell, James E., '12.....	New Westminster, B. C.
Stephens, Ewing W., '12.....	Spokane
Stewart, Harold H., '12.....	Richmond Beach
Stone, William E., '14.....	Everett
Summers, Lane, '12.....	Seattle
Swale, Thomas N., '13.....	Everett
Taylor, Edward R., '14.....	Seattle
Teeter, Earle E., '14.....	North Yakima
Thompson, Ralph W., '13.....	Tacoma
Tupper, Myron W., '12.....	Snohomish
Urquhart, William M., Jr., '14.....	Chehalis
VanWinter, Rex, '14.....	Seattle
Viele, W. Arthur, '14.....	Orillia
Walsh, John Raphael, '14.....	Wenatchee
Wand, Walter A., '12.....	Seattle
Warner, Chester S., '14.....	Seattle
Warner, Ellis H., '12.....	Sultan
Watanabe, Harly S., '14.....	Kumamoto, Japan
Welts, Robin V., '14.....	Seattle
Wettrick, Frederick J., '12.....	Seattle
Whitmore, J. Lester, '14.....	Buckley
Wilson, Horace A., '13.....	Portland, Ore.
Wingfield, Wallace L., '13.....	Seattle
Winn, G. C., '12.....	Seattle
Zech, Luke D., '14.....	Seattle

UNCLASSIFIED STUDENTS

Anderson, C. Andy, N.....	Montevideo, Minn.
Andrews, Cornelius B., N.....	Seattle
Arney, J. Ward, Sp.....	Boise, Idaho
Austin, Avery J., N.....	Seattle
Barkwill, Frank M., N.....	Seattle
Beebe, Eugene H., Sp.....	Seattle
Bjornson, Sven, N.....	Seattle
Blaisdell, Christopher C., Sp.....	E. Franklin, Me.
Blank, Jacob M., Sp.....	Canyon City, Ore.
Bogardus, Irving C., N.....	Seattle
Borleske, Vincent, N.....	Spokane
Bresnan, Maurice D., Sp.....	Seattle
Brown, Arthur C., Sp.....	Ridgefield Park, N. J.
Brownson, John Joseph, Sp.....	Dubuque, Iowa
Burnside, Samuel L., N.....	Seattle
Christiansen, Christian M., N.....	Seattle
Copeland, Alfred S., N.....	Seattle
Corkery, Robert E., Sp.....	Seattle
Courtney, J. Ira, Sp.....	Seattle
Cruzen, Pete G., Sp.....	Boise, Idaho
Currie, Charles R., N.....	Seattle

Davidson, Philip A., Sp.....	Seattle
Denzler, W. Arnold, Sp.....	Leadville, Colo.
Donnelly, Edward P., Sp.....	Seattle
Dworshack, H., Sp.....	Seattle
Dyer, Charles T., Sp.....	Seattle
Everly, Myra Lois, Sp.....	Seattle
Fitzgerald, Edward, Sp.....	Oakville
Fielstad, Jacob C., Sp.....	Seattle
Fleming, S. Edgar, N.....	Seattle
Gardner, Paul L., Sp.....	Seattle
Gilbreath, James Alvin, N.....	Seattle
Gwinn, Forest L., N.....	Seattle
Hansen, Eiler, Sp.....	Tyler, Minn.
Hanson, George N., N.....	Seattle
Harmeling, Henry, Sp.....	Seattle
Heilig, Reed W., Sp.....	Fairbanks, Alaska
Hurd, C. Sumner, Sp.....	Mt. Vernon
Ingstad, Louie M., N.....	Montevideo, Minn.
Johnston, Richard, Sp.....	Seattle
Jones, Charlotte Frederica, N.....	Seattle
Jones, Leo, N.....	Seattle
Krokendall, Claud Allen, N.....	Seattle
Marsh, Clyde W., Sp.....	Seattle
Martz, J. Earl, Sp.....	Seattle
Matsamoto, Hoyashi, Sp.....	Nagano, Japan
Nordlund, K. E., N.....	Seattle
Owen, Thomas C., N.....	Seattle
Pierce, Frank R., N.....	Seattle
Pinella, John B., N.....	Seattle
Pixley, Milo M., N.....	Seattle
Runner, Jesse Lee, Sp.....	Seattle
Scheimann, Jesse D., N.....	Seattle
Shorett, Brace L., Sp.....	Seattle
Simpson, Arthur Neal, Sp.....	Walla Walla
Smith, Amor Lee, N.....	Cincinnati, Ohio
Smith, Mrs. Netta Margaret, N.....	Seattle
Snyder, Raymond F., Sp.....	Seattle
Stevens, Albion D., Sp.....	Seattle
Titus, William, Sp.....	Seattle
Ulricson, John A., N.....	Seattle
Welborn, John G., Sp.....	Almira
Woodaman, Van M., Sp.....	Seattle
Worthington, George E., Sp.....	Spokane
Wright, Sam A., Sp.....	Seattle
Yagle, Joseph Lawrence, N.....	Seattle

COLLEGE OF MINES

ABBREVIATIONS

CLASSES

'12 Senior
'13 Junior
'14 Sophomore

'15 Freshman
Sp. Special Student
S. C. Short Course Student

<i>Name of Student and Rank</i>	<i>Home Address</i>
Awoki, Monroe T., '12.....	Japan
Baker, Fred C., '15.....	Seattle
Benson, Paul T., '12.....	Seattle
Bergman, Rynard, '14.....	Seattle
Bissell, Robert W., '12.....	Pittsburg, Penn.
Bridgman, Ethan Allen, Jr., '14.....	Seattle
Brown, Warren O., '15.....	Seattle
Burgert, Wilbur C., '14.....	Seattle
Carr, Dalbert E., '12.....	Portland, Ore.
Clark, George William, '15.....	Sedro Woolley
Clulow, William M., '14.....	Wenatchee
Cole, C. Cecil, '15.....	Seattle
Cole, Henry Ambrose, '12.....	Seattle
Cole, Robert J., '14.....	Seattle
Crary, Horace H., '12.....	Canisteo, N. Y.
Dean, Kenneth K., '15.....	Kent
Ellison, Robert W., '15.....	Seattle
Flanley, W. Fred, '15.....	Seattle
Fotheringham, Humber, '15.....	Seattle
Gideon, Kenneth H., '15.....	Winslow
Gleason, S. Irving, '15.....	Seattle
Gleason, Villeroy, Jr., '13.....	Seattle
Godbe, Earl T., '13.....	Los Angeles, Cal.
Gould, Robert, '15.....	Port Angeles
Hall, Ralph H., '15.....	Seattle
Hallock, George O., '14.....	Seattle
Hastings, Harlow, '15.....	Seattle
Hawley, Neal C., '13.....	Seattle
Hazelet, Calvin C., '14.....	Cordova, Alaska
Hoffstrom, Earl C., '15.....	Seattle
Huber, Dale G., '14.....	Seattle
Jenkins, Albert C., '12.....	Seattle
Johnson, Charles, '14.....	Douglas, Alaska
Johnson, Guy J., '12.....	Spokane
Johnson, John Dore, '14.....	Seattle
Laney, John Carl, '15.....	Seattle
Lewis, Clinton R., '12.....	Seattle
McDonald, James Michael, '13.....	Seattle
Meany, George E., '14.....	Colfax
Murphy, Joseph G., '14.....	Seattle
Nelson, Victor, '15.....	Seattle
Pape, Theodore R., '15.....	Seattle
Pettys, F. Elmer, '14.....	Seattle

Pockman, Lloyd A., '15.....	Spokane
Porter, Fred S., '14.....	Seattle
Presley, BeVan, '14.....	Seattle
Roberts, Franklin G., '12.....	Seattle
Roy, Ramini Mohan, '14.....	Lucknow, India
Schofield, George J., '15.....	Seattle
Searing, Oliver P., '13.....	Seattle
Sherman, Albert R., '13.....	Helena, Mont.
Skogsbergh, Rudolph E., '15.....	Seattle
Smith, Warren S., '12.....	Berlin
Swart, Arthur H., '15.....	Richmond Beach
Sweeney, Edward L., '15.....	Tacoma
Thomason, E. Llewellyn, '12.....	Seattle
Wicklund, Waldemar, '15.....	Tromso, Norway
Wilcox, E. Roscoe, '15.....	Seattle
Will, E. Clark, '14.....	Seattle
Williams, Arthur E., '12.....	Lille, Alberta
Wilson, Alfred S., '13.....	Seattle
Winquist, Henry W., '15.....	Seattle
Wright, Lawrence Boynton, '14.....	Snohomish

UNCLASSIFIED

Anderson, Carl B., Sp.....	Nebraska City, Nebr.
Beck, Andrew, S. C.....	Nome, Alaska
Bush, William M., S. C.....	Seattle
Collins, Frank E., S. C.....	Salmo, B. C.
Cowie, James A., S. C.....	Seattle
Eckstrom, Seth, S. C.....	Seattle
Farrell, James W., S. C.....	Seattle
Fitzpatrick, William, S. C.....	Seattle
Gibbs, James A., Sp.....	Fairbanks, Alaska
Goodell, Luther T., Sp.....	Seattle
Heaney, Patrick, S. C.....	Butte, Mont.
Hesse, William A., S. C.....	Seward, Alaska
Jamerson, Frank W., S. C.....	Seattle
Lund, Christian, S. C.....	Seattle
Mazey, William John, S. C.....	Fernie, B. C.
Mitchell, Max, Sp.....	Long Beach
Radel, Fred Mosbon, S. C.....	Juneau, Alaska
Rutherford, Herbert J., S. C.....	Seattle
Simenstad, Charles, S. C.....	Seattle
Tobey, Frank Thrall, S. C.....	Memphis, Tenn.
Uhl, Ernest John, S. C.....	Iditarod, Alaska
VanVleck, LeRoy S., S. C.....	Seattle
Vogel, Edward, S. C.....	Riga, Russia
Welch, George B., Sp.....	Seattle
Worth, Henry, S. C.....	Seattle

COLLEGE OF PHARMACY

ABBREVIATIONS

CLASSES

'12 Senior
'13 Junior

'14 Sophomore
'15 Freshman

<i>Name of Student and Rank</i>	<i>Home Address</i>
Baker, Carl S., '13.....	Seattle
Ball, Alice A., '14.....	Seattle
Blum, Katherine E., '14.....	Seattle
Boatman, Willis William, '15.....	Puyallup
Bonebrake, A. Crede, '14.....	Goldendale
Bracken, Louis D., '15.....	Seattle
Bryant, Clarence W., '15.....	Seattle
Carlson, Elena, '15.....	Seattle
Carr, Elsie, '13.....	Montesano
Christoe, David H., '14.....	Treadwell, Alaska
Conner, Ray B., '14.....	Everett
Crogstad, Emma C., '14.....	Mt. Vernon
Davis, Jefferson, '13.....	Ormonde, Fla.
Divine, Earl S., '15.....	Vancouver
Eager, Benjamin F., '14.....	Mt. Vernon
Fryar, Richard G., '14.....	Sumner
Gannon, Bertha, '14.....	Seattle
Gilbertson, L. Steven, '13.....	Snohomish
Gilluly, Frank, '12.....	Seattle
Henderson, H. Edward, '15.....	Tacoma
Hillis, Hazel V., '14.....	Seattle
Hindman, Frances Edith, '12.....	Baker, Ore.
Hogan, Gladys, '15.....	Seattle
Huntington, Roma, '15.....	Seattle
Huntley, Carl R., '15.....	Spokane
Jaquot, Frank E., '14.....	Tacoma
Johnson, Josephine, '12.....	Seattle
Lalzure, Mabel B., '12.....	Seattle
Lieser, Ralph L., '15.....	Vancouver
Ludwig, William Henry George, '15.....	Tacoma
Maske, William, Jr., '15.....	Seattle
Meyer, Edmund T., '15.....	Seattle
Miller, Elmer C., '15.....	Spokane
North, Charles Sway, '12.....	Punxsutawney, Pa.
Race, Harry R., '15.....	Coupeville
Richey, Charles, '14.....	Seattle
Ridgway, H. Ralph, '12.....	Seattle
Roach, Edna W., '15.....	Lymon
Rogers, Jennie E., '14.....	Waterville
Scace, Guy G., '12.....	Seattle
Sewell, Glenn O., '15.....	Seattle
Siegel, Harry J., '12.....	Seattle
Sivear, Fred G., '14.....	Tacoma
Skarston, Sigmund, '15.....	Tacoma

Sligar, Leroy Ellison, '14.....	Tacoma
Storch, Bess E., '12.....	Seattle
Thompson, Peter, '12.....	Seattle
Thornberg, J. Gilbert, '15.....	Seattle
Trunkey, Mary F., '15.....	Seattle
Umbarger, Elzie C., '15.....	Burlington
VanZandt, Elwyn Benjamin, '13.....	Seattle
Veldee, Milton V., '13.....	Bremerton
Vitous, Lumir G., '15.....	Puyallup
Vitous, Walter J., '15.....	Puyallup
Webb, Theodore Theron, '15.....	Cheney
Yount, Glenn, '15.....	Wilbur

SPECIAL STUDENTS

Brophy, James B.....	Vancouver
Brown, Burton A.....	Seattle
Burns, W. M.....	Woodland
Carter, Harvey G.....	Seattle
Dundas, Elva.....	Willamina, Ore.
Hermann, Russell R.....	Seattle
Hicks, Claude.....	Tacoma
Jewell, Lee A.....	Tacoma
Jones, Pearl E.....	Seattle
Kempinsky, Harold A.....	Buckley
Kinsel, Edward C.....	Seattle
Levin, David.....	Seattle
Levinson, Herman.....	Seattle
Logsdon, Tyrah Daniel.....	Endicott
Lowell, Ralph E.....	Seattle
McTague, Edward J.....	Seattle
Miller, H. Lloyd.....	Seattle
Moore, Harry J.....	Seattle
Parks, Luella.....	Seattle
Platt, Earl M.....	Seattle
Ralya, E. Clare.....	Seattle
Stanley, William Homer.....	Waterville
Steele, Lorena.....	Alsea, Ore.
Stevenson, Blanche.....	Seattle
Stout, Hazel H.....	Seattle
Swart, Dennis.....	Woodland
Walker, Robert M.....	Renton

DEGREES CONFERRED ON COMMENCEMENT DAY 1911

BACHELOR DEGREES

COLLEGE OF ARTS AND SCIENCES

BACHELOR OF ARTS

Don R. Baker
Mary Mabel Barber
Joseph Abel Barto
Emma Alice Bass
(cum laude)

Mabel Lena Bass
Clara Amanda Bergan
Bertha Lucile Bigelow
May Elisabeth Bolger
James Bert Bowers
Page Roland Boyles
Geneva Virginia Brill
Clarence Albert Brown
Elsa Lenora Buell
Agnes N. Bunch
Fred Cahill
Elisabeth May Carey
Adeline Hayes Celleyham
Edith Estelle Church
Elizabeth Freeman Clark
Pearl Clark
Lillian Josephine Clulow
Orpha Belle Cook
Effie Cordz
Margaret Jessie Corey
(cum laude)

Myrtle Melva Crowley
Jeannette MacKenzie Dall
Blanche Cora David
Grace Emily David
Estella Annie Davies
Elsa Klore Dixon
Dorothy Ellen Drake
Barbara Binks Drum
Bernice Rollett Duckering
Clarence Biron Eagan
Bess Dacotah Eakins

Faye Beatrice Easterday
Elva Salome Edwards
Lola Edith Edwards
Enid Elizabeth Fenton
Madge Lee Finley
Mary Green-Fiske
Margaret Sarah Floyd
Alice Sinclair Fraser
Eva Florence Fraser
Albert Newton French
Emilie Stone Fuller
Mabel Georgine Furry
Georgie Gault
Edith Lois Greenberg
Ione Grindrod
(cum laude)

Edwin Gruber
Lucia Haley
(cum laude)

Maud Evangeline Hallstrom
Ethel Elizabeth Hannan
Agnes Josephine Hattrem
Zella Jane Henry
John Jackson Hensley
Florence Emery Herthum
Sallie Haddock Hill
Mary Hively
Grace Elizabeth Howard
Ellen Ford Howe
Nellie Iffland
Blanche Gertrude Jackson
Ethel Jay Jeans
Effie Rubarda Joslin
Ethel Roberta Joslin
Anna Marie Karrer
Enoch Karrer
(cum laude)

Frank Xavier Karrer
 (cum laude)
 Matilda Wilhemine Karrer
 Sebastian Karrer
 (cum laude)
 Kathryn Petronilla Kenny
 Rossae Swartz-Kirkpatrick
 Leonie Marie Latham
 Hugh Law
 Gertrude Alene LeHuquet
 Linda Marie Wilkie-Lindborg
 Kathleen Lindley
 Mabel Anges Luby
 Florence Ethel Lucks
 India Ethel Luther
 Georgina Josephine MacDougall
 Mellicent McNeil
 Marguerite Madison
 Gertrude Ethel Mallette
 Dorothy Craik Mason
 (magna cum laude)
 Maude Elizabeth Miller
 Charles Wesley Millican
 Imogen Mitchum
 John Raymond Montgomery
 Ruth Moody
 Ruth Alice Mae Mowrey
 Mary Ellen Muncaster
 Sadie Alice Sargent Norris
 Hazel Edwards O'Neill
 Earl Leroy Packard
 Lical Park
 Tom Scofield Patterson
 Stewart Edwin Perry
 Ben Nelson Phillips
 Roy David Pinkerton
 Frank Arents Plum
 Frances Eliza Post
 Sarah Mathloma Powell
 Eloise Sawyer Pratt

Agnes Errington Quigley
 Florence Lucile Reynolds
(cum laude)
 Zita Rieth
 Elizabeth Langley Robinson
 Emily Alberta Rogers
 Helen Montana Ross
 Addie Lillian Searce
 Louise P. Schreiber
(cum laude)
 Florence Severs
 Mabel Shuey
 Ethel Sims
 Ethel Skirls
 Lloyd Leroy Small
(cum laude)
 Edgar A. Stanton
 (As of the Class of 1910)
 Fred Lea Stetson
(cum laude)
 Joseph Arthur St. Onge
 Esther Helena Sutherland
 Mary Catherine Sutton
 Sarah Patience Sutton
 Patrick Michael Tammany
 Irene Eglantine Taylor
 Arvilla Marie Teel
 Ethel Ada Thomas
 Donald Vaughn Trueblood
 Anna Ullin
 Lyman Fisher Wagoner
 Lemeul Avard Wanamaker
 Homer Wheelon
 Marguerite Bernice Whittle
 Ida Estella Willard
 Bertha Krogoll Williams
 Jane Williams
 Marie B. Williams
 Sylvia Elvina Wold

BACHELOR OF SCIENCE

Bruce Wilber Jarvis

BACHELOR OF SCIENCE IN HOME ECONOMICS

Emma Christine Dalquest Esther Anne Englehorn
Bessie Graham

NORMAL DIPLOMAS AND CERTIFICATES

UNIVERSITY LIFE DIPLOMA

Myrtle Maitland Ball
James Bert Bowers
Lola Edith Edwards
Albert Newton French

Ione Grindrod
Gertrude Melton
John Edward Reichen
Fred Lea Stetson

UNIVERSITY TEACHERS' CERTIFICATES

Bertha Lucile Bigelow
May Elisabeth Bolger
Geneva Virginia Brill
Elsa Lenore Buell
Adeline Hayes Celleyham
Edith Estelle Church
Pearl Clark
Lillian Clulow
Orpha Belle Cook
Myrtle Melva Crowley
Jeannette MacKenzie Dall
Emma Christine Dalquest
Taraknath Das
Elsa Klore Dixon
Barbara Binks Drum
Bernice Rollett Duckering
Bess Dacotah Eakins
Fay Beatrice Easterday
Elva Salome Edwards
Enid Elizabeth Fenton
Madge Lee Finley
Margaret Sarah Floyd
Alice Sinclair Fraser
Eva Florence Fraser
Emilie Stone Fuller
Mabel Georgine Furry
Georgie Gault
Edith Lois Greenberg
Zella Jane Henry
Florence Emery Herthum
Sallie Haddock Hill
Mary Hively
Blanche Gertrude Jackson
Ethel Jay Jeans
Leonie Marie Latham
Kathleen Lindley

Mabel Agnes Luby
Florence Ethel Lucks
India Ethel Luther
Marguerite Madison
Dorothy Craik Mason
Maude Elizabeth Miller
Charles Wesley Millican
Imogen Mitchum
Ruth Moody
Ruth Alice May Mowrey
Sadie Alice Sargent Norris
Hazel Edwards O'Neill
Lical Park
Sarah Mathloma Powell
Eloise Sawyer Pratt
Agnes Errington Quigley
Florence Lucile Reynolds
Elizabeth Langley Robinson
Emily Alberta Rogers
Addie Lillian Searce
Louise P. Schreiber
Florence Severs
Mabel Shuey
Ethel Sims
Ethel Skirls
Mary Katherine Sutton
Sarah Patience Sutton
Irene Eglantine Taylor
Arvilla Marie Teel
Eric Therkelsen
Ethel Ada Thomas
Marguerite Bernice Whittle
Bertha Krogoll Williams
Jane Williams
Marie B. Williams
Sylvia Elvina Wold

COLLEGE OF ENGINEERING

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Willis Clinton Christopher	Bartlett Howard Lovejoy
George Ray Edwards	Carl De Forrest Pollock
Guy De Witt Edwards	Ralph Reginald Randell
William Hawley Franklin	Vilas Richard Rathbun
Philip Augustus Franklin	George Robert Strandberg
George Raymond Hopkins	Leo Grant Titus
Charles Arthur Irle	Charles Harvey Williams
Frank Melvin Johnson	

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Willis Tryon Batcheller	William Edmond Herman
Nathan Doud Blair	Paul Porter Kaylor
Charles Earle Brown	(<i>cum laude</i>)
Keech Fukagava	Earle Cary Waddington

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

John Summersett

BACHELOR OF SCIENCE

Eric Therkelsen	Vilhelm Samuel Skans
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COLLEGE OF FORESTRY

BACHELOR OF SCIENCE IN FORESTRY

Joseph Arthur Brinkley	Clarence Benjamin Keith
Edward H. Chloupek	Lewis Angevine Treen, Jr.

SCHOOL OF LAW

BACHELOR OF LAWS

Lester Arthur Biggle	Augustus William Lohmann, Jr.
Frank Edward Boyle	Adelbert Durkee McCleverty
William Hutchinson Brinker	Charles Malcome MacKinnon
Arthur Arnold Cook	Erven Harold Palmer
James Wylie Hemphill	George Yancy Reser
Ralph Ashley Horr	Patrick Michael Tammany
Marvin Garfield Hughes	Ralph Teats

COLLEGE OF MINES

BACHELOR OF SCIENCE IN MINING

*Henry Nicholas Baumann, Jr.	Walter Clifford Dunbar
*William Reynolds Canton	Edward Charles Heuss
Edward Harold Denny	*George L. Swarva
(<i>cum laude</i>)	

BACHELOR OF SCIENCE IN GEOLOGY AND MINING

*John Alexander McPhee

* Obtained Mines Rescue certificate.

COLLEGE OF PHARMACY

BACHELOR OF SCIENCE IN PHARMACY

Ethel Burkholder

C. Fred Corpron

Gladys Leah Wanamaker

PHARMACEUTICAL CHEMIST

Carl Samuel Baker

Hubert Ralph Ridgway

Ethel Burkholder

Calvin Loyle Rogers

C. Fred Corpron

Lillian Blanche Russell

Louis Steven Gilbertson

Roy Scatterd

Josephine Johnson

Albert Chamberlain Thompson

Mildred Massey

Milton Victor Veldee

CERTIFICATE IN PHARMACY

Joseph Albert McCluskey

Earl Milliron Platt

GRADUATE DEGREES

MASTER OF ARTS

Bertha Mary Challis,

A. B., University of Washington.

Taraknath Das,

A. B., University of Washington.

Alletta Maria Gillette,

A. B., Smith College.

Eleanor Frothingham-Haworth,

A. B., Rockford College.

Katherine Berry Judson,

A. B., Cornell University.

Herbert Galen Lull,

A. B., University of Michigan.

Margaret McCarney,

A. B., University of Washington.

John Merritt McGee,

A. B., University of Washington.

Charles William Wester,

B. S., University of California.

MASTER OF SCIENCE IN CHEMISTRY

Albert Haskin Dewey,

B. S., University of Washington.

MASTER OF SCIENCE IN FORESTRY

Clarence R. Pope,

B. S., Bellevue College, Nebraska.

ENGINEER OF MINES

James Harold Hance,

B. S., Northwestern University.

B. S. in Min. Eng., University of Washington

SCHOLARSHIPS AND PRIZES AWARDED

The following awards of prizes and scholarships were made for 1912:

The John Walter Ackerson Scholarship for Women.....
Miss Mildred Loring.

The Judge Alfred Battle Cash Prize for Debate.....
Glen Hoover, Ray Clifford.

The Philo Sherman Bennett Cash Prize in Political Science.....
Stuart Rice.

The E. F. Blaine Cash Prize for Oratory.....
Fred Angevine, second honors.

The Judge Thomas Burke Scholarship Cash Prizes.....
French, Miss Marjorie Harris; German, Miss Anna C. Balch;
Latin, Miss Lillian Louise Smith.

The Vivian M. Carkeek Cash Prize for Law Thesis.....
W. H. Brinker.
Honorable Mention—Ralph Horr.

The Cash Prize in Chemistry (anonymous).....
Melvin Shaw.

The L. J. Corkery Cash Prize for Oratory.....
Clarence B. Keith.

The Loretta Denny Fellowships.....
Enoch Karrer, Physics; Sebastian Karrer, Physics;
Lloyd Leroy Smail, Mathematics

The Jacob Furth Scholarship Cash Prize in Electrical Engineering.....Paul Porter Kaylor

The Thomas T. Kerl Prizes on an Industrial Topic Involving Products of the Northwest.....
Wallace Eshelman, first honors; Marc Darrin and
Harold Cleaves, second honors.

The E. B. Strandberg Cash Prize in Swedish Language and Literature
Divided between Miss Ada Anderson, Miss Beda Nyvall,
and Mr. David Ohlson.

The Washington Bankers Association Cash Prize on a Financial or Economic Subject.....Ben Nelson Phillips

Honorable Mention—Miss Eloise Sawyer Pratt.

The Women's League Scholarship.....

Miss Julia Cox.

Senior Scholars

Miss Mildred Loring, Mathematics; Mr. Stuart A. Rice,
Political and Social Science.

Sigma Xi

Nathan Doud Blair, Edward Harold Denny, Enoch Karrer,
Sebastian Karrer, Paul Porter Kaylor, Lloyd Leroy Small,
George Robert Strandberg.

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, third.

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