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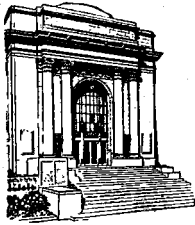
Oregon State Agricultural College

The Federal Land-Grant College
of Oregon

Sixty-fourth Year

College Press, Corvallis
1931

The Land-Grant Colleges



IT IS not too much to say that through the Morrill Act of 1862, and subsequent acts, Congress has wrought a revolution in American education. . . . The old educational ideals . . . have slowly given way to the far broader ideals for a system of public education suited to the needs alike of workers, business men, home makers, technicians, and professionals. The new education, while retaining the high moral and ethical ideals of the old, combines with these substantial training in doing the things of every-day life."

SENATOR NELSON,
Author of the 1907 amendment
to the second Morrill Act.

Higher Education in Oregon



THE Oregon State Board of Higher Education, established by act of the 1929 State Legislature, is the governing board of all the state institutions of higher learning. To the Board were assigned the functions of all the former boards of regents and of the State Board of Higher Curricula. The State Board of Higher Curricula, created in 1909 by act of the Oregon State Legislature, had full authority to determine curricula matters for the State's two institutions of higher learning, the University of Oregon at Eugene and the Oregon State Agricultural College at Corvallis. The duty of the Board, as defined by law, was "to determine what courses, if any, shall not be duplicated in the higher educational institutions of Oregon, and to determine and define the courses of study and departments to be offered by each such institution."

Through its various rulings from time to time the Board differentiated between the scope and functions of the two institutions, and defined, in broad terms, their distinctive fields of service.

In accordance with their respective purposes and with the approval of the Board of Higher Curricula and the State Board of Higher Education the two institutions have been developed as outlined on the two following pages.

THE UNIVERSITY OF OREGON—Eugene and Portland

I. THE COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS (B.A., B.S. degrees).

(A) Degree-Granting Departments:

The Division of Biology, composed of the major departments of Animal Biology including Physiology, and Plant Biology including Bacteriology; the major departments of Chemistry, Economics, English (Literature, Written English, Spoken English, Drama and Play Production, Library Training), Geology and Geography, Germanic Languages (German, Norwegian, Swedish), Greek, History, Latin, Mathematics, Military Science, Philosophy, Physics, Political Science, Psychology, Romance Languages (French, Spanish, Italian, Portuguese), Sociology.

(B) Service Department:

Household Arts; no major work and no professional training is given in this department and no degrees are granted.

II. THE PROFESSIONAL SCHOOLS

1. The School of Applied Social Science (B.A., B.S. degrees, and the Certificate of Social Work Training, and the Certificate of Public Health Nursing).

Training courses in various forms of social work and public health nursing.

2. The School of Architecture and Allied Arts (B.Arch. and M.Arch. degrees; also B.A., B.S.; and M.A., M.S., M.F.A. degrees through the Graduate School).

Major work in Architecture, Drawing and Painting, Sculpture, and Normal Arts.

3. The School of Business Administration (B.B.A., B.A., B.S., M.B.A. degrees).

Professional training in Finance, Accounting, Foreign Trade, Marketing, Advertising, Transportation, Personnel Management, and Production; and combination courses in Law and Business Administration. The graduate division of the school offers the only graduate work in Business Administration given in the state of Oregon.

4. The School of Education (B.S. in Education, B.A., B.S., M.Ed., D.Ed., and also M.A., M.S., and Ph.D. through the Graduate School).

Secondary Education; School Supervision and Administration; Educational Psychology and Atypical Children; Educational History, Sociology, and Moral Values.

5. The School of Journalism (B.A. and B.S. in Journalism, B.A., B.S.; and also M.A. and M.S. through the Graduate School).

Comprehensive training in Journalism and Publishing in newspapers (metropolitan and rural), magazines, and class and trade papers; Advertising, Printing.

6. The School of Law (LL.B., J.D. degrees).

7. The School of Medicine (M.D., M.A., M.S., Ph.D. degrees through the Graduate School).

8. The School of Music (B.M., B.A., B.S.; and M.A., M.S., M.F.A. degrees through the Graduate School).

Major courses in the History, Theory, Composition, and Literature of Music; Teaching of Music, Public School Music, and Operatic Fundamentals; and professional training in piano, organ, voice, stringed instruments, and other instruments of the orchestra and band.

9. The School of Physical Education (B.S. and B.A. degrees for the professional and teachers training courses, and M.S. and M.A. through the Graduate School).

The departments are Physical Education for Men, Physical Education for Women, Athletics, and the Health Service.

III. THE GRADUATE SCHOOL (M.A., M.S., M.F.A., Ph.D. degrees)

Majors in all of the degree-granting departments of the College of Literature, Science and the Arts, and in several of the professional schools.

IV. RESEARCH AND PUBLIC SERVICE

The Research Committee; the Bureau of Business Research; the Bureau of Educational Research; the Municipal Reference Bureau; the departments of the Graduate School; surveys and investigations by the Extension Division.

V. THE EXTENSION DIVISION (B.A., B.S. degrees, and M.A., M.S. degrees through the Graduate School)

Adult education in the liberal arts and professional fields allotted to the University in major lines of work leading to a degree, but not in the service department; visual instruction and social welfare departments.

Correspondence Study department giving work in the major lines of work offered for a degree, but not in the service department; entrance work in Civics, English, History, Languages, Mathematics, and Science.

OREGON STATE AGRICULTURAL COLLEGE—Corvallis

I. DEGREE-GRANTING SCHOOLS AND DEPARTMENTS.

1. The School of Agriculture (B.S. and M.S. degrees).

Major curricula in General Agriculture, Agricultural Bacteriology, Agricultural Chemistry, Agricultural Economics, Agricultural Education, Agricultural Engineering, Animal Husbandry, Botany and Plant Pathology, Dairy Husbandry, Agriculture and Entomology, Farm Crops, Farm Management, Horticulture (Horticultural Products, Landscape Architecture, Pomology, Vegetable Crops), Poultry Husbandry, Soils, Agriculture and Zoology. Special curriculum for women. Graduate study and research in all departments including Veterinary Medicine.

2. The Department of Chemical Engineering (B.S. and M.S. degrees).

A major curriculum in Chemical Engineering including application of chemistry in the industries. Graduate study and research.

3. The School of Commerce (B.S. degree; M.S. degree in Agricultural Economics and Rural Sociology).

A major curriculum in Commerce including Accounting and Management, Advertising and Selling, Agricultural Economics, Banking and Finance, Commercial Education, Economics and Sociology, General Business, Government and Business Law, Markets and Marketing, Real Estate, Secretarial Training. Graduate study and research in Agricultural Economics and Rural Sociology.

4. The School of Engineering and Mechanic Arts (B.S. and M.S. degrees).

Four-year major curricula as recommended by the National Engineering Societies and the National Society for the Promotion of Engineering Education, in Civil Engineering including Structural, Highway, Hydraulic, Sanitary, Railroad, and Construction Engineering; in Electrical Engineering including Power Generation and Transmission, Railways, Lighting, High Voltage, and Telephony; in Mechanical Engineering including Machine Design, Heat Power, Ventilation, Refrigeration, Heating, Gas, and Aeronautical Engineering; in Industrial Shop Administration. Graduate study and research.

5. The School of Forestry (B.S. and M.S. degrees).

Major curricula in Logging Engineering, Lumber Manufacture, Technical Forestry. Graduate study and research.

6. The School of Home Economics (B.S. and M.S. degrees).

General and professional major curricula in Home Economics including Clothing and Textiles and Related Arts, Foods and Nutrition, Home Economics Teaching, Household Administration, Institutional Management. Graduate study and research.

7. The Department of Military Science and Tactics (B.S. degree).

A major curriculum in Reserve Officers' Training Corps including Engineers, Field Artillery, Infantry. Commission in United States Army.

8. The School of Mines (B.S. and M.S. degrees).

A major curriculum in Mining Engineering including Geology and Metallurgy. Graduate study and research.

9. The School of Pharmacy (B.S. and M.S. degrees).

A major curriculum in Pharmacy including Pharmacology, Pharmaceutical Analysis, Pharmacognosy. Graduate study and research.

10. The School of Vocational Education (B.S. and M.S. degrees).

A major curriculum in Vocational Education including administration, supervision and teaching of agriculture, commerce, home economics, industrial arts; vocational counseling and guidance. Graduate study and research. Service departments: Education, Psychology.

II. SERVICE SCHOOLS AND DEPARTMENTS.

In these schools and departments no major work is offered and no degrees are granted.

The School of Basic Arts and Sciences: Departments of Art and Rural Architecture, Bacteriology, Botany and Plant Pathology, Chemistry, English Language and Literature, Entomology, History, Mathematics, Modern Languages (French, German, Spanish), Physics, Public Speaking and Dramatics, Zoology.

The School of Health and Physical Education: Departments of Physical Education for Women, Physical Education for Men, Hygiene, Health Service, Intramural Sports.

Other Departments: Industrial Journalism, Library Practice, Music (Theory, Piano, Organ, Violin, Singing, Band Instruments).

III. RESEARCH AND EXPERIMENTATION.

The Agricultural Experiment Station; the Engineering Experiment Station; graduate study and research in all degree-granting divisions of the College, except that in Commerce graduate study is limited to Agricultural Economics and Rural Sociology.

IV. EXTENSION SERVICE.

Adult extension work by lectures, demonstrations, conferences, extension schools, correspondence study, publications, radio broadcasting, visual instruction. This includes the work of county agricultural agents, home demonstration agents, and specialists in various fields supported cooperatively by the Federal government, the State, and the counties. Junior extension work through boys' and girls' club projects, correspondence study and other methods. Extension work is limited to the special fields assigned the College.

STATE BOARD OF HIGHER EDUCATION

	Term expires
HON. F. E. CALLISTER, Albany.....	1932
HON. E. C. PEASE, The Dalles.....	1933
HON. ALBERT BURCH, Medford.....	1934
HON. E. C. SAMMONS, Portland.....	1935
HON. C. L. STARR, Portland.....	1936
HON. B. F. IRVINE, Portland.....	1937
HON. C. C. COLT, Portland.....	1938
HON. HERMAN OLIVER, John Day.....	1939
HON. CORNELIA MARVIN PIERCE, La Grande.....	1940

The State Board of Higher Education, established 1929, is composed of nine members appointed by the Governor with the approval of the State Senate. The members serve for nine-year terms.

OFFICERS

HON. C. L. STARR.....	President
DR. E. E. LINDSAY.....	Executive Secretary
HON. B. F. IRVINE.....	Treasurer

EXECUTIVE COMMITTEE

HON. C. L. STARR

HON. E. C. SAMMONS

HON. B. F. IRVINE

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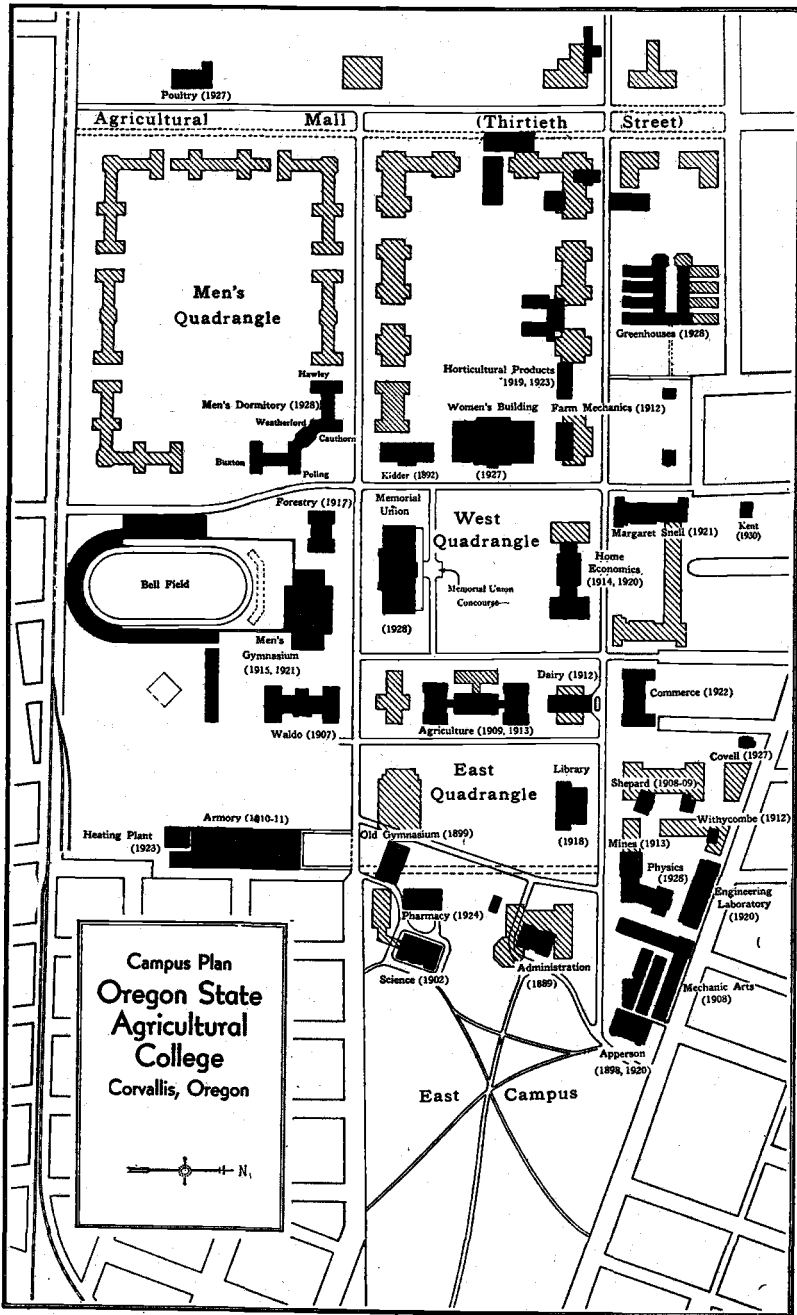
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1931

COLLEGE CALENDAR

June

S	M	T	W	T	F	S
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July

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August

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September

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October

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November

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December

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27	28	29	30	31	---	---

1931 Summer Session

June 22, Monday.....Summer Session begins
 July 4, Saturday.....Independence Day; holiday
 July 31, Friday.....Summer Session ends

THE COLLEGE YEAR. Except for a period of about ten years when a two-semester calendar was employed, immediately preceding the World War, the College from its inception in 1865-1868 has divided the academic year into three terms. Each term is approximately twelve weeks in length. The Summer Session is six weeks in length. The 1932 Summer Session will extend from June 20 to July 29.

First Term 1931-32

September 18, Friday.....Staff Meeting; Library 100, 10:00 a.m.
 September 21, Monday.....Freshman registration
 September 26, Saturday.....Registration all other students
 September 28, Monday.....Recitations begin
 October 3, Saturday.....Latest day for fee refunds in full
 October 10, Saturday.....Latest day for making changes in programs
 October 10, Saturday.....Latest day for addition of new courses or new registrations
 October 17, Saturday.....Latest day for dropping courses without "F" when work unsatisfactory
 October 30, 31, Friday, Saturday.....Examinations for advanced standing
 October 31, Saturday.....Latest day for changes in advanced standing reports
 November 4, Wednesday.....Close of mid-term examinations
 November 6, Friday.....Latest day for removal of Incompletes
 November 7, Saturday.....Latest day for refund of one-half fees
 November 11, Wednesday.....Armistice Day; holiday
 November 13, 14, Friday, Saturday.....Homecoming
 November 14, Saturday.....Latest day to file applications for graduation
 November 26, 27, 28, Thursday, Friday, Saturday.....Thanksgiving vacation
 December 14, Monday.....Recitations end
 December 15-19, inc., Tuesday to Saturday.....Final examinations
 December 19, Saturday.....First term ends

SIXTY-FOURTH YEAR

1932

Second Term 1931-32

- January 4, Monday.....Second term registration
 January 5, Tuesday.....Recitations begin
 January 11, Monday.....Latest day for fee refunds in full
 January 18, Monday.....Latest day for making changes in programs
 January 18, Monday.....Latest day for addition of new courses or new registrations
 January 25, Monday.....Latest day for dropping courses without "F" when work unsatisfactory
 January 29, 30, Friday, Saturday.....Examinations for advanced standing
 February 8, Monday.....Latest day for changes in advanced standing reports
 February 10, Wednesday.....Close of mid-term examinations
 February 12, Friday.....Latest day for removal of Incompletes
 February 15, Monday.....Latest day for refund of one-half fees
 February 22, Monday.....Washington's Birthday; holiday
 March 17, Thursday.....Recitations end
 March 18-23, inc., Friday to Wednesday.....Final examinations
 March 23, Wednesday.....Second term ends

January

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31						

February

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21	22	23	24	25	26	27
28	29					

March

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27	28	29	30	31		

April

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May

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June

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19	20	21	22	23	24	25
26	27	28	29	30		

July

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10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Third Term 1931-32

- March 28, Monday.....Third term registration
 March 29, Tuesday.....Recitations begin
 April 4, Monday.....Latest day for fee refunds in full
 April 11, Monday.....Latest day for making changes in programs
 April 11, Monday.....Latest day for addition of new courses or new registrations
 April 18, Monday.....Latest day for dropping courses without "F" when work unsatisfactory
 April 29, 30, Friday, Saturday.....Examinations for advanced standing
 May 2, Monday.....Latest day for changes in advanced standing reports
 May 4, Wednesday.....Close of mid-term examinations
 May 6, Friday.....Latest day for removal of Incompletes
 May 9, Monday.....Latest day for refund of one-half fees
 May 14, Saturday.....Latest day for seniors to adjust graduation deficiencies
 May 30, Monday.....Memorial Day; holiday
 June 1, Wednesday.....Senior examinations close
 June 4, Saturday.....Recitations end
 June 4, Saturday.....Senior Class Day; Alumni Reunion
 June 5, Sunday.....Baccalaureate Service
 June 6, Monday.....Sixty-third Annual Commencement
 June 6-10, inc., Monday to Friday.....Final examinations
 June 10, Friday.....Third term ends

Part I

Officers of Administration, Instruction, Research, and Extension

The officers of administration, instruction, research, and extension comprise the Administrative Council, Resident Instruction Staff, Agricultural Experiment Station Staff, Engineering Experiment Station Staff, Extension Service Staff, College Library Staff, and officers of the various Administrative Departments. The following lists show the personnel of the several staffs in general as of March, 1931. The arrangement in each group is in the order of seniority of appointment to present rank. An index of names will be found at the back of the catalogue. In addition, the faculties of the several schools are listed separately by departments under the respective school headings.

Officers of Administration, Instruction, Research, and Extension*

ADMINISTRATIVE COUNCIL

- WILLIAM JASPER KERR, D.Sc., LL.D.....President (1907)
ARTHUR BURTON CORDLEY, D.Sc. Dean of the School of Agriculture (1895, 1907)
JOHN ANDREW BEXELL, M.A.....Dean of the School of Commerce (1908)
GEORGE WILCOX PEAVY, M.S.F.....Dean of the School of Forestry (1910)
ADOLPH ZIEFLE, Phar.D.....Dean of the School of Pharmacy (1914, 1917)
AVA BERTHA MILAM, A.M....Dean of the School of Home Economics (1911, 1917)
M. ELLWOOD SMITH, Ph.D.....Dean of the School of Basic Arts and Sciences;
Director of the Summer Session (1919)
PAUL VESTAL MARIS, B.S.....Director of Extension Service (1916, 1920)
JAMES TERTIUS JARDINE, B.S.....Director of the Agricultural Experiment
Station (1920)
WILLIAM ARTHUR JENSEN.....Executive Secretary (1907, 1921)
KATE WETZEL JAMESON, Ph.D.....Dean of Women (1923)
ULYSSES GRANT DUBACH, Ph.D.....Dean of Men (1913, 1924)
JAMES RALPH JEWELL, Ph.D., LL.D.....Dean of the School of Vocational
Education; Professor of Education (1927)
HARRY STANLEY ROGERS, C.E....Dean of the School of Engineering and Mechanic
Arts; Director of the Engineering Experiment Station (1920, 1927)
ERWIN BERTRAN LEMON, B.S.....Registrar (1911, 1928)
JAMES HAROLD HANCE, Ph.D.....Dean of the School of Mines (1928)
CLAIR VAN NORMAN LANGTON, D.P.H.....Dean of the School of Health and
Physical Education (1928, 1929)
WILLIAM HENRY PATTERSON, Colonel, U.S.A.....Commandant of Cadets (1930)

RESIDENT INSTRUCTION STAFF

PROFESSORS—*Department Heads*

- FREDERICK BERCHTOLD, A.M.....Professor of English Language and
Literature (1884)
B. in Ped. (1879), Bern (Switzerland) State Normal School; A.B., A.M. (1900),
National University.
JOHN B HORNER, Litt.D., L.H.D.....Professor of History; Director of Oregon
Historical Research (1891)
Whitman Seminary; B.S. (1877), M.S. (1879), Litt.D. (1899), L.H.D. (1929),
Philomath College; Blue Mountain University; A.B. (1884), A.M. (1886), Litt.D. (1929),
Willamette; L.H.D. (1930), Whitman College; California; Harvard.

*Dates in parentheses following title indicate respectively year of original appointment to the College Staff and year of appointment to present rank.

- GORDON VERNON SKELTON, C.E. Professor of Highway Engineering (1895)
B.C.E. (1891), C.E. (1894), Arkansas.
- JOHN FULTON, M.S. Professor of Chemistry; Director of Chemical
Laboratories (1893, 1907)
Edinburgh (Scotland) Normal School; B.S. (1892), M.S. (1900), Oregon State;
graduate work, *ibid.*, Harvard, U.S. Dept. of Agric. (Div. of Chem.).
- CHARLES LESLIE JOHNSON, B.S. Professor of Mathematics (1895, 1907)
B.S. (1892), Oregon State; Harvard; Chicago.
- HENRY DESBOROUGH SCUDDER, B.S. Professor of Farm Management; Chief
in Farm Management, Agricultural Experiment Station (1907)
B.S. (1902), Illinois; graduate work, *ibid.*
- WILLIBALD WENIGER, Ph.D. Professor of Physics (1908, 1910)
B.A. (1905), M.A. (1906), Ph.D. (1908), Wisconsin; graduate work, Michigan.
- LOUIS BACH, A.M. Professor of Modern Languages (1910)
University of Strassburg; A.M., University of Switzerland.
- *ERMINE LAWRENCE POTTER, M.S. Professor of Animal Husbandry; Animal
Husbandman in Charge, Agricultural Experiment Station (1908, 1913)
B.S. (1906), Montana State; B.S.A. (1908), M.S. (1920), Iowa State; graduate
work, Stanford.
- ULYSSES GRANT DUBACH, Ph.D. Professor of Political Science (1913)
Emporia (Kansas) Teachers College; Baker; A.B. (1908), Indiana; M.A. (1909),
Harvard; Ph.D. (1913), Wisconsin.
- SAMUEL HERMAN GRAF, M.S. Professor of Mechanics and Materials;
Director of Engineering Research (1908, 1914)
B.S. (in E.E.) (1907), E.E. and B.S. (in M.E.) (1908), M.E. and M.S. (in E.E.)
(1909), Oregon State.
- BENNETT THOMAS SIMMS, D.V.M. Professor of Veterinary Medicine;
Veterinarian in Charge, Agricultural Experiment Station (1913, 1914)
D.V.M. (1911), Alabama Polytechnic; Chicago; graduate work, Kansas City Vet-
erinary College.
- RICHARD HAROLD DEARBORN, E.E. Professor of Electrical Engineering (1914)
A.B. (1895), Willamette; E.E. (1900), Cornell.
- ADOLPH ZIEFLE, Phar.D. Professor of Pharmacy (1914)
Ph.C. (1904), B.S. (1907), M.S. (1919), Michigan; Phar.D. (1928), Pittsburgh.
- *WILBUR LOUIS POWERS, Ph.D. Professor of Soils; Soil Scientist, Agricultural
Experiment Station (1909, 1915)
Illinois; B.S. (1908), M.S. (1909), New Mexico Agricultural; Ph.D. (1926),
California.
- HOWARD PHILLIPS BARSS, S.M. Professor of Botany and Plant Pathology;
Plant Pathologist, Agricultural Experiment Station (1912, 1915)
A.B. (1907), Rochester; graduate work, *ibid.*; S.M. (1909), Harvard; graduate work,
Wisconsin.
- GEORGE ROBERT HYSLOP, B.S. Professor of Farm Crops; Agronomist,
Agricultural Experiment Station (1908, 1916)
Indiana; B.S. (1907), Ohio State; graduate work, *ibid.*, Cornell.
- PHILIP MARTIN BRANDT, A.M. Professor of Dairy Husbandry; Dairy Hus-
bandman, Agricultural Experiment Station (1917)
B.S. (in Agr.) (1910), A.M. (1913), Missouri.

*On leave of absence.

- WILLIAM JAMES GILMORE, B.S. Professor of Agricultural Engineering
(1915, 1918)
B.C.E. (1909), B.S. (in A.E.) (1911), Iowa State; graduate work, *ibid.*
- ALMA GRACE JOHNSON, M.A. Professor of Household Administration
(1915, 1918)
Indianapolis Teachers College; Purdue; B.S. (1915), M.A. (1926), Columbia; graduate work, *ibid.*, England.
- HERBERT TOWNSEND VANCE, M.S. Professor of Secretarial Training; Professor of Advertising and Selling; In Charge of Extension
in Commerce (1916, 1919)
B.S. (1924), M.S. (1927), Oregon State.
- WALTER SHELDON BROWN, D.Sc. Professor of Horticulture; Horticulturist in Charge, Agricultural Experiment Station (1913, 1920)
A.B. (1899), D.Sc. (1931), Alfred; B.S.A. (1904), Cornell; M.S. (1906), Wisconsin.
- GODFREY VERNON COPSON, M.S. Professor of Bacteriology; Bacteriologist, Agricultural Experiment Station (1911, 1920)
Michigan State; B.S. (1911), M.S. (1913), Oregon State; graduate work, Massachusetts Agricultural, University of Bern (Switzerland), Wisconsin, Columbia.
- LUCY MAY LEWIS, A.B., B.L.S. Librarian (1911, 1920)
Pomona College; A.B. (1905), B.L.S. (1906), Illinois.
- ALFRED GUNN LUNN, B.S. Professor of Poultry Husbandry; Poultry Husbandman in Charge, Agricultural Experiment Station (1908, 1920)
B.S. (1912), Oregon State.
- CHARLES BUREN MITCHELL, M.A. Professor of Public Speaking and Dramatics (1920)
A.B. (1911), DePauw; M.A. (1912), Michigan.
- HEBER HOWARD GIBSON, M.A. Professor of Agricultural Education (1920)
A.B. (1909), Denison; M.A. (1911), Columbia; Cornell; Oregon State.
- NATHAN FASTEN, Ph.D. Professor of Zoology (1920, 1921)
B.S. (1910), College of the City of New York; Ph.D. (1914), Wisconsin.
- HARRY STANLEY ROGERS, C.E. Professor of Civil Engineering (1920, 1923)
B.S. (in C.E.) (1914), C.E. (1926), Wyoming; graduate work, Iowa, Washington.
- HENRY RICHARD PATTERSON, JR., B.S. Professor of Logging Engineering (1920, 1923)
B.S. (1909), Oregon; graduate work, Stanford.
- JESSAMINE CHAPMAN WILLIAMS, M.A. Professor of Foods and Nutrition (1923)
B.S. (1906), M.A. (1921), Columbia; graduate work, *ibid.*, Yale, Cornell, Wisconsin.
- *JOHN LEO FAIRBANKS. Professor of Art and Rural Architecture (1923)
Chicago; New York; Columbia; Academie Colorossi, Academie de la Grande Chamier, Academie Julien, Paris.
- THURMAN JAMES STARKER, B.S. Professor of Forestry (1922, 1924)
B.S. (1910), Oregon State; graduate work, Michigan; special work, Forest Products Laboratory, Madison, Wisconsin.
- PAUL PETRI. Director of Music; Professor of Singing and Conductor of Choruses (1924)

*On leave of absence.

- LILLIAN JEFFREYS PETRI.....Professor of Piano and Music Theory (1924)
- HARRY LYNDEN BEARD, M.A.....Professor of Band Instruments and Conductor
of Band (1905, 1924)
B.S. (1899), Oregon State; M.A. (1929), California; graduate work, *ibid.*, Columbia.
- *FLORENCE BLAZIER, M.A.....Professor of Home Economics Education (1924,
1925)
Bradley Polytechnic Institute; Ph.B. (1918), Chicago; M.A. (1924), Indiana;
graduate work, Chicago, Minnesota.
- DON CARLOS MOTE, Ph.D.....Professor of Entomology; Entomologist in Charge,
Agricultural Experiment Station (1923, 1925)
Michigan; Chicago; B.S. (1911), M.S. (1912), Ph.D. (1928), Ohio State.
- MILTON NELS NELSON, Ph.D.....Professor of Economics; Agricultural
Economist, Agricultural Experiment Station (1926)
A.B., M.A. (1917), Ph.D. (1921), Illinois.
- MELISSA HUNTER, A.M.....Professor of Institution Economics; Director of
Dormitories (1919, 1926)
A.B. (1917), Indiana; A.M. (1925), Chicago.
- JAMES HERVEY BATCHELLER, B.S. (Mining Engr.).....Professor of Mining
Engineering (1919, 1927)
B.S. (Mining Engr.) (1900), Massachusetts Institute of Technology.
- GEORGE BRYAN COX, B.S.....Professor of Industrial Arts; Professor of
Industrial Education; Director of Engineering Shops (1927)
Wisconsin; Stout Institute; B.S. (1919), Missouri; Illinois; graduate work, Wis-
consin.
- JAMES RALPH JEWELL, Ph.D., LL.D.....Professor of Education (1927)
A.B. (1903), Coe College; M.A. (1904), Ph.D. (1906), Clark; LL.D. (1927),
Arkansas.
- FREDERICK GOTTLIEB BAENDER, M.M.E.....Professor of Mechanical Engineering
(1928)
B.S., M.E. (1908), Iowa; M.M.E. (1916), Cornell.
- CLAIR VAN NORMAN LANGTON, D.P.H.....Professor of Physical Education;
Professor of Hygiene (1928)
Michigan State Normal; B.S. (1923), M.S. (1925), D.P.H. (1928), Michigan.
- JAMES HAROLD HANCE, Ph.D.....Professor of Geology and Metallurgy (1928)
B.S. (1901), Northwestern; B.S. (in Min.E.) (1908), E.M. (1910), Washington;
Ph.D. (1918), Chicago.
- PAUL VESTAL MARIS, B.S.....Professor of Extension Methods (1916, 1928)
B.S. (1907), Pacific College; Wisconsin; B.S. (Agr.) (1914), Missouri.
- ERNEST WILLIAM WARRINGTON, M.A.....Professor of Religion (1921, 1928)
A.B. (1905), Delaware; M.A. (1907), Princeton; graduate work, Columbia.
- PAUL JOHN SCHISSLER, JR.....Director of Intercollegiate Athletics; Head Coach
of Football; Instructor in Football Tactics (1924, 1928)
Doane College; Hastings College; Nebraska.
- CHARLES DAVID BYRNE, M.S.....Professor of Industrial Journalism; Director of
College News Service (1929)
B.S. (1921), M.S. (1923), Wisconsin; graduate work, South Dakota State.

*On leave of absence.

- DANIEL CLYDE REYNOLDS, M.D.....Professor of Hygiene; Director of Health Service (1929)
B.S. (1916), M.D. (1918), Michigan.
- CARL WALTER SALSER, Ed.M.....Professor of Education; Head of Personnel and Placement Service (1929)
B.S. (1911), Kansas State Teachers College; Ed.M. (1926), Harvard; graduate work, Minnesota.
- CLARIBEL NYE, M.A.....Professor and State Leader of Home Economics Extension (1929)
B.S. (1914), Cornell; graduate work, Chicago; M.A. (1927), Columbia.
- ALBERT CREITZ, B.M.....Professor of Stringed Instruments; Conductor of Orchestras (1930)
B.M. (1927), Pacific University; Diploma, Berlin Conservatory of Music.
- RALPH ORVAL COLEMAN, M.A.....Coach of Baseball; Professor of Physical Education; Director of Intramural Sports (1919, 1930)
B.S. (1918), Oregon State; graduate work, California, Michigan; M.A. (1929), Columbia.
- ALMA CATHERINE FRITCHOFF, A.M.....Professor of Clothing, Textiles, and Related Arts (1918, 1930)
Fremont Normal College; A.B. (1917), Nebraska; graduate work, Chicago; A.M. (1924), Columbia.
- FRANCOIS ARCHIBALD GILFILLAN, Ph.D.....Professor of Pharmacy (1918, 1930)
Texas Polytechnic; Ph.G., B.S. (1918), Ph.C. (1920), Oregon State; Ph.D. (1921), Yale.
- CHARLES SAMUEL KEEVIL, Sc.D.....Professor of Chemical Engineering (1930)
S.B. (1923), S.M. (1927), Sc.D. (1930), Massachusetts Institute of Technology.
- RUTH ROBINSON, M.S.....Professor of Physical Education for Women (1930)
Chicago Normal School of Physical Education; Harvard; B.S. (1925), Michigan State Normal College; M.S. (1928), Columbia.
- MELVIN PRICE ISAMINGER, D.P.H.....Professor of Hygiene (1930)
A.B. (1925), M.S. (1926), D.P.H. (1927), Michigan.

PROFESSORS

- WILLIAM BALLANTYNE ANDERSON, Ph.D.....Professor of Physics (1914)
B.S. (1901), M.S. (1903), Ph.D. (1906), Wisconsin.
- ARTHUR LEE PECK, B.S., B.A.....Professor of Landscape Architecture and Floriculture; Superintendent of Campus and Greenhouses (1908, 1916)
B.S. (1904), Massachusetts Agricultural; B.A. (1904), Boston.
- ARTHUR GEORGE BOUQUET, M.S.....Professor of Vegetable Crops; Horticulturist (Vegetable Crops), Agricultural Experiment Station (1906, 1916)
B.S. (1906), Oregon State; graduate work, Massachusetts Agricultural; M.S. (1930), Cornell.
- J. SHIRLEY JONES, M.S.A.....Professor of Agricultural Chemistry; Chemist in Charge, Agricultural Experiment Station (1919)
B.S. (1903), California; M.S.A. (1914), Cornell.
- EDWARD MARIS HARVEY, Ph.D.....Professor of Research in Horticulture; Horticulturist (Physiology), Agricultural Experiment Station (1918, 1919)
A.B. (1910), Friends; graduate work, Johns Hopkins; Ph.D. (1914), Chicago.

- LAWRENCE FISHER WOOSTER, M.S....Professor of Applied Electricity (1910, 1919)
B.S. (in E.E.) (1906), Illinois; M.S. (1931), Oregon State.
- JESSE FRANKLIN BRUMBAUGH, M.A.....Professor of Psychology (1917, 1920)
A.B. (1894), DePauw; M.A. (1902), Chicago; LL.B. (1910), South Dakota State
Law School.
- NEWEL HOWLAND COMISH, Ph.D.....Professor of Economics (1915, 1920)
Brigham Young College; B.S. (1911), Utah Agricultural; Chicago; M.S. (1915),
Ph.D. (1929), Wisconsin.
- WALLACE HOPE MARTIN, M.E., M.S.....Professor of Heat Engineering (1920)
M.E. (1910), Minnesota; M.S. (1930), Iowa State.
- ORAN MILTON NELSON, M.S.....Professor of Animal Husbandry; Animal
Husbandman, Agricultural Experiment Station (1913, 1921)
B.S. (1913), M.S. (1930), Wisconsin.
- ERNEST HERMAN WIEGAND, B.S. (in Ag.)..Professor of Horticultural Products;
Horticulturist (Horticultural Products), Agricultural Experiment
Station (1919, 1921)
B.S. (in Ag.) (1914), Missouri.
- CHARLES VLADIS RUZEK, M.S.....Professor of Soil Fertility; Soil
Scientist (Fertility), Agricultural Experiment Station (1914, 1922)
B.S.A. (1909), M.S. (1929), Wisconsin.
- ALFRED SCHMITT, Ph.D.....Professor of Economics (1903, 1923)
B.A. (1896), Knox; graduate work, Chicago, Cambridge; Ph.D. (1902), Leipzig.
- WINFRED MCKENZIE ATWOOD, Ph.D...Professor of Plant Physiology (1913, 1925)
A.B. (1907), A.M. (1910), Cornell College; S.M. (1911), Ph.D. (1913), Chicago.
- FRANK ABBOTT MAGRUDER, Ph.D.....Professor of Political Science (1917, 1925)
B.A. (1905), Washington and Lee; Ph.D. (1911), Johns Hopkins; graduate work,
Williams College, Institute of Politics, Williamstown.
- CHARLES JARVIS MCINTOSH, B.S.D., B.S.....Professor of Industrial Editing
(1913, 1926)
B.S. (1893), Christian College; B.S.D. (1893), Oregon State Normal School.
- EDWARD BENJAMIN BEATY, A.M.....Professor of Mathematics; Freshman
Adviser (1908, 1927)
B.S. (1903), Oregon State; graduate work, Washington; A.M. (1916), California;
graduate work, *ibid*.
- WALTER THEODORE JOHNSON, D.V.M.....Professor of Veterinary Medicine;
Poultry Pathologist, Agricultural Experiment Station (1925, 1928)
B.S. (Ag.) (1915), D.V.M. (1917), Washington State.
- ELON HOWARD MOORE, Ph.D.....Professor of Sociology (1928)
B.A. (1919), Albion College; graduate work, Michigan; Ph.D. (1927), Wisconsin.
- IRA SHIMMIN ALLISON, Ph.D.....Professor of Geology (1928)
A.B. (1917), Hanover College; graduate work, Chicago; Ph.D. (1924), Minnesota.
- GUSTAV WILSTER, Ph.D.....Professor of Dairy Manufacturing; Dairy Hus-
bandman (Dairy Manufacturing), Agricultural Experiment Station (1929)
B.S., M.S. (1921), Ph.D. (1928), Iowa State.
- JAMES RINALDO GRIFFITH, C.E.....Professor of Structural Engineering (1929)
B.S. (1916), C.E. (1922), Purdue; graduate work, Columbia, Washington State.
- ERNEST EVERTON BOSWORTH, A.B., C.P.A...Professor of Accounting (1921, 1929)
Gates College; A.B. (1893), Oberlin; C.P.A., State of Oregon.

- WILLIAM HENRY DREESEN, Ph.D.....Professor of Economics; Agricultural Economist, Agricultural Experiment Station (1918, 1929)
A.B. (1907), Greenville College; M.A. (1916), Ph.D. (1918), Illinois.
- HERBERT REYNOLDS LASLETT, Ph.D.....Professor of Educational Psychology; Director of Teacher Training (1928, 1929)
A.B. (1918), Kansas; Universite Montpellier (France); A.M. (1923), Ph.D. (1926), Stanford.
- OTHNIEL ROBERT CHAMBERS, Ph.D...Professor of Vocational Psychology (1929)
A.B., M.A. (1922), Indiana; Ph.D. (1926), Ohio State.
- WILLIS PIERRE DURUZ, Ph.D.....Professor of Pomology (1929)
B.S. (1917), Rutgers; M.S. (1922), California; Ph.D. (1929), Stanford.
- FRED ORVILLE McMILLAN, M.S.....Research Professor of Electrical Engineering (1920, 1930)
B.S. (in E.E.) (1912), Oregon State; M.S. (in EE.) (1919), Union College.
- EARL C GILBERT, Ph.D.....Professor of Physical Chemistry (1917, 1930)
B.S. (1916), M.S. (1917), Hiram College; Case School of Applied Science; Ph.D. (1922), Chicago.
- CHARLES ELMER OWENS, A.M.....Professor of Botany and Plant Pathology (1912, 1930)
Indiana State Normal School; A.B. (1910), A.M. (1911), Indiana; graduate work, *ibid.*, Wisconsin.
- FRANK WINTHROP PARR, Ph.D.....Professor of Education (1929, 1930)
B.S. (1925), Illinois; M.A. (1926), Ph.D. (1929), Iowa.
- SARA WATT PRENTISS, M.A.....Professor of Child Development and Parent Education (1917, 1930)
Washington; B.S. (1917), Oregon State; graduate work, Chicago, Minnesota, Merrill-Palmer; M.A. (1929), California.

ASSOCIATE PROFESSORS

- MARK CLYDE PHILLIPS, B.M.E.....Associate Professor of Mechanical Engineering; Superintendent of Heating (1897, 1909)
B.M.E. (1896), Oregon State.
- IDA BURNETT CALLAHAN, B.S.....Associate Professor of English Language and Literature (1902, 1915)
B.S. (1881), Oregon State; California; Chicago; Columbia.
- SAMUEL MICHAEL PATRICK DOLAN, C.E.....Associate Professor of Civil Engineering (1910, 1920)
Albany College; Oregon State; C.E. (1910), Notre Dame.
- WILLIAM EVANS LAWRENCE, B.S.....Associate Professor of Plant Ecology (1910, 1920)
B.S. (1904), Earlham College; graduate work, Chicago, Woods Hole Biological Station.
- SIGURD HARLAN PETERSON, B.A.....Associate Professor of English (1911, 1921)
B.A. (1910), Minnesota; graduate work, California, Washington.
- CHARLES EDWIN THOMAS, M.E.....Associate Professor of Mechanics and Materials (1918, 1922)
M.E. (1913), Cornell; graduate work, *ibid.*

- ROSCOE ELMO STEPHENSON, Ph.D.....Associate Professor of Soils; Associate
Soil Scientist, Agricultural Experiment Station (1923)
B.S. (1915), Purdue; M.S. (1917), Illinois; Ph.D. (1920), Iowa State; graduate
work, Tropical Agriculture and Citrus Experiment Station, Riverside, California.
- *FRANCES HENRY THURBER, Ph.D.....Associate Professor of Organic Chemistry
(1921, 1923)
B.A. (1913), Lawrence College; M.A. (1915), Nebraska; graduate work, California;
Ph.D. (1924), Chicago.
- EARL NORMAN BRESSMAN, Ph.D.....Associate Professor of Farm Crops; Asso-
ciate Agronomist, Agricultural Experiment Station (1924)
B.S. (1920), M.S. (1927), Iowa State; graduate work, Oregon State; Ph.D. (1930),
Nebraska.
- EARNEST VANCOURT VAUGHN, Ph.D.....Associate Professor of History (1924)
B.L. (1900), M.A. (1904), Missouri; Ph.D. (1910), Pennsylvania.
- FRANK ELMER FOX, M.S.....Associate Professor of Poultry Husbandry;
Associate Poultry Husbandman, Agricultural Experiment Station
(1921, 1925)
Nebraska; B.S. (1915), Iowa State; M.S. (1926), Kansas State.
- LUCIA HALEY, A.B.....Assistant Librarian (1921, 1925)
A.B. (1911), Washington; graduate work, Pratt Institute School of Library Science;
Colorado.
- EDWARD BECKER MITTELMAN, Ph.D.....Associate Professor of Economics
(1920, 1925)
A.B. (1914), Wisconsin; Ph.D. (1920), Chicago.
- JACOB JORDAN, A.M.....Associate Professor of Physics (1920, 1926)
A.B. (1914), A.M. (1919), Indiana.
- JOSEPH ELLSWORTH SIMMONS, M.S.....Associate Professor of Bacteriology;
Associate Bacteriologist, Agricultural Experiment Station (1919, 1926)
Platteville (Wisconsin) State Normal School; B.S. (1916), M.S. (1918), Wisconsin;
Rockefeller Institute for Infectious Diseases.
- ORVILLE DANIEL ADAMS.....Associate Professor of Trade and Industrial
Education (1926)
Graduate, Washington State Normal; graduate work, Washington, Oregon State.
- ELIZABETH BARNES, B.L.I.....Associate Professor of Public Speaking and
Dramatics (1922, 1927)
Columbia; B.L.I. (1925), Emerson College of Oratory.
- WILLARD JOSEPH CHAMBERLIN, Ph.D.....Associate Professor of Entomology;
Forest Entomologist (1916, 1927)
New Mexico; B.S. (1915), M.S. (1921), Oregon State; graduate work, Iowa State;
Ph.D. (1930), Stanford.
- *HELEN MARGARET GILKEY, Ph.D.....Associate Professor of Botany; Curator
of the Herbarium (1907, 1927)
B.S. (1907), M.S. (1911), Oregon State; graduate work, *ibid.*; Ph.D. (1915), Cali-
fornia.
- JOHN M KIERZEK, Ph.D.....Associate Professor of English (1924, 1928)
B.A. (1913), Carleton; M.A. (1917), Ph.D. (1925), Minnesota; graduate work,
Chicago.
- RILEY JENKINS CLINTON, A.M.....Associate Professor of Education (1928)
Kansas; A.B. (1922), B.S. (1922), A.M. (1925), Missouri; graduate work, Stanford.

*On leave of absence.

- MAJOR FREEMAN WATE BOWLEY.....Associate Professor of Military Science and Tactics. Executive Officer, Field Artillery Unit, Reserve Officers' Training Corps (1929)
California; graduate, U. S. Military Academy, Adv. Course Field Artillery School, Command and General Staff School.
- IDWAL RALPH JONES, Ph.D.....Associate Professor of Dairy Husbandry; Associate Dairy Husbandman, Agricultural Experiment Station (1925, 1929)
B.S. (1920), Pennsylvania State; M.S. (1921), Rutgers; Ph.D. (1925), Minnesota.
- CHARLES ARTHUR MOCKMORE, C.E.....Associate Professor of Civil Engineering (1921, 1929)
B.S. (1920), C.E. (1926), Iowa.
- NICHOLAS TARTAR, B.S.....Associate Professor of Mathematics (1904, 1929)
Dallas Academy; B.S. (1907), Oregon State; California.
- HERMAN AUSTIN SCULLEN, M.A.....Associate Professor of Entomology (1920, 1929)
B.A. (1910), M.A. (1926), Oregon; graduate work, Washington, Iowa State, Oregon State, Cornell.
- LEE CLEVELAND BALL, M.B.A.....Associate Professor of Accounting and Commercial Education (1920, 1929)
Indiana State Normal School; M.Acct. (1909), Marion (Indiana) Normal College; Western Illinois State Normal School; Illinois; B.S. (1922), Oregon State; M.B.A. (1930), Washington.
- FRANK LESLIE ROBINSON, M.Acct.....Associate Professor of Accounting (1919, 1929)
M.Acct. (1894), Upper Iowa.
- *BEATRICE JANE GEIGER, M.S.....Associate Professor of Foods and Nutrition (1926, 1929)
S.B. (1919), Chicago; M.S. (1926), Columbia.
- EARL WILLIAM WELLS, J.D.....Associate Professor of Public Speaking; in Charge of the Speech Clinic (1921, 1929)
B.A. (1921), J.D. (1928), Iowa; Oregon State; M.A. (1927), Wisconsin.
- BERTHA WHILLOCK STUTZ, M.S.....Associate Professor of Secretarial Training and Commercial Education; Supervisor of Practice Teaching in Commerce (1918, 1929)
B.Ped. (1910), Missouri State Teachers College; B.S. (1918), M.S. (1927), Oregon State; graduate work, Columbia.
- JEROME LLOYD LEMASTER, LL.B., M.A.....Associate Professor of Political Science (1928, 1929)
LL.B. (1923), Illinois; graduate work, Grenoble (France); C d'A en Droit Civile (1924), Bordeaux (France); M.A. (1925), Colorado.
- THOMAS MELLOR BAINS, JR., E.M.....Associate Professor of Metallurgy (1929)
E.M. (1911), Columbia.
- EDITH CARTER KUNEY, A.M.....Associate Professor of Modern Languages (1910, 1929)
A.B. (1909), Willamette; graduate work, California, Madrid, Washington; A.M. (1925), Stanford; graduate work, Paris, Poitiers.

*On leave of absence.

- FIRST LIEUTENANT GEORGE WORK MARVIN, A.B., B.S.....Associate Professor of Military Science and Tactics; Executive Officer Engineer Unit, Reserve Officers' Training Corps (1928, 1929)
A.B. (1920), B.S. (1921), California; graduate Company Officers' course, Engineer School, Fort Humphreys, Virginia.
- JAMES RUSSELL PATTERSON.....Associate Professor of Clothing and Related Arts (1929, 1930)
New York School of Fine and Applied Art.
- MILDRED CHAMBERLAIN, Ph.B.....Associate Professor of Clothing and Related Arts (1930)
Northwestern; Ph.B. (1909), Chicago.
- DONALD DAVID HILL, M.S.....Associate Professor of Farm Crops; Associate Agronomist, Experiment Station (1927, 1930)
B.S. (1925), Oregon State; M.S. (1927), Kansas State.
- MELISSA MARGARET MARTIN, A.M.....Associate Professor of Modern Languages (1915, 1930)
Albany College; A.B. (1912), Oregon; B.S. (1915), Oregon State; A.M. (1920), Columbia; graduate work, California, Middlebury College; Madrid, Centro de Estudios Historicos, Paris.
- ERNST THEODORE STUHR, M.S.....Associate Professor of Pharmacology and Pharmacognosy (1927, 1930)
Creighton; Ph.G., Ph.C. (1922), B.S. (1925), Nebraska; M.S. (1927), Florida.
- MAJOR JACOB J. GERHARDT.....Associate Professor of Military Science and Tactics; Executive Officer, Infantry Unit, Reserve Officers' Training Corps (1931)
Graduate, Infantry School Field Officers' Course; graduate Command and General Staff School.

ASSISTANT PROFESSORS

- HARRY LYNDEN BEARD, M.A.....Assistant Professor of Mathematics (1905, 1918)
B.S. (1899), Oregon State; graduate work, Columbia; M.A. (1929), California.
- EDWARD FRITCHOFF TORGERSON, B.S.....Assistant Professor of Soils; Assistant Soil Scientist (Soil Survey), Agricultural Experiment Station (1918)
B.S. (1914), Illinois.
- BENJAMIN WILLIAM RODENWOLD, M.S.....Assistant Professor of Animal Husbandry (1920)
B.S. (1920), Nebraska; graduate work, Oregon State, Chicago; M.S. (1929), Iowa State.
- IVAN FREDERIC WATERMAN, C.E.....Assistant Professor of Mechanics and Materials (1919, 1921)
B.S. (1910), John B. Stetson; C.E. (1912), Wisconsin; graduate work, *ibid.*, Oregon State.
- BURDETTE GLENN, B.S.....Assistant Professor of Civil Engineering (1919, 1922)
Grove City College; B.S. (in C.E.) (1919), Michigan; graduate work, Iowa State.
- JOHN ALBERT VAN GROOS, M.S.....Assistant Professor of Mathematics (1919, 1922)
B.S. (1899), Oregon State; graduate work, California, Oregon; M.S. (1903), Yale.
- ALFRED WEAVER OLIVER, M.S.....Assistant Professor of Animal Husbandry; Assistant Animal Husbandman, Agricultural Experiment Station (1919, 1922)
B.S. (1918), Oregon State; graduate work, Iowa State; M.S. (1928), Wisconsin.

- HAROLD COCKERLINE, B.S.....Assistant Professor of Electrical Engineering
(1921, 1923)
B.S. (in E.E.) (1912), Oregon.
- GERTRUDE ELIZABETH McELFRESH, A.M.....Assistant Professor of English
(1909, 1923)
B.S. (1902), Oregon State; B.A. (1909), Cornell; Wisconsin; A.M. (1924), Columbia; Rice Institute; graduate work, California.
- JOSEPH PARKE MEHLIG, Ph.D.....Assistant Professor of Analytical Chemistry
(1920, 1924)
B.S. (1908), M.S. (1910), Ph.D. (1931), Purdue; graduate work, Utah.
- BERTHA EMMA HERSE, B.S., B.L.S.....Reference Librarian (1910, 1924)
B.S. (1910), (1928), Oregon State; B.L.S. (1924), New York State Library School.
- EARL GEORGE MASON, M.F.....Assistant Professor of Forestry (1920, 1924)
B.S. (1920), Oregon State; M.F. (1923), Yale.
- LUCY ADA CASE, M.A.....Assistant Professor of Foods and Nutrition; Extension
Specialist in Nutrition (1924)
B.A. (1911), Wisconsin; M.A. (1912), Columbia; B.S. (1924), Minnesota; graduate work, Chicago, Oregon State.
- HOWARD NOTSON COLMAN, A.B., B.S.....Assistant Professor of Dairy Husbandry
(1920, 1925)
A.B., B.S. (1915), Nebraska; Minnesota; graduate work, Nebraska, Washington State.
- ROBERT AMBROSE OSBORN, Ph.D.....Assistant Professor of General Chemistry
(1924, 1926)
B.S. (1921), Ohio Northern; Columbia; M.S. (1922), Ph.D. (1924), Ohio State; graduate work, Oregon State, Northwestern.
- JAMES CAREY OTHUS, M.E.....Assistant Professor of Mechanics and Materials
(1921, 1926)
M.E. (1917), Cornell.
- JAMES HAROLD IRVINE, M.B.A.....Assistant Professor of Accounting (1923, 1926)
A.B. (1921), Albany College; M.B.A. (1922), Northwestern; graduate work, California.
- JOSEPH ELLISON, Ph.D.....Assistant Professor of History (1924, 1927)
Chattanooga; A.B. (1917), M.A. (1919), Ph.D. (1924), California; graduate work, Pennsylvania State.
- GLENN WILLIS HOLCOMB, M.S.....Assistant Professor of Civil Engineering
(1920, 1927)
B.S. (1919), Michigan; M.S. (1931), Oregon State.
- GUSTAV WESLEY KUHLMAN, M.S.....Assistant Professor of Farm Management;
Assistant in Farm Management, Agricultural Experiment Station (1927)
Wisconsin; B.S. (1925), South Dakota State; graduate work, Northwestern; M.S. (1926), Illinois.
- ADELBERT MORTEN McCAPES, D.V.M.....Assistant Professor of Veterinary
Medicine; Assistant Veterinarian, Experiment Station (1927)
Colorado; D.V.M. (1927), Colorado State.
- DANIEL THOMAS ORDEMAN, Ph.D.....Assistant Professor of English (1927)
Johns Hopkins; A.B. (1920), M.A. (1922), Washington and Lee; graduate work, Johns Hopkins, Chicago; Ph.D. (1927), Maryland.

- AMBROSE ELLIOTT RIDENOUR, B.S. Assistant Professor of Industrial Arts
(1911, 1927)
B.S. (1896), Kansas State.
- JAMES NIVEN SHAW, D.V.M. Assistant Professor of Veterinary Medicine;
Assistant Veterinarian, Agricultural Experiment Station (1919, 1927)
B.S. (1915), Oregon State; B.S., D.V.M. (1917), Washington State; graduate work,
University of Poitiers (France).
- GERTRUDE SUESS, M.A. Circulation Librarian (1927)
Hardin College; A.B. (1917), Nebraska; M.A. (1927), Illinois.
- GEORGE ALFRED WILLIAMS, A.M. Assistant Professor of Mathematics
(1920, 1927)
Bradley Polytechnic; A.B. (1918), Illinois; graduate work, Oregon; A.M. (1926),
California; graduate work, *ibid.*
- *MERRITT MADISON CHAMBERS, M.A. Assistant Professor of Political Science
(1927, 1928)
Florida; Harvard; B.A. (1922), Ohio Wesleyan; M.A. (1927), Ohio State; graduate
work, Washington.
- ROBERT HORNIMAN DANN, M.A. Assistant Professor of Sociology (1927, 1928)
B.A. (1917), Pacific College; M.A. (1918), Haverford College; graduate work,
Harvard, Washington.
- WILBUR POWELSON RIDDLESBARGER, A.M. Assistant Professor of Political
Science (1927, 1928)
Iowa; A.B. (1923), A.M. (1926), Nebraska; graduate work, Southern California.
- FRANCES MAURINE WRIGHT, B.S. State Supervisor and Teacher Trainer in
Vocational Home Economics (1928)
California; B.S. (1922), Oregon State; graduate work, *ibid.*, Kansas State, Merrill-
Palmer School, Washington.
- RALPH COLBY, Ph.D. Assistant Professor of English (1928)
B.A. (1916), M.A. (1917), Minnesota; Ph.D. (1928), Illinois.
- *MINNIE DEMOTTE FRICK, B.S. Assistant Professor of Secretarial Training
(1920, 1929)
Utah; Columbia College (Chicago); B.S. (1929), Oregon State.
- AGNES KOHLSHORN, M.A. Assistant Professor of Foods and Nutrition (1929)
B.S. (1913), Oklahoma State; Stout Institute; B.S. (1918), Columbia; M.A. (1919),
Denver; graduate work, Minnesota, Wyoming, Southern California, Chicago.
- CAPTAIN FREDERICK WILLIAM RASE. Assistant Professor of Military
Science and Tactics; Instructor in Infantry Unit, Reserve
Officers' Training Corps (1929)
Graduate Company Officers' course, Infantry School, Fort Benning (Georgia).
- CAPTAIN MAYLON EDWARD SCOTT. Assistant Professor of Military
Science and Tactics; Instructor in Field Artillery Unit,
Reserve Officers' Training Corps (1929)
Tulane.
- CURTIS KELLEY, M.B.A. Assistant Professor of Accounting (1927, 1929)
A.B. (1924), M.B.A. (1927), Washington.
- CLYDE WALKER, M.S. Assistant Professor of Agricultural Engineering
(1928, 1929)
B.S. (1924), M.S. (1930), Nebraska; graduate work, Colorado State.

*On leave of absence.

- ARTHUR LEMUEL ALBERT, M.S.....Assistant Professor of Electrical Engineering
(1923, 1929)
B.S. (1923), M.S. (1926), Oregon State; graduate work, *ibid.*
- JOHN HENRY CLOUSE, M.E.....Assistant Professor of Mechanical Engineering
(1929)
Ohio; B.S. (1920), B.S. in M.E. (1921), M.E. (1925), Armour Institute; graduate work, Chicago.
- KENNETH LLEWELLYN GORDON, M.A.....Assistant Professor of Zoology
(1927, 1929)
B.A. (1923), Colorado College; graduate work, Colorado; M.A. (1925), Missouri; graduate work, Woods Hole Marine Biological Laboratory, Cornell.
- WALTER BENO BOLLEN, Ph.D.....Assistant Professor of Bacteriology; Associate
Bacteriologist, Agricultural Experiment Station (1929)
Yale Army Laboratory School; B.S. (1921), M.S. (1922), Oregon State; Ph.D. (1924), Iowa State.
- FIRST LIEUTENANT DONALD CHARLES HILL, B.S.....Assistant Professor
of Military Science and Tactics; Instructor in Engineer Unit,
Reserve Officers' Training Corps (1929)
Whitman College; graduate U. S. Military Academy (West Point); Graduate Com-
pany Officers' course, Engineer School (Fort Humphreys); B.S. (1926), Massachusetts
Institute of Technology.
- LESTON LEWIS LOVE, M.S.....Assistant Professor of Education (1929)
B.S. (1923), M.S. (1929), Oregon State; graduate work, Ohio State.
- CAPTAIN NORMAN JOHN MCMAHON.....Assistant Professor of Military
Science and Tactics; Instructor in Field Artillery Unit,
Reserve Officers' Training Corps (1929)
Graduate, Basic Course, Field Artillery School; graduate, Troop Officers' course,
Cavalry School.
- EDWIN EVERETT WILSON, A.M.....Assistant Professor of Economics and
Sociology (1929)
South Dakota State; B.S. (1923), Minnesota; graduate work, *ibid.*; A.M. (1927),
Stanford; graduate work, *ibid.*
- CAPTAIN FORREST EDWARD AMBROSE.....Assistant Professor of Military
Science and Tactics; Instructor in Infantry Unit, Reserve
Officers' Training Corps (1930)
Otterbein (Westerville, Ohio); graduate, Infantry School, Fort Benning, Georgia.
- WILLIAM JENNINGS BAKER, M.S...Assistant Professor of Lumber Manufacture
(1930)
B.S. (1927), M.S. (1928), Oregon State.
- GEORGIA CHAPMAN BIBEE, B.S.....Assistant Professor of Institution Economics;
Director, Memorial Union Dining Service (1926, 1930)
B.S. (1925), Washington.
- LEWIS CLEMENCE BRITT, M.S...Assistant Professor of Pharmaceutical Analysis;
Director of the Drug Laboratory of the Oregon State Board
of Pharmacy (1925, 1930)
Ph.C. (1925), B.S. (1926), Oregon State; M.S. (1929), Washington.
- WILLIAM ELMER CALDWELL, Ph.D.....Assistant Professor of General Chemistry
(1930)
Met.E. (1924), Montana School of Mines; graduate work, Montana; M.S. (1928),
Ph.D. (1930), Wisconsin.

- GUY SHIRK CLAIRE, Ph.D.....Assistant Professor of Political Science (1930)
Oxford; A.B. (1923), Southern California; LL.B. (1926), M.A. (1928), Pennsylvania; Ph.D. (1930), Stanford.
- FREDERICK ALEXANDER CUTHBERT, M.L.D.....Assistant Professor of Landscape
Architecture (1928, 1930)
A.B. (1927), M.L.D. (1928), Michigan; graduate work, Lake Forest Foundation.
- DELBERT RANSOM FRENCH, Ph.D.....Assistant Professor of Economics (1930)
Washington State Normal School; A.B. (1915), Reed College; A.M. (1920), Wisconsin; Ph.D. (1930), Stanford.
- PAUL HENRY GIDDENS, Ph.D.....Assistant Professor of History (1930)
B.A. (1924), Simpson College; M.A. (1926), Harvard; Ph.D. (1930), Iowa.
- RENA HEAGEN, C.P.H.....Assistant Professor of Hygiene (1930)
B.A. (1925), Muskingum College; R.N. (1927), Cincinnati; C.P.H. (1930), Massachusetts Institute of Technology.
- FIRST LIEUTENANT GEORGE ALFRED ARNOLD JONES.....Assistant Professor
of Military Science and Tactics; Instructor in Field Artillery Unit,
Reserve Officers' Training Corps (1930)
Oregon State; Field Artillery School; Chemical Warfare School.
- WALTER RICHARD JONES, M.E.....Assistant Professor of Aeronautical
Engineering (1930)
B.S. (1923), M.E. (1928), Washington.
- MARY EUNICE LEWIS, M.A.....Assistant Professor of Modern Languages
(1928, 1930)
B.S. (1906), Pacific College; A.B. (1907), Penn College (Oskaloosa, Iowa); M.A. (1918), California; graduate work, Munich.
- OTTO CHRISTIAN MAUTHIE, G.G.....Assistant Professor of Physical Education
(1929, 1930)
G.G. (1920), Normal College of the American Gymnastic Union, Indianapolis, Indiana.
- FRED MERRYFIELD, B.S.....Assistant Professor of Civil Engineering (1926, 1930)
B.S. (1923), Oregon State; graduate work, North Carolina.
- FRED BUCKNER MORGAN, M.S.....Assistant Professor of Physics (1920, 1930)
B.Ped. (1910), Kirksville (Missouri) State Normal School; A.B., B.S. (1915), Missouri; graduate work, Colorado; M.S. (1930), Pittsburgh.
- FRANK PERRY SIPE, M.S.....Assistant Professor of Botany (1923, 1930)
B.S. (Ag.) (1916), B.S. (Educ.) (1918), Missouri; M.S. (1923), Iowa State.
- HENRY DAYTON SQUIRES, Ph.D.....Assistant Professor of Geology (1930)
B.A. (1922), New Brunswick; M.S. (1924), McGill; Ph.D. (1927), Wisconsin.
- EUGENE CARL STARR, B.S.....Assistant Professor of Electrical Engineering
(1927, 1930)
B.S. (1923), Oregon State.
- ROBERT EDWARD SUMMERS, B.S.....Assistant Professor of Mechanical Engineering
(1925, 1930)
B.S. (1924), Oregon State; graduate work, Kansas State.
- GRANT ALEXANDER SWAN, B.S.....Assistant Professor of Physical Education
(1926, 1930)
B.S. (1922), Oregon State; graduate work, California (Los Angeles), Washington.
- BETTY LYND THOMPSON, M.A.....Assistant Professor of Physical Education for
Women (1927, 1930)
B.A. (1923), Illinois Wesleyan; M.A. (1926), Wisconsin; graduate work, Iowa.

MABEL ALTONA WOOD, M.S., Assistant Professor of Foods and Nutrition (1930)
B.S. (1925), Oregon State; M.S. (1930), Columbia.

CHARLES S PEASE, Ph.D., Assistant Professor of Organic Chemistry (1925,
1930)
B.S. (1918), Denison (Ohio); Ph.D. (1928), Ohio State; graduate work, Colorado,
Chicago.

INSTRUCTORS AND ASSISTANTS

LAURIN BURTON BALDWIN, A.M., Instructor in English (1906)
Angola (Indiana) Tri-State Normal College; Hartsville College; Fayette (Ohio)
Normal University; A.B. (1895), A.M. (1897), College of Philomath; Chicago; A.B.
(1925), California; graduate work, *ibid.*

FLORENCE BOWDEN, B.A., Instructor in Cello, Violin, and Small Strings;
Conductor of Mandolin and Guitar Club (1911)
Graduate, Oregon State Normal School; B.A. (1915), Oregon; Columbia; graduate
work, Southern California, Oregon State.

MARTIN LOUIS GRANNING, Instructor in Machine Shop (1916)
Washington; California.

LURA AMELIA KEISER, B.S., Critic Teacher in Home Economics Education
(1917)
Grinnell College; B.S. (1907), Oregon State; Columbia; California; graduate work,
Iowa State.

KATHARINE BARBARA HAIGHT, R.N., Instructor in Home Nursing;
Preceptress, Margaret Snell Hall (1919)
St. Timothy's Hospital (Philadelphia); R.N. (1911), Pennsylvania; Columbia.

BEN HODGE NICHOLS, B.S., Instructor in Electrical Engineering (1919)
B.S. (1919), Oregon State; graduate work, *ibid.*

LILLIAN CATHERINE TAYLOR, M.A., Instructor in Foods and Nutrition (1919)
B.S. (1916), Illinois; Ypsilanti (Michigan) State Normal College; graduate work,
Chicago, Stanford; M.A. (1927), Columbia.

GERTRUDE STRICKLAND, Instructor in Clothing and Related Arts (1920)
Graduate (1908), Denton (Texas) College of Industrial Arts; graduate work,
Columbia, New York.

ALBERT WASHINGTON MARKER, M.A., Instructor in Physics (1920)
B.A. (1904), North Central College; M.A. (1916), Illinois.

MASTER SERGEANT JOHN HARSCH, JR., Assistant to Professor of
Military Science and Tactics; Instructor in Field Artillery Unit,
Reserve Officers' Training Corps (1920)
Master Sergeant (D.E.M.L.), United States Army.

WILLIAM HAMILTON HORNING, Instructor in Forging (1920)

SERGEANT JOHN CARSON WOODBURY, Assistant to Professor of
Military Science and Tactics (1920)
Sergeant (D.E.M.L.), United States Army; Sergeant Major, Reserve Officers'
Training Corps.

HARRY T DRILL, A.B., Instructor in Physics (1920)
California; Michigan; A.B. (1916), Oregon; graduate work, *ibid.*; Oregon State.

ALFRED CLINTON HARWOOD, Mechanician, Engineering Shops (1920)

- SERGEANT CLARENCE CALVIN WOODBURY.....Assistant to Professor of
Military Science and Tactics; Instructor in Infantry Unit,
Reserve Officers' Training Corps (1920)
Sergeant (D.E.M.L.), United States Army; (Captain, Infantry Section, Officers'
Reserve Corps).
- SERGEANT LAURENCE EDWIN DARLINGTON.....Assistant to Professor
of Military Science and Tactics; Instructor in Engineer Unit,
Reserve Officers' Training Corps (1921)
Sergeant (D.E.M.L.), United States Army, graduate of Motor Transport Training
School, Camp Holabird, Virginia; Army Motor Course at Georgia School of Technology;
(Captain, Quartermaster Section, Officers' Reserve Corps).
- BELVA PIERCE DIXON, B.S.....Instructor in Mathematics (1922)
B.S. (1922), Oregon State.
- *EVANGELINE WHITMORE THURBER, M.S.....Reference Assistant, Library (1922)
Nebraska; Washington State; A.B. (1921), California; M.S. (1928), Columbia.
- MERCY JANE WHALEY, M.S.....Instructor in Economics (1917, 1922)
B.S. (1921), M.S. (1923), Oregon State; graduate work, *ibid.*, Chicago, California.
- ELEANOR CALDWELL INGALLS, M.A.....Instructor in English (1922)
B.L. (1902), Ohio Wesleyan; A.B. (1904), Illinois; M.A. (1927), Columbia.
- EARL CLARK WILLEY, B.S.....Instructor in Mechanical Engineering (1921, 1922)
B.S. (1921), Oregon State.
- JOHN LYNN OSBORN, M.A.....Instructor in Zoology (1923)
Ph.C. (1915), Michigan; A.B. (1922), Kansas; M.A. (1923), Nebraska; graduate
work, Washington, Stanford (Biological Station), Harvard.
- JOHN CLIFTON GARMAN, B.S.....Instructor in Physics (1922, 1923)
B.S. (1922), Oregon State; graduate work, *ibid.*, Wisconsin.
- †MARGARET BELL LAWSING, B.S.....Instructor in Art (1924)
Pennsylvania State; B.S. (1918), Columbia; Boothbay Art Colony; graduate work,
California, Philadelphia School of Industrial Art.
- BYRON ARNOLD, A.B.....Instructor in Organ, Piano, Musical History, and Theory
(1924)
Music Diploma, A.B. (1924), Willamette; Oregon State.
- LILLY MAGNHILD NORDGREN, B.S.....Instructor in Secretarial Training (1924)
B.S. (1924), Oregon State; graduate work, *ibid.*, Stanford.
- EDWIN ARTHUR YUNKER, Ph.M.....Instructor in Physics (1920, 1925)
Oregon State; A.B. (1924), California; Ph.M. (1930), Wisconsin.
- WILLETTA MOORE, M.S.....Instructor in Foods and Nutrition (1925)
B.S. (1916), Oregon State; graduate work, Chicago, Oregon; M.S. (1925), Iowa
State.
- NATALIE REICHART, M.A.....Instructor in Physical Education for Women (1925)
Oregon State; B.S. (1924), Columbia; M.A. (1929), New York.
- EDWIN DAVID MEYER, B.S.....Instructor in Industrial Arts (1925)
B.S. (1927), Stout Institute; graduate work, Oregon State.
- COWIN COOK ROBINSON, A.M.....Instructor in General Chemistry (1926)
A.B. (1924), Sterling College; A.M. (1925), Kansas; graduate work, Colorado.

*Resigned, 1931.

†On leave of absence.

- WALFRED ANDREW DAHLBERG, B.A.....Instructor in Public Speaking; in Charge of Men's Varsity Debate (1926)
B.A. (1925), Michigan; graduate work, Washington, Northwestern.
- MERLE BONNEY DAVIS, B.S.....Critic Teacher in Home Economics Education; Acting Head, Home Economics Education (1926)
B.S. (1926), Oregon State; graduate work, *ibid.*
- AMORY TINGLE GILL, B.S.....Instructor in Physical Education; Head Coach of Basketball (1926)
B.S. (1924), Oregon State; graduate work, *ibid.*, California.
- ELSIE JACOBSEN, B.S.....Instructor in Physical Education for Women (1926)
California; B.S. (1926), Washington State; graduate, Sargent School of Physical Education; graduate work, California.
- LAURA CORNELIA MCALLESTER.....Instructor in Physical Education for Women (1926)
Boston Normal School of Gymnastics; Wellesley; Oregon State.
- RICHARD WENRICK NEWMAN, A.B., LL.B.....Instructor in Physical Education; Head Coach of Track (1926)
A.B. (1921), LL.B. (1926), Nebraska.
- WILLIAM HOWARD PAUL, B.S.....Instructor in Mechanical Engineering (1926)
University of Redlands; B.S. (1924), Oregon State; graduate work, *ibid.*
- DAVID CLYDE SMITH, M.S.....Instructor in Farm Crops (1926)
B.S. (1926), Utah Agricultural; M.S. (1928), Oregon State.
- JAMES VICTOR DIXON.....Instructor in Physical Education; Assistant Coach of Football (1927)
Oregon State.
- FRANK LLOYD FRANCE, B.S...Instructor in Industrial Education; Critic Teacher in Industrial Education (1927)
B.S. (in Education) (1922), Missouri State Teachers College; B.S. (in Industrial Arts) (1924), Stout Institute; graduate work, Oregon State.
- *GLADYS VIOLA JOHNSON, B.S.....Instructor in Clothing and Related Arts (1927)
B.S. (1921), Oregon State; graduate work, *ibid.*, Los Angeles Commercial Art, Neiver Booth (Chicago).
- PAUL XENOPHON KNOLL, M.S.....Instructor in Public Speaking; in Charge of Women's Varsity Debate (1927)
B.S. (1923), M.S. (1930), Oregon State.
- IDA MARTHA MATSEN, A.M.....Instructor in Art (1927)
Chicago Art Institute; Pratt Institute; B.F.A. (1925), Washington; graduate work, *ibid.*, California; A.M. (1926), Columbia.
- LUCY MOORE WEESE, M.A.....Instructor in Secretarial Training (1927)
B.S. (1924), M.A. (1927), Missouri.
- HERBERT BENJAMIN NELSON, M.A.....Instructor in English (1927)
B.A. (1926), M.A. (1927), Colorado; graduate work, *ibid.*, Washington.
- GEORGE THEODORE PARKER, M.S.....Instructor in Organic Chemistry (1927)
B.S. (1924), Lombard College; graduate work, *ibid.*; M.S. (1926), Wisconsin; graduate work, Ohio State.
- FRED JACOB SCHREINER, B.S. (L.E.)..Instructor in Logging Engineering (1927)
Wisconsin; B.S. (L.E.) (1927), Oregon State.

*On leave of absence.

- VELMA TRUE SHATTUCK, B.S.....Entomological Technician (1927)
B.S. (1927), Oregon State; graduate work, *ibid*.
- DELOSS PALMER YOUNG, B.S.....Instructor in Public Speaking and Dramatics;
in Charge of the Theater Workshop (1927)
Oregon; B.S. (1926), Oregon State; graduate work, Stanford.
- SUE ANDERSON REED, B.S.....Clerk and Technician in Zoology (1928)
B.S. (1925), Washington State.
- DOROTHY MAY BOURKE, B.A.....Instructor in Art (1928)
B.A. (1925), California School of Arts and Crafts; graduate work, *ibid*.
- VERA HASKELL BRANDON, M.S...Instructor in Household Administration (1928)
B.S. (1911, 1927), M.S. (1929), Oregon State; graduate work, Merrill-Palmer, Iowa.
- DONALD WILLIAM EMERY, M.A.....Instructor in English (1928)
B.A. (1927), M.A. (1928), Iowa.
- GEORGE BURKHALTER HERINGTON, D.E.....Lecturer on Construction
Administration (1928)
Executive Secretary Portland A. G. C.; D.E. (1931), Oregon State.
- JOHN EDWARD KENNEY, B.A.....Instructor in Physical Education; Head
Coach of Swimming (1928)
B.A. (1928), Stanford.
- ROY LAMB, B.S.....Instructor in Physical Education; Assistant in
Athletics (1928)
Nebraska; B.S. (1924), Lombard College.
- *JOHN CAMPBELL MAJOR, M.A.....Instructor in English (1928)
A.B. (1927), M.A. (1928), Nebraska; Aix (France); graduate work, California.
- JAMES MADISON MORRIS, B.S.....Instructor in Physics (1928)
B.S. (1928), Oregon State; graduate work, *ibid*.
- RAY FRED NEWTON, B.S.....Instructor in Mechanical Engineering (1928)
B.S. (1926), Oregon State.
- ALVIN EDWARD O'KONSKI, Ed.B.....Instructor in Public Speaking; in Charge
of Oratory and Freshman Debate (1928)
Ed.B. (1927), Oshkosh State; graduate work, Wisconsin, Iowa.
- THOMAS ONSDORFF, B.S.....Instructor in Horticultural Products (1924, 1928)
B.S. (1924), Oregon State.
- ALONZO STINER.....Instructor in Physical Education; Assistant
Coach of Football (1928)
Lombard College; Nebraska.
- GLEN CHASE WARE, M.S.....Instructor in General Chemistry (1928)
B.S. (1918), M.S. (1918), Kansas State; graduate work, California.
- BERNICE PALMER HUTTON, B.S.....Instructor in Secretarial Training (1929)
Whitman College; B.S. (1928), Simmons College.
- WILLIAM ROY VARNER, E.E.....Instructor in Physics (1929)
B.S. (1912), Oregon State; graduate work, *ibid*., E.E. (1914), Westinghouse.
- FRED MURIEL SHIDELER, B.S.....Instructor in Industrial Journalism (1929)
B.S. (1927), Kansas State.

*On leave of absence.

- WILMA HAZEL ANDERSON, B.S.....Instructor in Institution Economics; Assistant
Director of Dormitories (1929)
B.S. (1927), Oregon State.
- CORAL EVELYN AUSVE.....Assistant Instructor in Piano (1929)
Willamette; Oregon State.
- OLIVER KENNETH BEALS, B.S...Critic Teacher in Agricultural Education (1929)
B.S. (1923), Oregon State; graduate work, *ibid.*
- EDITH LIDA BENEDICT, M.A.....Instructor in Zoology (1929)
B.S. (1928), M.A. (1929), Northwestern; graduate work, Washington.
- HARRY GLENN BROWN, A.M.....Instructor in English (1929)
A.B. (1924), Iowa State Teachers College; A.M. (1927), Colorado.
- EDWARD CLEVELAND CALLAWAY, M.S.....Instructor in Organic Chemistry
(1910, 1929)
B.S. (1909), M.S. (1911, 1931), Oregon State; graduate work, *ibid.*
- DAVID BERRY CHARLTON, M.S.....Instructor in Bacteriology (1929)
B.A. (1925), British Columbia; M.S. (1929), Cornell.
- GEORGE WALTER GLEESON, B.S. (in Ch.E.).....Instructor in Mechanics and
Materials (1928, 1929)
B.S. (in Ch.E.) (1928), Oregon State; graduate work, *ibid.*
- EUGENE HARVEY HUFFMAN, M.S.....Instructor in General Chemistry (1929)
A.B. (1927), Colorado; M.S. (1929), Washington.
- PHILIP CORNWELL JOHNSON, B.S.....Laboratory Assistant in Forestry (1929)
B.S. (1929), Oregon State; graduate work, *ibid.*
- WILLIAM JOHN KIRKHAM, M.A.....Instructor in Mathematics (1929)
Wisconsin; A.B. (1927), M.A. (1928), Indiana.
- JOHN CLEMENT MCCLOSKEY, M.A.....Instructor in English (1929)
B.A. (1926), Columbia College (Iowa); M.A. (1928), Iowa; graduate work, Chicago.
- Franz Jackson Montgomery, A.M.....Instructor in English (1929)
A.B. (1927), A.M. (1928), Indiana; graduate work, Stanford.
- ANNA CHARLOTTE PRICE, A.M.....Instructor in Clothing and Related Arts (1929)
B.S. (1924), Kansas State Teachers College; graduate work, *ibid.*; A.M. (1930),
Chicago.
- MAYBELLE RARDIN, A.B.....Instructor in Secretarial Training (1929)
A.B. (1921), Colorado State Teachers' College; graduate work, *ibid.*, Wisconsin,
Oregon State.
- ELZIE REED, M.S.....Instructor in Chemical Engineering (1928, 1929)
B.S. (1927), Washington State; M.S. (1930), Oregon State.
- LEILA BEGGS RILEY, B.S.....Instructor in Physical Education for Women (1929)
Colorado State Teachers College; B.S. (1925), Oregon State.
- HENRY GEORGE RUPPEL, B.A.....Instructor in General Chemistry (1929)
B.A. (1920), Montana; graduate work, *ibid.*, Cornell, Colorado, Washington.
- ALMA SCHULMERICH, M.A.....Instructor in Art (1929)
B.S. (1928), Oregon State; M.A. (1929), Columbia; Art Students' League (New
York); Chouinard School (Sculpture) Los Angeles.
- HERBERT REEVES SINNARD, M.S.....Instructor in Landscape Architecture (1929)
B.S. (1927), M.S. (1929), Iowa State; graduate work, Lake Forest Foundation,
Architecture and Landscape Architecture.

- RUPERT ALRED WANLESS, B.S. Instructor in Civil Engineering (1929)
B.S. (in C.E.) (1923), Oregon State; graduate work, *ibid*.
- RALPH STEVENS WEESE, A.B. Instructor in Mathematics (1929)
A.B. (1929), Michigan.
- KATHRYN LOUISE WIGHTMAN, B.S. Instructor in Mathematics (1929)
Oregon Normal School; Comptometer School (Portland, Oregon); B.S. (1929),
Oregon State.
- WILLIAM HARRISON WRIGHT, A.B. Assistant Instructor in Singing (1929)
A.B. (1928), Willamette.
- RALPH NICHOLAS LUNDE, B.S. Instructor in Agricultural Engineering (1930)
B.S. (M.E.) (1926), Oregon State.
- JASON KERMIT BRANDEBERRY, B.S. Instructor in Logging Engineering
(1927, 1930)
B.S. (1927), Oregon State.
- JEANNETTE ALICE BRAUNS, B.S. Instructor in Physical Education for Women
(1930)
B.S. (1930), Battle Creek College.
- MARGARET LOUISE BREW, Ph.B. Instructor in Clothing and Related Arts (1930)
Ph.B. (1926), Chicago; Chicago Art Institute; graduate work, Chicago, Oregon
State.
- CECIL SIDNEY CAMP, B.S. (in C.E.) Instructor in Civil Engineering (1930)
B.S. (in C.E.) (1929), Arkansas.
- HUBERT CAPPS, M.S. Instructor in General Chemistry (1930)
B.A. (1928), Simmons; M.S. (1930), Washington.
- MARY EDITH CARSE, M.A. Instructor in Household Administration (1930)
Merrill-Palmer; B.S. (1926), Nebraska; M.A. (1927), Chicago; graduate work,
New York.
- MADGE BERNICE COPPOCK, B.S. Instructor in Secretarial Training (1930)
Willamette; B.S. (1931), Oregon State.
- DOROTHEA McLOUTH CORDLEY, B.S. Instructor in Clothing, Textiles, and
Related Arts (1930)
B.S. (1924), Oregon State; graduate work, *ibid*.
- CLARA FRANCES DODSON, B.A. Instructor in Art (1929, 1930)
Iowa State; B.A. (1929), California School of Arts and Crafts.
- GRAHAM MCFARLAND DRESSLER, M.A. Instructor in English (1930)
Knox College; A.B. (1928), M.A. (1929), Illinois.
- EVRA ALTA GARRISON, M.A. Instructor in Foods and Nutrition (1930)
Nebraska State Normal School; B.S. (1923), Nebraska; M.A. (1930), California.
- ETHEL ELIZABETH BORTON HEADRICK, M.A. Instructor in Art (1930)
Kirksville (Mo.) State Normal School; Illinois State Normal; B.S. in Ed. (1923),
Ohio; M.A. (1924), Teachers College, Columbia.
- LOUISE MARIE HOESCHEN, B.S. Instructor in Physical Education for Women
(1930)
B.S. (1930), Southern California.

- RICHARD SENG KEARNS, B.S.....Assistant in Forest Products (1930)
B.S. (1930), Oregon State.
- FRANCES ANNA KELLY, M.S.....Instructor in Household Administration (1930)
Oklahoma Agricultural and Mechanical College; B.S. (1926), M.S. (1930), Iowa
State; graduate work, New York State Teachers College.
- WILLIAM AARON KESSI, B.S.....Instructor in Botany (1930)
Oregon; B.S. (1923), Oregon State.
- PHILLIP W LLOYD, Pd.B.....Instructor in Mathematics (1927, 1930)
Colorado State; Pd.B. (1909), Colorado Teachers College; graduate work, Oregon,
Oregon State.
- MARION OLIVER, M.S.....Instructor in Clothing, Textiles, and Related Arts
(1921, 1930)
B.S. (1918), Oregon State; graduate work, Washington; M.S. (1928), Wisconsin.
- WILLIAM BERT OWEN, A.M.....Instructor in Zoology (1930)
B.A. (1927), Kentucky; A.M. (1929), Minnesota.
- BERT PILKINGTON, B.S.....Stockkeeper, Chemical Laboratories (1909, 1930)
B.S. (1905), Oregon State.
- ROBERT RAY REICHA, B.S.....Instructor in English (1930)
B.S. (1917), Oregon State.
- HELEN PEER ROBINSON.....Instructor in Clothing, Textiles, and Related Arts
(1914, 1930)
Pratt Institute; Oregon State.
- MIRIAM EGAN SIMONS, M.A.....Critic Teacher in Commercial Education (1930)
B.S. (1929), Oregon State; M.A. (1930), Southern California.
- HARRIET KING SINNARD, B.S.....Instructor in Clothing and Related Arts;
Extension Specialist in Clothing (1930)
B.S. (1929), Iowa State; graduate work, Oregon State.
- ELEANOR MAY SPIKE, B.S.....Critic Teacher in Home Economics Education
(1930)
B.S. (1925), Oregon State; graduate work, *ibid.*, San Jose State Teachers College.
- WARD LEMERT STUDOR, B.S.....Instructor in Animal Husbandry (1930)
B.S. (1929), Ohio State.
- RUTH THAYER, M.A.....Instructor in Physical Education for Women (1922, 1930)
B.S. (1910), Oregon State; A.B. (1918), Oberlin; graduate work, Iowa State
Teachers College, California; M.A. (1928), Columbia.
- RICHARD HENRY WILSON, B.S.....Instructor in Industrial Arts (1930)
B.S. (1930), Oregon State.
- SERGEANT LUTHER L. WADE.....Assistant to Professor of Military Science and
Tactics; Instructor in Rifle Marksmanship, Reserve Officers'
Training Corps (1931)
Sergeant (D.E.M.L.), United States Army.

RESEARCH AND TEACHING FELLOWS

- ARTHUR WILLIAM COLE, B.S...Teaching Fellow in Dairy Manufacturing (1929)
B.S. (1929), South Dakota State.
- ROLAND EUGENE DIMICK, B.S.....Teaching Fellow in Entomology (1929)
Willamette; B.S. (1926), Oregon State; graduate work, Oregon.

- OSCAR JEFFERSON DOWD, B.S.....Teaching Fellow in Horticulture (1929)
B.S. (1929), Michigan State; graduate work, Oregon State.
- EARL ROSENDALE FOGARTY, B.S.....Research Fellow in Soils (1929)
B.S. (1926), California.
- GEORGE LEONARD RYGG, B.S.....Teaching and Research Fellow in Horticulture
(1929)
B.S. (1929), North Dakota State; graduate work, Oregon State.
- REUBEN CHRISTIAN THIELKE, B.S.....Teaching Fellow in General Chemistry
(1929)
B.S. (1929), Oregon State.
- FRANCIS DALE WILSON, B.S.....Teaching Fellow in Dairy Husbandry (1929)
B.S. (1928), Kansas State.
- ERNEST LESLIE BEALS, B.S.....Teaching Fellow in Pharmacy (1930)
B.S. (1928), Oregon State.
- RUTH DOUGLASS, B.A.....Teaching Fellow in Foods and Nutrition (1930)
B.A. (1925), Pomona College; graduate work, California (Los Angeles), Southern
California, Oregon State.
- FLOYD MARVEN EDWARDS, B.S.....Teaching Fellow in Animal Husbandry
(1923, 1930)
B.S. (1923), Oregon State; graduate work, Chicago.
- LINDEN ELY HARRIS, B.S.....Teaching Fellow in Farm Crops (1930)
B.S. (1930), Utah State.
- CHARLES SUMNER HOFFMAN, B.S.....Teaching Fellow in Economics and
Sociology (1930)
B.S. (1930), Oregon State.
- WALTER THOMAS LUND, B.S.....Teaching Fellow in Botany (1930)
B.S. (1930), Oregon State.
- KENNETH ROSS MAC LEAN, B.S...Teaching Fellow in General Chemistry (1930)
Bowdoin; B.S. (1930), Oregon State.
- JUANITA CHANEY MANNING, B.S.....Teaching Fellow in Household
Administration (1930)
B.S. (1921), Oregon State; graduate work, *ibid.*, Merrill-Palmer.
- ARTHUR REYNOLD MARQUARDT, M.S.....Research Fellow in Soils (1930)
Midland College; Nebraska Wesleyan; B.S. (1929), M.S. (1930), Nebraska.
- VONDIS ELBERT MILLER, B.S.....Research Fellow in Silviculture (1930)
B.S. (1930), Oregon State.
- JOSEPH DEANE PATTERSON, B.S.....Teaching Fellow in General Chemistry (1930)
B.S. (1925), Oregon State.
- ALBERT FREDERICK SANDER, B.S.....Teaching Fellow in Farm Crops (1930)
B.S. (1930), South Dakota State.
- LYALL DE FOREST SEARING, B.S.....Research Fellow in Dairy Husbandry (1930)
B.S. (1928), Oregon State.

AGRICULTURAL EXPERIMENT STATION STAFF

WILLIAM JASPER KERR, D.Sc., LL.D.....President of the College
 JAMES TERTIUS JARDINE, B.S....Director of the Agricultural Experiment Station

PROFESSORS

ROBERT WITHYCOMBE, B.S.....Superintendent, Eastern Oregon Branch
 Experiment Station, Union (1902)
 HENRY DESBOROUGH SCUDDER, B.S.....Chief in Farm Management (1907)
 ARTHUR GEORGE BOUQUET, M.S....Horticulturist (Vegetable Crops) (1906, 1908)
 GEORGE ROBERT HYSLOP, B.S.....Agronomist in Charge (1908)
 ALFRED GUNN LUNN, B.S.....Poultry Husbandman in Charge (1908, 1911)
 FRANK CHARLES REIMER, M.S.....Superintendent, Southern Oregon Branch
 Experiment Station, Talent (1911)
 HOWARD PHILLIPS BARSS, S.M.....Plant Pathologist in Charge (1912)
 HAROLD KARL DEAN, B.S.....Superintendent, Umatilla Branch Experiment
 Station, Hermiston (1912)
 EDWIN THOMAS REED, B.S., A.B.....Editor (1912)
 DAVID EDMUND STEPHENS, B.S....Superintendent, Sherman Branch Experiment
 Station, Moro, (1912)
 *ERMINE LAWRENCE POTTER, M.S....Animal Husbandman in Charge (1908, 1913)
 LEROY CHILDS, A.B.....Superintendent, Hood River Branch Experiment
 Station, Hood River (1914)
 BENNETT THOMAS SIMMS, D.V.M.....Veterinarian in Charge (1913, 1914)
 *WILBUR LOUIS POWERS, Ph.D.....Soil Scientist in Charge (1909, 1915)
 PHILIP MARTIN BRANDT, A.M.....Dairy Husbandman in Charge (1917)
 GORDON GEORGE BROWN, B.S....Horticulturist, Hood River Branch Experiment
 Station, Hood River (1917)
 WALTER SHELDON BROWN, D.Sc.....Horticulturist in Charge (1913, 1917)
 ALBERT EDWARD ENGBRETSON, B.S.....Superintendent, John Jacob Astor Branch
 Experiment Station, Astoria (1919)
 J. SHIRLEY JONES, M.S.A.....Chemist in Charge (1919)
 OBIL SHATTUCK, M.S.....Superintendent, Harney Valley Branch Experiment
 Station, Burns (1919)
 ORAN MILTON NELSON, M.S.....Animal Husbandman (1913, 1921)

*On leave of absence.

- ERNEST HERMAN WIEGAND, B.S.....Horticulturist (Horticultural Products)
(1919, 1921)
- GODFREY VERNON COPSON, M.S.....Bacteriologist in Charge (1911, 1922)
- EDWARD MARIS HARVEY, Ph.D.....Horticulturist (Physiology) (1918, 1922)
- CHARLES VLADIS RUZEK, M.S.....Soil Scientist (Fertility) (1914, 1922)
- FRANK LESTER KNOWLTON, B.S.....Poultry Husbandman (1920, 1923)
- DON CARLOS MOTE, Ph.D.....Entomologist in Charge (1923)
- REGINALD HEBER ROBINSON, M.S.....Chemist (Insecticides and Fungicides)
(1911, 1924)
- SANFORD MYRON ZELLER, Ph.D.....Plant Pathologist (1919, 1924)
- WALTER THEODORE JOHNSON, D.V.M.....Poultry Pathologist (1925)
- MAUD MATHES WILSON, M.A.....Home Economist (1925)
- MILTON NELS NELSON, Ph.D.....Agricultural Economist in Charge (1926)
- WILLIAM HENRY DREESEN, Ph.D.....Agricultural Economist (1918, 1927)
- JOSEPH ROY HAAG, Ph.D.....Chemist (Animal Nutrition) (1927)
- HENRY HARTMAN, M.S.....Horticulturist (Pomology) (1919, 1927)
- CARL EPHRAIM SCHUSTER, M.S.....Horticulturist, Horticultural Crops and
Diseases, Bureau of Plant Industry, United States
Department of Agriculture (1914, 1927)
- MORTIMER REED LEWIS, C.E.....Irrigation and Drainage Specialist; Agricultural
Engineer, Bureau of Public Roads, United States Department
of Agriculture, (1928)
- FREDERICK EARL PRICE, B.S.....Agricultural Engineer (1918, 1928)
- CHARLES DAVID BYRNE, M.S.....Director, News Service (1929)
- GUSTAV WILSTER, Ph.D.....Dairy Husbandman (Dairy Manufacturing) (1929)
- GEORGE McMILLAN DARROW, Ph.D.....Senior Pomologist, Horticultural Crops
and Diseases, United States Department of Agriculture (1930)
- ANDREW OLOF LARSON, M.S.....Entomologist, Stored Products Insects, United
States Department of Agriculture (1930)
- BLISS F. DANA, M.S.....Pathologist, Horticultural Crops and Diseases, United
States Department of Agriculture (1931)

ASSOCIATE PROFESSORS

- FLOYD DOUGLAS BAILEY, M.S.....Associate Pathologist, Insecticide and Fungicide
Board, United States Department of Agriculture (1911)
- DELMER MORRISON GOODE, B.A.....Associate Editor (1919, 1922)

- ROSCOE ELMO STEPHENSON, Ph.D.....Associate Soil Scientist (1923)
- EARL NORMAN BRESSMAN, Ph.D.....Associate Agronomist (1924)
- RALPH STEPHEN BESSE, M.S.....Associate in Farm Management (1922, 1925)
- FRANK ELMER FOX, M.S.....Associate Poultry Husbandman (1925)
- JOSEPH ELLSWORTH SIMMONS, M.S.....Associate Bacteriologist (1919, 1926)
- LESLIE NEWTON GOODING, B.A., B.S.....Associate Plant Pathologist, United States Department of Agriculture (1922, 1927)
- IDWAL RALPH JONES, Ph.D.....Associate Dairy Husbandman (1925, 1928)
- HARRY AUGUST SCHOOTH, M.S.....Associate Agronomist, Forage Crops, United States Department of Agriculture (1914, 1928)
- HALBERT EDGERTON SELBY, B.S.....Associate in Farm Management (1919, 1928)
- JOHN COLE BURTNER, B.S.....Associate Director, News Service (1928)
- FRANK PADEN MCWHORTER, Ph.D.....Associate Plant Pathologist (1930)
- PAUL WILLIAM MILLER, Ph.D.....Associate Plant Pathologist, Horticultural Crops and Diseases, United States Department of Agriculture (1930)
- DONALD DAVID HILL, M.S.....Associate Agronomist (1927, 1930)
- LOUIS GUSTAV OSWALD GENTNER, M.S.....Associate Entomologist, Southern Oregon Branch Experiment Station, Talent (1930)
- GODFREY RICHARD HOERNER, M.S.....Agent, Office of Drug and Related Plants, United States Department of Agriculture (1931)

ASSISTANT PROFESSORS

- DELOSS EVERETT BULLIS, M.S.....Assistant Chemist (1917)
- EDWARD FRITCHOFF TORGERSON, B.S.....Assistant Soil Scientist (Soil Survey) (1918)
- ALFRED WEAVER OLIVER, M.S.....Assistant Animal Husbandman (1919, 1922)
- FLOYD MARVEN EDWARDS, M.S.....Assistant Animal Husbandman, Eastern Oregon Branch Experiment Station, Union (1923)
- BENJAMIN GARRISON THOMPSON, M.S.....Assistant Entomologist (1924)
- ARNOLD STEWART BURRIER, M.S.....Assistant in Farm Management (1925)
- ROY EMERY HUTCHINSON, B.S.....Assistant to Superintendent, Harney Valley Branch Experiment Station, Burns (1925)
- GEORGE ADAMSON MITCHELL, B.S.....Assistant Agronomist, Office of Dry-Land Agriculture, United States Department of Agriculture (1925)
- JOSEPH WILCOX, M.S.....Assistant Entomologist (1925)
- CARL FALES WHITAKER, M.S.....Assistant Chemist (1926)

- GUSTAV WESLEY KUHLMAN, M.S.....Assistant in Farm Management (1927)
 JAMES FOSTER MARTIN, B.S.....Junior Agronomist, Office of Cereal Crops and
 Diseases, United States Department of Agriculture (1927)
 JAMES NIVEN SHAW, D.V.M.....Assistant Veterinarian (1919, 1927)
 ADELBERT MORTEN McCAPES, D.V.M.....Assistant Veterinarian (1927, 1928)
 WALTER BENO BOLLEN, Ph.D.....Assistant Bacteriologist (1929)
 THEODORE DYKSTRA, M.S.....Assistant Plant Pathologist, United States
 Department of Agriculture (1926, 1929)
 CLARENCE J HURD, B.S.....Assistant Agricultural Engineer (1927, 1929)
 MERRILL MAHONRI OVESON, B.S.....Assistant to Superintendent, Sherman
 County Branch Experiment Station, Moro (1929)
 RODERICK SPRAGUE, Ph.D.....Assistant Pathologist, United States Department
 of Agriculture (1929)
 GEORGE LESLIE SULERUD, M.A.....Assistant Agricultural Economist (1929)
 ROBERT ARCH WORK, B.S.....Assistant Irrigation Engineer, Division of Agricul-
 tural Engineering, United States Department of Agriculture (1929)
 GRACE M COLE, A.B.....Assistant Botanist, Seed Laboratory, United States
 Department of Agriculture (Seed Analyst) (1917, 1930)
 DOUGLAS GRAYSON GILLESPIE, M.S.....Assistant Entomologist, Hood River
 Branch Experiment Station (1930)
 FRANK GERALD HINMAN, M.S.....Junior Entomologist, Stored Products
 Insects, United States Department of Agriculture (1930)
 SIDNEY CARROLL JONES, M.S.....Assistant Entomologist (1930)
 KENNETH WIESNER GRAY, B.S.....Assistant Entomologist (1930)
 ROBERT BILLINGS WEBB, B.S.....Agent, Cereal Crops and Diseases, United
 States Department of Agriculture (1930)

INSTRUCTORS AND ASSISTANTS

- DENNIS COOTER.....Orchard Foreman (1916, 1920)
 ERNEST MILTON DICKINSON, D.V.M.....Assistant Poultry Pathologist (1927)
 OWEN LESTER SEARCY, B.S.....Technician in Veterinary Medicine (1928)
 FONSOE MARION BOLIN, D.V.M.....Assistant Veterinarian (1929)
 HORACE HANNA MILLSAP.....Agent, Bureau of Plant Industry, United
 States Department of Agriculture (1929)
 OTTO HERBERT MUTH, D.V.M.....Assistant Veterinarian (1929)

FELLOWS

- RALPH BROOKE, B.S.A.....Fellow in Dairy Husbandry (1929)
 GEORGE LEONARD RYGG, B.S.....Fellow in Horticulture (1929)
 MILES BRAYTON HATCH, B.S.....Research Fellow in Agricultural Chemistry
 (1930)

ENGINEERING EXPERIMENT STATION STAFF

WILLIAM JASPER KERR, D.Sc., LL.D.....	President of the College
HARRY STANLEY ROGERS, C.E.....	Director of the Engineering Experiment Station
SAMUEL HERMAN GRAF, M.S.....	Director of Engineering Research
FRED ORVILLE McMILLAN, M.S.....	Electrical Engineering
CHARLES EDWIN THOMAS, M.E.....	Mechanics and Materials
JAMES CAREY OTHUS, M.E.....	Mechanics and Materials
EUGENE CARL STARR, B.S.....	Electrical Engineering
FREDERICK GOTTLIEB BAENDER, M.M.E.....	Mechanical Engineering
ARTHUR LEMUEL ALBERT, M.S.....	Electrical Engineering
GEORGE WALTER GLEESON, B.S. (in Ch.E.).....	Mechanics and Materials
JAMES RINALDO GRIFFITH, C.E.....	Civil Engineering
CHARLES ARTHUR MOCKMORE, C.E.....	Hydraulic Engineering

RESEARCH FELLOWS

LAWRENCE THOMAS FISHER, B.S.....	Electrical Engineering
RAYMOND HAWLEY JOHNSON, B.S.....	Mechanics and Materials
HENRY DAVID MORELAND, B.S.....	Electrical Engineering
WILHELM JAMES KOLLAS, B.S.....	Mechanical Engineering

TECHNICAL COUNSELORS

CLAIR VAN NORMAN LANGTON, D.P.H.....	Technical Counselor in Sanitary Engineering
CONDE BALCOM McCULLOUGH, M.S.....	Technical Counselor in Structural Engineering

EXTENSION SERVICE STAFF

WILLIAM JASPER KERR, D.Sc., LL.D.....	President of the College
PAUL VESTAL MARIS, B.S.....	Director of Extension Service

PROFESSORS

HARRY CASE SEYMOUR.....	State Club Leader (1916)
HERBERT TOWNSEND VANCE, M.S.....	In Charge of Extension in Commerce (1916, 1919)
FRANK LLEWELLYN BALLARD, B.S.....	State County Agent Leader (1917, 1923)
WALLACE LADUE KADDERLY, B.S.....	In Charge of Information and Radio (1916, 1923)
LEROY BREITHAUPT, B.S.....	Extension Economist (1920, 1926)

GEORGE OURY GATLIN, LL.B.....Extension Economist (Marketing) (1928)
 CLARIBEL NYE, M.A.....State Leader of Extension Home Economics (1930)
 OVID TULLIUS MCWHORTER, B.S.....Extension Specialist in Horticulture
 (1920, 1930)

ASSOCIATE PROFESSORS

HELEN JULIA COWGILL, B.S.....Assistant State Club Leader (1914)
 LEONARD JOHN ALLEN, M.S.....Assistant State Club Leader (1915)
 IRA NOEL GABRIELSON, A.B.....Leader, Rodent Control (1918)
 HUBERT ELMER COSBY.....Extension Specialist in Poultry Husbandry (1920)
 HARRY ARTHUR LINDGREN, B.S.....Extension Specialist in Animal Husbandry
 (1920)
 WILLIAM LEROY TEUTSCH, B.S.....Assistant County Agent Leader (1920, 1927)
 EDWIN RUSSELL JACKMAN, B.S.....Extension Specialist in Farm Crops
 (1920, 1929)
 DANIEL VANDERSALL POLING, M.S., LL.D.....Extension Lecturer, Rural
 Organizations (1929)
 ROGER WILLIAM MORSE, B.S.....Extension Specialist in Dairying (1923, 1930)
 URIEL SELLERS BURT.....Extension Specialist in Visual Education (1919, 1930)
 JOHN HOLLISTER TULL.....Extension Economist (Marketing) (1930)

ASSISTANT PROFESSORS

LUCY ADA CASE, M.A.....Assistant in Nutrition, Extension Service (1924)
 WILLIAM EDWARDS JOHNSON.....Extension Secretary (1923, 1927)
 ZELTA FEIKE RODENWOLD, M.S.....Extension Specialist in Home Management
 (1930)

INSTRUCTORS

ARTHUR SOLOMON KING, M.S.....Extension Specialist in Soils (1928, 1930)
 EARL GREER.....Telegrapher (1929)
 HARRIET KING SINNARD, B.S.....Extension Specialist in Clothing (1930)
 FORENA JENKS, B.S.....Assistant in Home Economics Radio Service (1930)

COUNTY EXTENSION AGENTS

PROFESSORS

HERBERT BADOLLET HOWELL, B.S.....County Agent, Josephine County (1921)
 CHARLES ALBERT HENDERSON, B.S.....County Agent, Klamath County (1922)
 OTTIS SCHULER FLETCHER, M.S.....County Agent, Lane County (1925)
 WALTER ARMAND HOLT, B.S.....County Agent, Umatilla County (1921, 1926)

ASSOCIATE PROFESSORS

SYLVESTER BENJAMIN HALL, B.S.....County Agent, Multnomah County (1916)
 ELVIN WINFIELD McMINDES, B.S.....County Agent, Clatsop County (1921)
 WILLIAM BENJAMIN TUCKER.....County Agent, Crook County (1921)
 WILLIAM DOUGLAS PINE, B.S.....County Agent, Tillamook County (1921)
 HARRY GRANT AVERY, B.S.....County Agent, Union County (1921)
 GEORGE ALLEN NELSON, B.S.....County Agent, Columbia County (1923)
 PHILIP TUTHILL FORTNER, B.S.....County Agent, Baker County, (1925)
 ROBERT GREY FOWLER, B.S.A.....County Agent, Jackson County (1924, 1926)
 JAMES RALPH BECK, B.S.....County Agent, Polk County (1922, 1926)
 JOHN JERRY INSKEEP, B.S.A.....County Agent, Clackamas County (1926)
 CYRUS RIPLEY BRIGGS, B.S.....County Agent, Benton County (1922, 1930)

ASSISTANT PROFESSORS

DAVID HONORE KENNEDY, B.S.....County Club Agent, Tillamook County (1922)
 WARREN THOMAS McDONALD, B.S.....County Agent, Deschutes County (1922)
 SARA HUNTINGTON WERTZ, B.S.....Home Demonstration Agent, Josephine
 County (1925)
 LYLE PORTER WILCOX, B.S.....County Agent, Jackson County (1926)
 MELVIN CONKLIN, B.S.....County Agent, Lincoln County (1926)
 SOLON TAYLOR WHITE, B.S.....County Agent, Yamhill County (1927)
 NOBLE CLARK DONALDSON, B.S.....County Agent, Wallowa County (1927)
 JAY CLARK LEEDY, B.S.....County Agent, Douglas County (1927)
 CHARLES WESLEY SMITH, B.S.....County Agent, Morrow County (1927)
 RAYMOND GILBERT LARSON, B.S.....County Agent, Malheur County (1923, 1927)
 RICHARD CARL KUEHNER, B.S.....County Club Agent, Lane County (1927, 1929)
 REUBEN JOHN MAASKE, B.A.....Urban Club Agent, Portland (1929)
 ARCHIE LEE MARBLE, B.S.A.....County Agent, Hood River County (1929)
 SARAH VINEYARD CASE, M.S.....Home Demonstration Agent, Columbia County
 (1930)
 MABEL CLAIR MACK, B.S.....Home Demonstration Agent, Jackson
 County (1928, 1930)
 WILLIAM FLETCHER CYRUS, B.S.....County Agent, Washington County
 (1929, 1930)

INSTRUCTORS

FRANK WILLIAM SEXTON.....County Club Agent, Klamath County (1920)
 *JAMES ROLAND PARKER, M.S.....County Club Agent, Douglas County (1926)
 GEORGE JENKINS, B.S.....County Agent, Coos County (1927)
 RAY GEORGE JOHNSON, JR., B.S.....County Agent, Grant County (1928)
 VICTOR WALDEMAR JOHNSON, B.S.....County Agent, Lake County (1928, 1929)
 LEROY CLINTON WRIGHT.....County Club Agent, Clackamas County (1929)
 CLAY CARL MILLER, B.S.....County Club Agent, Multnomah County (1929)
 ELLA FRANCES MILLER, B.S.....Home Demonstration Agent, Deschutes County
 (1929)
 GERTRUDE LONETTE SKOW, B.S.....Home Demonstration Agent, Lane County
 (1929)

*Half-time Assistant County Agricultural Agent.

WILBUR WRAY LAWRENCE, B.S.....	Assistant County Agent, Malheur County (1926, 1930)
ROBERT MYRON KNOX, B.S.....	Assistant County Agent Coos-Curry Counties (1930)
WILLIAM SAMUEL AVERILL, B.S.....	Assistant County Agent, Washington County (1919, 1930)
FRANCES ANN CLINTON, M.S.....	Home Demonstration Agent, Multnomah County (1929, 1930)
THELMA CHARLOTTE GAYLORD, B.S.....	Home Demonstration Agent, Clackamas County (1930)
ERNEST MILLARD HAUSER, B.S.....	Assistant County Agent, Klamath County (1930)
GUSTAVE YNGVE HAGGLUND, B.S.....	Assistant County Agent, Malheur County (1930)
GARNET DOUGLAS BEST, B.S.....	Assistant County Agent, Umatilla County (1931)

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EVA BLACKWELL, B.S.....	Assistant to the Registrar
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 ERNA MARGUERITE PLAGEMAN, R.N.....Supervising Nurse
 MABEL RUTH DARELIUS, R.N.....Nurse
 CLAUDINE MONTGOMERY, R.N.....Nurse
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 KATHARINE BARBARA HAIGHT, R.N.....Preceptress, Margaret Snell Hall
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 HARRIET STALEY.....Preceptress, Kidder Hall
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 MARY LOU TILTON.....School of Forestry
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 VETA STOVER SMYTH, B.S.....School-of Home Economics
 CARRIE HELEN THORY.....School of Mines
 MYRTLE RUTH BURNAP, B.S.....School of Pharmacy
 RUTH LANO.....School of Vocational Education

Part II

Oregon State Land-Grant College

Oregon State Agricultural College, designated in 1868 as the Federal Land-Grant college of Oregon, is a recognized standard institution of higher education comprising ten degree-granting departments or schools. Admission is on the basis of completion of a full four-year high school course. Graduation is on the basis of the completion of standard requirements for the bachelor's or higher degrees. The College is on the accredited list of the Association of American Universities, the American Association of University Women, the Northwest Association of Secondary and Higher Schools, and other authoritative rating organizations.

General Information

Admission to Freshman Class

In order to be admitted to Oregon State Agricultural College a student must be of good moral character and must present evidence of acceptable preparation for work of college grade. Development of character is regarded as a primary aim in education and is emphasized throughout the institution. A student who is admitted to the College accepts and is expected to live up to the requirements of the Honor Code of the student body as described under "Student Government."

Subjects Required. The scholastic preparation required conforms to the uniform entrance requirements for Oregon institutions of higher learning as adopted January 26, 1929. These requirements specify fifteen acceptable units of high school work, or equivalent, from a four-year standard high school, or twelve units from a three-year senior high school. A unit is defined as a high school subject carried for five 45-minute periods a week throughout the school year. Three units in English are required of all applicants. In meeting this requirement graduates of three-year senior high schools may count one unit in English taken in the year preceding the senior high school. No units are accepted in military drill, physical training, spelling, penmanship, or work which may be classed as largely a student activity. With these exceptions entrance units are accepted in any subjects credited toward graduation by standard high schools of Oregon. The College, however, requires that a certain proportion of the units must be in some of the following five fields: English, foreign languages, mathematics, laboratory sciences, and social sciences.

The units presented for entrance must include groupings of subjects according to one of the following plans (A, B, or C).

Plan A. Under this plan, the units presented must include certain groupings into "majors" and "minors," a major being three units in one field and a minor being two units in one field. In the case of students presenting fifteen units from a four-year high-school, two majors and three minors are required, of which at least two majors and one minor or one major and two minors must be in some of the five fields listed above. In the case of students presenting twelve units from three-year senior high schools, two majors and two minors are required, with either two majors and one minor or one major and two minors in some of the five fields listed above.

Under this plan the requirement of at least three units in English may be met by including among the majors and minors either one major or two minors in English.

Plan B. Under this plan, a student presenting fifteen units from a four-year high school must include at least ten units in some of the five fields

listed above, while a student presenting twelve units from a three-year senior high school must include at least eight units in some of the five fields listed above.

Plan C. This plan is open only to the student of exceptional ability as demonstrated by superior achievement in preparatory work including classification of the student in the highest one-fourth of the graduating class and the unreserved recommendation of the high school principal. In addition, the student is required to demonstrate his ability by obtaining a high rating in a college mental test. A student admitted under this plan, if submitting fifteen units from a four-year high school, must include eight units in the five fields listed; or if submitting twelve units from a three-year senior high school, must include seven units in the five fields.

Special Requirements. In addition to the foregoing entrance requirements which must be met by all applicants for admission to the freshman class, certain special subjects are necessary for admission to some of the technical schools. Students preparing to enter either the School of Agriculture or the School of Engineering should if possible take a full year of physics in high school. In order to be admitted to any of the Engineering curricula—Chemical, Civil, Electrical, Mechanical, Forestry, Mines, Military—a student must have one unit in elementary algebra, one-half unit in higher algebra, and one unit in plane geometry.

Attention is called to the Placement Test in English required of all freshmen and the Placement Test in Mathematics required of all freshmen in Engineering curricula, as described under "Definitions and Requirements."

Admission Procedure. Evidence of preparation for entrance to the College may be established by either (1) certificate or (2) examination.

Admission by Certificate. Applicants who are residents of Oregon are admitted on presentation of the required entrance units from a standard high school, certified by the principal or superintendent on the regulation form for this purpose. Copies of the blank, "Uniform Certificate of Secondary School Record," used by Oregon institutions of higher learning are furnished by the Registrar of the College on application of either student or principal. The certificate, properly signed, should be filed with the Registrar at least two weeks before the opening date of the College. Applications received subsequent to this time are not rejected, but it is impossible to acknowledge receipt of certificates and students may be delayed in completing registration.

Applicants not residents of Oregon must meet all requirements made of Oregon residents; in addition, such applicants are admitted only on a basis of personal selection establishing their fitness to do college work and including evidence of superior ability as demonstrated by high school record. In general, only those non-resident applicants are admitted who rank in the upper one-half of their graduating class.

Admission by Examination. When an applicant cannot present a certificate showing high school work completed, he must take the regular entrance examinations held at the beginning of each term. These examina-

tions are based in general upon the Course of Study for High Schools of Oregon issued by the State Department of Education, Salem.

Registration of Freshmen. Students admitted to the freshman class are as a rule registered in one of the technical or professional schools. Each of these has a carefully organized program of study for the freshman year combining the general, basic, and technical studies of the most fundamental importance in the several major schools of the College. Full directions on registration procedure are furnished by the Registrar's office to applicants for admission.

In the case of some students whose vocational objective lies within the field of this institution but who have not yet made a final decision as to major curriculum, it seems advisable to defer such decision until after a year at the College during which they may become familiar with the character of the work involved in the curricula of the several schools. Such students may be registered as general freshmen. For these students a special program of study is outlined, including orientation courses, together with fundamental and general subjects which all freshmen take irrespective of major curriculum.

Vocational and Educational Guidance. The degree-granting divisions of the College are all technical schools providing broad but definitely directed training for "the world's business, for the industrial pursuits and professions of life." A vocational objective is regarded as of great constructive value to every student, not only to assure him a worthy place in the work of the world through training for expert service in a chosen field but also to motivate the general or non-vocational part of his education through which his personality and sympathies are broadened and developed. Both for the efficiency of its work in training students and for the welfare of the individual student, the College has always deemed it important that each student be helped to select the curriculum for which he is best qualified. Vocational guidance has thus been a vital concern of the several schools of the College ever since their establishment. Beginning in 1914 with "The Life Career," the College has issued a succession of bulletins with a vocational guidance motive, explaining to prospective students the various types of training offered by the several schools and departments of the College, the occupations for which they afford educational preparation, the qualifications essential to success in the different fields of effort, and the opportunities and rewards in the various vocations. In 1923 the College inaugurated the vocational guidance conferences, held annually on the campus as part of the Educational Exposition. In addition, the College cooperates with high school authorities in maintaining a vocational guidance service in the high schools throughout the state. Within the College each school seeks to be of the greatest possible assistance to students in the wise choosing of a vocation and the planning of a program of training for it. As a means of effective coordination of all its counseling and guidance service, the College in 1929 established a department of Personnel and Placement under a specialist. This department, organized in connection with the School of Vocational Education, serves the entire institution, supplementing and cooperating with the guidance and personnel programs of the several schools.

Admission to Advanced Standing

ADVANCED standing signifies credit granted at the College for study done elsewhere. All questions of evaluating credits in advanced standing are determined by the Committee on Graduation.

Full credit is given for regular collegiate work completed in other colleges or universities recognized as standard, in so far as such work is equivalent to the requirements of the curriculum in which the student wishes to matriculate. A student transferring from another institution shall not, however, receive advanced standing for any credit representing a grade rating below "C," as defined at this institution; except that such credit may be accepted later, provided an advanced course for which the transferred credit is a prerequisite at this institution is passed with a grade of at least "C." A student who has attended another college or university and desires to enter Oregon State Agricultural College should file with the Registrar an official certificate from the institution from which he wishes to transfer, giving evidence of: (1) his honorable dismissal; (2) a detailed statement of the entrance credits presented at the time of his matriculation at the other institution; and (3) an official transcript of the work pursued while in attendance at the other institution.

Admission to Graduate Study

GRADUATES of four-year curricula in Oregon State Agricultural College or in other colleges of equal rank are eligible for registration as graduate students. Prospective graduate students are required to present credentials to the Registrar as specified under "Admission to Advanced Standing" showing adequate preparation for the graduate study to be undertaken. For the regulations governing graduate study, see the section of this catalogue devoted to Graduate Study.

Admission as Optional or Special Students

IN addition to those who are pursuing studies toward the bachelor's or higher degrees, the College admits as optional or special students individuals desiring to take work not leading to a degree.

Optional Students. An optional student is one who has met all entrance requirements but who, from the nature of the subjects elected, cannot be classified in any school. Optional students are not candidates for degrees.

Special Students. A person who is not able to satisfy the regular admission requirements but who has attained the age of 21 years and has the necessary training or experience profitably to pursue courses of college

grade may, with the approval of the dean of the school in which he desires to do special work, be registered as a special student. A special student is not a candidate for a degree.

A student who has been admitted to the College as a special student may obtain regular standing by the removal of entrance deficiencies, if any, in either of the following ways:

(1) College credits earned may be counted back to satisfy entrance requirements at the rate of nine college credits for each unit of entrance deficiency.

(2) Special examinations in entrance subjects may be taken at the date fixed for such examination at the beginning of any term. No duplication of credit, however, will be allowed.

Degrees Conferred

OREGON State Agricultural College confers degrees of Bachelor of Science and Master of Science. Degrees are conferred at the Commencement exercises in June. Diplomas are also issued without formal exercises at the close of the Summer Session.

A graduate in any of the curricula receives the bachelor's degree in any other curriculum by completing the studies required in that curriculum.

Students registered in the Three-Year Curriculum in Pharmacy prior to July, 1930, will be granted the degree of Pharmaceutical Chemist (Ph.C.) provided they complete the curriculum before July, 1933. This curriculum, by mutual agreement among the colleges of pharmacy of the Pacific Northwest, has been discontinued, no registrants being accepted after July, 1930.

To students completing the two-year curricula of the School of Agriculture and the School of Home Economics certificates are issued.

The degree-granting schools and departments in which work may be pursued leading to the bachelor's or higher degrees are the following:

School of Agriculture: Majors in General and Specialized Agriculture, including Agricultural Economics, Agricultural Education, Animal Husbandry, Dairy Husbandry, Farm Crops, Farm Management, Horticulture including Pomology and Vegetable Crops, Poultry Husbandry, Soils, and a special curriculum for women; a major in Agricultural Engineering; a major in Landscape Architecture; a major in Horticultural Products; majors in Sciences Basic to Agriculture, including Bacteriology, Botany and Plant Pathology, Chemistry, Entomology, Soil Science, and Zoology. Graduate study and research in all departments including Veterinary Medicine.

Department of Chemical Engineering: A major in Chemical Engineering, Industrial Chemistry. Graduate study and research.

School of Commerce: A major in Commerce including Accounting and Management, Advertising and Selling, Agricultural Economics, Banking and Finance, Commercial Education, Economics and Sociology, Gen-

eral Business, Government and Business Law, Markets and Marketing, Real Estate, Secretarial Training. Graduate study and research in Agricultural Economics and Rural Sociology.

School of Engineering and Mechanic Arts. Majors in Civil Engineering including Structural, Highway, Hydraulic, Sanitary, Railroad, and Construction Engineering; Electrical Engineering including Power Generation and Transmission, Railways, Lighting, High Voltage, and Telephony; Mechanical Engineering including Machine Design, Heat Power, Ventilation, Refrigeration, Heating, Gas, and Aeronautical Engineering; Industrial Arts including Industrial Arts Education and Industrial Shop Administration. Graduate study and research.

School of Forestry: Majors in Logging Engineering, Lumber Manufacture, Technical Forestry. Graduate study and research.

School of Home Economics: General and professional major curricula in Home Economics including Clothing and Textiles and Related Arts, Foods and Nutrition, Home Economics Teaching, Household Administration, Institutional Management. Graduate study and research.

Department of Military Science and Tactics: A major in Military Science and Tactics.

School of Mines: A major in Mining Engineering including Geology and Metallurgy. Graduate study and research.

School of Pharmacy: A major in Pharmacy including Pharmacology, Pharmaceutical Analysis, Pharmacognosy, Practical Pharmacy. Graduate study and research.

School of Vocational Education: A major in Vocational Education including administration, supervision and teaching of agriculture, commerce, home economics, industrial arts; vocational counseling and guidance. Graduate study and research.

Requirements for the Bachelor's Degree. Students who have been regularly admitted as candidates for the bachelor's degree may qualify for the degree by completing the required number of credits and grade points, in accordance with one of the four-year curricula.

Quantity of Work: The degree of Bachelor of Science is conferred upon those who have satisfactorily completed the respective curricula, each of which in the aggregate comprises 192 credits of work in the case of women, including physical education requirements, and 207 in the case of men, including military and physical education requirements.

Quality of Work: The credits presented for graduation must be of quality such that the total of grade points is at least equal to the total credits presented.

Requirements for the Higher Degrees. For all information concerning the higher degrees, see the section of this catalogue devoted to Graduate Study.

Definitions and Requirements

EVERY student is expected to obtain from the Registrar's office a copy of Rules and Regulations for Students, giving the routine of registration, the marking system, academic standards, regulations governing student activities, organizations, fraternities and sororities, etc. Students are held responsible for familiarity with the regulations in this handbook. The information presented in the following paragraphs is limited to items of interest to prospective students prior to registration.

The College Year. Except for a period of about ten years when a two-semester calendar was employed, immediately preceding the world war, the College from its inception in 1865-1868 has divided the academic year into three terms. The opening and closing dates for the terms of the current year, which are approximately twelve weeks in length, will be found in the college calendar on another page. The summer session is six weeks in length.

A Course is one of the instructional subdivisions of a subject offered in a single college term.

Numbering of Courses. Courses are designated by numbers of three digits, in which the left-hand digit represents usually the year (as first, second, third, etc.) in which a course is normally pursued; the middle digit represents the group of related courses in the department to which the course belongs; and the right-hand digit represents the sequence of courses in cases where courses normally follow each other in succeeding terms.

A Curriculum is a combination of courses for a clearly differentiated group of students, constituting a program of work for a number of years and usually leading to a degree.

A Term Credit or credit hour represents three hours of the student's time each week for one term. This time may be assigned to work in classroom, laboratory, or outside preparation. The number of scheduled lecture, recitation, laboratory, studio, or other periods per week for the respective courses is indicated in the course descriptions.

Normal Work for men consists of $17\frac{1}{2}$ credits a term during the freshman and sophomore years, including the military and physical education requirements, and 17 credits a term during the junior and senior years. Normal work for women consists of 16 credits a term, including the physical education requirements. No student shall be permitted to register for fewer than 12 credits per term without the approval of the faculty of the school in which he is registered, and in no case will a student be permitted to register for more than 20 credits per term except by the approval of the Scholarship Committee.

Maximum Number of Laboratory Hours. During the freshman and sophomore years the total number of laboratory hours for any student shall not exceed twenty-one hours a week for any term, on the basis of

regular or normal course credits. These maxima do not include the time spent in military drill or physical education.

Grade Points are determined on the basis of the grade earned. Each credit received with the grade of "A" counts three grade points. Each "B" credit counts two grade points. Each "C" credit counts one grade point. On "D" grades no grade points are awarded, and for each credit of failure one grade point is deducted. In connection with work reported "Incomplete" grade points are not considered until the final grade is determined.

Grade Point Deficiencies. (a) When a student has completed the equivalent of six terms or more of normal work he must have accumulated grade points equal to 75 percent of the number of academic credits for which he has been registered; otherwise he is not allowed to continue as a candidate for graduation.

(b) A student not permitted to continue as a candidate for graduation because of deficiency in grade points may be eliminated from the institution or he may be allowed to continue at the option of the Scholarship Committee and his dean, not a candidate for graduation, provided it appears that he may pursue with profit an irregular course.

(c) Such student may, at the expiration of not less than one year of satisfactory work, petition the Scholarship Committee for readmission to the degree curriculum.

Freshman Week, comprising a program of orientation training for entering freshmen, is held annually on the campus before the return of students who have been previously in attendance. Since the inauguration of Freshman Week in 1924, when the College was the only institution in the West and one of the few in the entire country maintaining such a program, an earnest effort has been made each year to serve the needs of incoming freshmen. The new students are made familiar with the objectives of higher education, the principles governing the wise use of time and money, methods of study, and the ideals and traditions of the College. By means of general assemblies, group lectures and discussions, individual conferences, examinations and tests, the College seeks to assist every freshman in getting the best possible start in his college work.

Placement Examinations. *In English.* All students registering as freshmen in the College are required to take a preliminary examination for the purpose of demonstrating their preparation in English. The examination covers the fundamental principles of grammar and requires evidence of the student's ability to apply these principles in writing. Students failing to obtain a satisfactory grade in this examination are required to pass satisfactorily Eng K, a non-credit course, before registering for Eng 101.

In Mathematics. All freshmen registering in any Engineering curriculum are required to take a placement examination in first-year high school algebra, on the basis of which their college work in mathematics is determined.

The Junior Certificate. When a student advances to junior standing he is awarded the Junior Certificate. This classification is obtained by completing a prescribed number of credits applying toward graduation, of such

quality that an equal number of grade points has been accumulated. The number of these credits required of men is 100 and of women, 90. If the student has not made a required standard (see paragraph below) in his freshman English composition, he must take the Junior Certificate English Examination before receiving the Junior Certificate. The awarding of the Junior Certificate is evidence that the student's work is satisfactory and that he has qualified to proceed as a candidate for graduation. The Junior Certificate is not awarded until at least two terms have been spent in residence at the College. A student entering with sufficient advanced standing to obtain junior classification is given a temporary certificate for such registration until the residence requirement for the Junior Certificate has been fulfilled.

Junior Certificate English Examination. Students failing to make an average of C or better in nine credits of freshman English composition, with no grade below C, are required to pass a further examination in ability to write English before becoming eligible for the Junior Certificate. This examination is scheduled with the regular examinations at the end of the second term. Students failing in this examination are required to pass an additional term of English composition. For these students special sections of Eng 201 are arranged.

Majors and Minors. Each of the degree-granting schools outlines one or more major curricula comprising the requirements for the bachelor's degree. Each curriculum, besides the necessary basic and cultural subjects, provides for specialization in some one field of study in so far as such specialization can profitably be carried within the limits of an undergraduate curriculum. The major work thus afforded in the several curricula involves a program of correlated study in one department or in closely related departments. Students in Commerce, Home Economics, and Vocational Education may take a "minor" in some other department or school.

For the terms major and minor as applied to graduate study see the section of the catalogue devoted to Graduate Study.

Required Subjects. Every student before graduation from any four-year curriculum must have completed the following: English composition, nine credits; economics, three credits; political science, three credits; business organization and operation or sociology, three credits; biologic or physical science, nine credits. If a modern language is elected, the student will be expected to continue this through two years, though credit will be given for any work completed.

Health and Physical Education. A physical examination is required of all students entering the College. In case examination of any student discloses physical defects, report is made to the Director of Physical Education, and the physical training of the student is adapted to suit, and if possible to correct, such defects.

All freshmen, both men and women, are required to take General Hygiene (H 110, 1½ credits) one term.

Men are required to earn 2½ credits in Physical Education at the rate of ½ credit per term during two terms of the freshman and three terms of the sophomore year. Additional credit in Physical Education will not be

counted toward graduation unless a minimum of 8 credits above the $2\frac{1}{2}$ credits required is earned. All men students are required to become proficient in the art of swimming.

Women are required to earn 9 credits in Physical Education during the four years at the rate of 1 credit per term during the first two years and $\frac{1}{2}$ credit per term in the junior and senior years. Additional credits in Physical Education will not be counted toward graduation unless a minimum of 8 credits above the 9 credits required is earned.

Students who are not physically able to complete the general Physical Education requirements of $2\frac{1}{2}$ credits for men and 9 credits for women shall not in any case be given credit for these courses.

Military Science and Tactics is required of all men students. For the required work of the freshman year 2 credits are allowed for each of two terms and 1 credit for 1 term, making a total of 5 credits for the freshman military work. For the sophomore military work 2 credits each term, or 6 credits for the year, are allowed. For the elective work of the junior and senior years 9 credits each year are allowed.

Students more than 30 years of age, those who are physically disqualified, and those who have served six months or more in the U. S. Army or Navy (except the S.A.T.C.) or who have received commissions in the Army or Navy, may be given credit in the required military work on recommendation of the faculty committee appointed to pass upon advanced credit in Military Science and Tactics. A student not a citizen of the United States is exempted; a student having conscientious objection to military training on account of his religious belief will be exempted on his written application fully establishing the fact of such conscientious objection on account of religious belief.

Students seeking advanced credit in Military Science and Tactics or excuse from drill must file a written petition, blanks for which may be obtained at the office of the Commandant. In fulfilling the requirements for a degree all students excused from the required military work must substitute an equivalent number of credits in other subjects.

Residence Requirement. A minimum residence of one year is required for graduation, during which period at least 48 credits must be earned. Residence during five summer sessions may be substituted for this one-year residence requirement.

Maximum Music Credits. A student may elect music credits, subject to the approval of the dean of the school in which he is registered, but not more than six credits in applied music may be counted toward degree requirements.

Fees

ALL the courses of the State College are open to residents of Oregon without tuition cost. Various fees are charged as indicated in the following paragraphs.

General Fees. The following general fees are paid by all undergraduate students irrespective of the school or curriculum in which they may be registered.

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1. *Registration Fee*, each term..... \$10.00
This fee is payable each term at the time of registration.
2. *Associated Students Fee*, each term..... \$ 5.00
This fee, levied by the Student Assembly, gives the student admission to all athletic events on the campus, all concerts by student musical organizations, all forensic contests, and a subscription to the student newspaper, *THE DAILY BAROMETER*.
3. *Health Service Fee*, each term..... \$ 3.00
The College maintains a Health Service under the direction of a competent medical staff. Each student pays the Health Service fee, entitling him to all the benefits of the Health Service, including, under certain conditions, limited hospital service.
4. *Physical Education Fee*, each term..... \$ 3.00
This fee covers cost of lockers, towels, and supplies used in operating the gymnasiums, including the swimming pools.
5. *Memorial Union and Student Building Fee*..... \$ 5.00
This fee entitles the student to membership in the Memorial Union and also applies on obligations voted and assumed by the Student Assembly.
6. *Class Fees*—
- | | |
|-----------------|---------|
| Freshman | \$ 0.30 |
| Sophomore | .50 |
| Junior | .75 |
| Senior | 1.00 |
- Graduation Fee** \$10.00
Each final application for graduation must be accompanied by the graduation fee.
- Graduate Student Fee**, each term \$20.00
This charge includes registration, the privileges of the Student Assembly, the Health Service, and the Gymnasium, and is uniform for all graduate students whether residents of Oregon or non-residents.
- Special Fees.** The following fees are paid by students under the conditions indicated.
1. *Late Registration Fee* \$2.00 to \$5.00
Students registering after the scheduled registration dates of any term are charged a late registration fee of \$2.00 for the first day; \$2.00 for the second day; and \$1.00 for the third day, the maximum charge being \$5.00.
2. *Change of Schedule Fee*..... \$ 1.00
If a student makes any change in his official program after such schedule has been duly approved and accepted by the Registrar's office, this charge is made.

3. *One Course Fee*..... \$10.00
 This fee, paid by any student, undergraduate or graduate, taking but one course, entitles him to the privilege of class attendance in the course designated but not to any other institutional privileges for which fees are charged.
4. *Reinstatement Fee*..... \$ 2.00
 If for any reason a student's registration is canceled during a term for failure to comply with College regulations but he is later allowed to continue his work the reinstatement fee is charged.
5. *Late Payment Fee*..... \$ 2.00
 In case a student fails to pay his assessed fees within the period scheduled for payment of such fees, his registration is canceled. He may be reinstated only by paying the delinquent fees and a late payment fee of \$2.00 plus a penalty of 25¢ for each day his fees have remained unpaid.
6. *Special Examination Fee*, each course..... \$ 2.00
 If a student is granted the privilege of taking an examination for advanced credit, this fee is charged.
7. *Auditor's Fee*—per credit each term..... \$ 1.00
 An auditor is a person who is not registered regularly in the institution but who has obtained permission to attend classes in a college subject.
8. *Transcript Fee*..... \$ 1.00
 Each student on graduation is entitled to an official copy of his record as on file in the Registrar's Office. An undergraduate student may have his record forwarded to any institution named. Additional transcripts, however, are furnished only on payment of this fee.

School and Laboratory Fees and Deposits. Laboratory fees and deposits which the student is required to pay depend upon the School in which the student is registered, the term, and the class to which the student belongs. The variation is from nothing to \$45 a term, although the average for all students is but \$8.00 a term. In the schools of Commerce and Vocational Education, and in the General Program for Freshmen, a school registration fee of \$5.00 a term is charged. In the School of Home Economics a school registration fee of \$4.50 a term is charged.

Laboratory Fees. Students are charged fees in certain laboratory courses to cover the cost of materials used. These fees vary from 25¢ to \$8.50 a course. The amount charged is indicated in the various course descriptions.

Deposits. Deposits are required in several of the courses to cover the cost of breakage when equipment is used where breakage is likely to occur. At the close of the term deductions are made to cover cost of breakage, if any, the balance being refunded. The deposits vary in the main from 50¢ to \$5.00.

Summer Session Fee.....\$20.00

All Oregon residents attending the Summer Session pay this fee at the time of registration. For students not residents of Oregon the Summer Session fee is \$25.00. No part of the Summer Session fee is refundable.

Non-Resident Tuition. All regular students who are not residents of Oregon pay non-resident tuition of \$150 a year or \$50 a term in addition to the fees paid by Oregon students. For the Summer Session only, non-residents pay a fee of \$25.

In 1921, the Regents of the University of Oregon and the Regents of Oregon State Agricultural College, acting jointly, established a non-resident tuition fee. This regulation as now operative is as follows:

- (1) Every student who has not, for more than one year immediately preceding the day of his first enrollment in the University of Oregon or the Oregon State Agricultural College, been domiciled in the State of Oregon, unless he shall have become a domiciled resident within said state, shall pay non-resident tuition fee of \$150 per year, or \$50 per term; except that the following persons shall not be required to pay the non-resident fee:
 - a—A minor student whose father (or mother, if the father is not living) is legally domiciled in the State of Oregon.
 - b—A student holding a bachelor's or higher degree from an accredited higher educational institution.
 - c—Minor children of enlisted or commissioned personnel of the regular Army or Navy.
- (2) These provisions regarding non-resident fees shall not apply to summer sessions.

In the administration of the foregoing regulations, the following rules are observed in determining the resident status of students:

- (1) Residence and Domicile are synonymous and domicile shall be considered to be a fixed permanent residence to which, when absent, one has the intention of returning.
- (2) A student entering from another state or country is prima facie a non-resident, and to change this residence the burden of proof is upon the student.
- (3) Residence cannot be changed by mere declaration of intention so to change, and in addition to declaration of intention to change residence must be supporting fact sufficiently strong to satisfy the authorities that the intention has actually been effected.
- (4) In case of minors, change of residence of parents or legal guardians will be closely examined.
- (5) In case of persons of legal age, such things as residence of parents, or nearest relatives, or wife, or children, or intimate friends to whom one would naturally go in case of illness or other distress, will be considered as factors entering into the matter of intent.
- (6) Actions will be considered as speaking louder than words in determining the weight of evidence, hence less weight should be given to a person's declarations than to his acts.
- (7) The length of time in the state will not alone determine residence.
- (8) Voting residence will not be a determining factor because of the constitutional provision, Art. II, Sec. 4, providing that a person shall not be held to have gained or lost a residence for the purpose of voting while a student at any institution of learning.
- (9) Two things, namely, (a) actual habitation, and (b) intention of remaining must exist simultaneously, and the intention to remain must be construed to mean remain permanently and not merely during school term or any other equally temporary time. It must be a bona fide permanent residence with no thought of change in the intent or residence when the school period shall have expired.

- (10) A non-resident at the time of his enrollment must be held to that classification throughout his presence as a student except in those rare cases where it can be proved that his previous domicile has been abandoned and a new one established independent of the College or his attendance thereon.

Board and Room

THE College maintains on the campus three halls of residence for women and five halls for men. Kidder, Margaret Snell, and Waldo halls are separate buildings, while the men's halls, each a distinct unit, constitute a single structure known as the Men's Dormitory building. The conditions of living in the halls of residence are such that the College considers it a distinct advantage to students to live in the halls.

Halls of Residence for Women. Kidder, Margaret Snell, and Waldo halls, with their large airy parlors and rooms, are pleasant residences for women students. The buildings are supplied throughout with pure mountain water, both hot and cold, electric lights, steam heat, and modern conveniences. The rooms are furnished with single beds, mattresses, dressers, tables, and chairs. Such other materials as are needed to make the furnishings complete, including pillows, pillow-cases, sheets, blankets, bed spreads, curtains, rugs, and towels, are furnished by the student. The bedrooms average about 12 feet by 15 feet, with one window 3 feet by 7 feet. Many of the rooms are larger and a few of them have two or three windows; all rooms in Margaret Snell Hall have two or more windows.

A wholesome, busy student atmosphere is maintained in the residence halls. Reasonable freedom is allowed, but week nights are reserved for study. All girls entering the College are expected to live in one of the halls of residence, unless their parents reside in the city, or they are working for room and board in a private family. All students living in the halls are required to take their meals there.

The expenses for living for each student in the women's halls are as follows:

Room deposit	\$ 3.00
Board, per week, payable in advance three times each term.....	5.50
Room rent for each term, payable in advance—	
Single room	46.00
Double room	24.00

The College authorities reserve the right to increase the price of room and board should advancing prices make it necessary. A corresponding decrease will be made whenever decreased prices make it possible.

The room deposit of \$3.00 must be sent to the Director of Dormitories at time of application for a room. If the student withdraws from College, this deposit will be refunded, upon presentation of the receipt, if no damage has been done to the room or furnishings. In case a student who has applied for a room does not enter the College the deposit will be refunded provided notification is sent at least one week before opening date. Rooms will not be held after the opening day of College unless previous arrangement is made.

Students are not expected to arrive in Corvallis until the day the halls are opened, one day before the opening date.

Halls of Residence for Men. The new Men's Dormitory building comprises Buxton, Cauthorn, Hawley, Poling, and Weatherford halls. The rooms accommodate two students each and are equipped with study tables, chairs, dressers and wardrobe facilities. All floors are covered with a good grade of linoleum. Adequate lighting is provided, besides which there are attachments for study lamps. Each floor has lavatory and shower-bath facilities. Sleeping accommodations for each floor are provided by dormitories equipped with double-deck cots, mattresses, mattress-covers, and pillows. Each student furnishes his own study lamp, bedding, towels, and personal furnishings. Further details concerning the building are given in the description on another page, under "Buildings."

Students in the men's halls are required to take their meals in the Memorial Union, located diagonally across the corner, where a dining-room is especially reserved for the residents of the men's halls.

The expenses for living for each student in the men's halls are as follows:

Room deposit	\$ 3.00
Board, per week, payable in advance three times each term.....	6.00
Room rent for each term, payable in advance.....	30.00

Application for rooms should be made to the Director of Dormitories. A student who reserves a room in the men's halls is subject to the regulations as to length of residence, etc., which are in force at the time of reservation. At present, the College requires that a registered student who has reserved a room must occupy it for a minimum of one term.

College Tea Room. A tea room in the Memorial Union, under the supervision of the School of Home Economics, serves attractive luncheons during the regular school week. Besides the regular luncheons the tea room makes a specialty of catering for luncheon and dinner parties.

Private Board for Men Students. Board and room may be obtained in private families in Corvallis at \$30 to \$35 a month. Good accommodations for self-boarding may also be obtained in the city. By renting rooms and boarding themselves, students may, by careful planning, reduce the cost of living about one-half. Lists of private boarding places and self-boarding quarters can be obtained from the secretary of the Y. M. C. A. after the student arrives at the College.

Student Housing Committee. The Committee on Student Housing is chiefly concerned in seeing that all students are properly lodged. It endeavors to aid students in obtaining suitable rooms in private homes at reasonable rental; attempts to standardize such rooms in respect to equipment, sanitation, etc.; aids organized groups of students in selecting suitable building lots, confers with them regarding their plans for building or buying houses, and aids them in their arrangements for financing such projects. All leases of realty, all contracts for the purchase of lots or houses, all financial arrangements for the building of houses, are, before execution subject to inspection, revision, and approval by the Committee on Student Housing.

Student Expenses

IN thinking of the cost of a year in college, the student usually has in mind the amount which he will spend from the time he leaves home until he returns at the close of the year. Such an estimate includes, of course, such personal items as clothing, travel, and amusements, items which vary according to the thrift, discrimination, and habits of the individual. In general, it may be said that a year in attendance at the College will cost from \$400 to \$700 a year, depending upon the tastes and judgment of the student. The necessary, strictly college costs, including fees, books, and supplies, average about \$150 a year, seldom exceeding \$200. Board and room is the largest single item of cost. In the College dormitories the cost for board and room is about \$300 a year for men and \$275 a year for women. All other items which must be included to make up the year's total expenses are personal and can best be estimated by the student himself.

An estimate of the average cost per year for a student who is a resident of Oregon, including all essential items aside from clothing, travel, and incidentals, is summarized below. To the amount indicated a student who is not a resident of Oregon should add the non-resident tuition fee of \$150 a year or \$50 a term.

Registration fee (\$10 a term).....	\$30.00
Associated Students fee (\$5 a term)	15.00
Memorial Union and Student Building fee (\$5 a term).....	15.00
Health Service fee (\$3 a term).....	9.00
Physical Education fee (\$3 a term).....	9.00
Laboratory fees and deposits (average \$8 a term).....	24.00
Board (for nine months).....	180.00 to 250.00
Room rent (for nine months).....	\$45.00 to 100.00

Except in unusual cases, it is not recommended that any student come to the College without sufficient funds to cover the cost of his first term. With a small allowance for incidental expenses, this initial outlay for the average student who is a resident of Oregon will usually total about \$250.

Self-support. A considerable number of students manage in one way or another to earn the whole or a part of their expenses while attending college. The student Employment Bureaus, conducted by the campus Y. M. C. A. for men and by the Dean of Women for women, register without charge students who apply for employment. It is the purpose of the bureaus to try to supply work, regular or occasional, to all who need it. In general, the demand for work on the part of the students exceeds the supply. Therefore, the attention of new students who intend to earn all or part of their living is called to the following results of past experience:

(1) No student should come to the College without sufficient resources for the expenses of one term. Work of any kind is much more readily obtained after the student has had opportunity to familiarize himself with local conditions.

(2) No student should expect to obtain employment by correspondence. It is advisable, however, to send an application to the Employment Bureau some time after September 1, and to come to Corvallis a day or two before the College opens and talk the matter over with the Employment Secretary. The positions for part-time employment are not listed, as a rule, until about the time the College opens.

(3) No student should come expecting to earn money unless he knows how and is willing to work. Only those students who do their work well can succeed in obtaining sufficient employment to meet their needs.

(4) There is a constant over-supply of those wishing to do teaching and clerical work. None but those having superior qualifications and experience are likely to obtain employment of this type during the first term.

(5) There is a considerable demand for efficient stenographers, but generally there is not sufficient work of this kind to meet the need of all applicants.

(6) Students who can do any kind of domestic or manual labor well and who have good health can earn their board for three hours of work a day, or board and room for four hours of work a day.

Loan Funds

AS an aid to students in financing a part of their residence study at the College a number of loan funds have been established, the principal one of which is known as the Student Loan Fund. A special faculty committee is charged with the responsibility of administering the Student Loan Fund and cooperates also in the administration of other loan funds open to students at the College.

The Student Loan Fund. The Student Loan Fund is a perpetual revolving trust fund, established for the purpose of lending money to worthy students attending or who wish to attend Oregon State Agricultural College. It is administered by the Student Loan Fund of the College, a membership organization, incorporated under the laws of the State of Oregon, whose members are known and designated as trustees, and are appointed by the President of the College. This fund has arisen through the liberality of friends of Oregon State Agricultural College and through the accumulation of interest on loans.

Purpose. The purpose, as expressed by one of the donors, is "not to induce students to attend school by providing money that can be easily obtained, but rather to aid those who have determined to secure an education and are paying the cost wholly or in part from their own earnings." Students are eligible to loan aid after they have been in attendance at the College at least one term.

Contributions. Among the many donors to the Student Loan Fund may be mentioned the following: Hon. R. A. Booth, Dr. Clara Humason Waldo, Mr. Ashby Pierce, Mr. R. M. Johnston, Mr. L. J. Simpson, Dr. Ben Selling, the College Folk Club, the Agricultural Club, the Oregon Countryman, miscellaneous contributions by Faculty, Professors Paul Petri and Lillian Jeffreys Petri, Winter Short Course students, Piano Practice Fund, Class Donations (1901, 1912, 1915, 1916), Y. M. C. A., Rifle club, Marguerite Mac Manus String Quartet, Salem Oregon State Club, Portland Oregon State Club, Oregon State Barometer, Domestic Science Dining-room (Panama-Pacific International Exposition, San Francisco), bonds during the war—Waldo Hall Club, Cauthorn Hall Club, Miners' Club.

Fundamental Principles. The fundamental principles upon which the fund is administered and upon which the success of the fund has been built are:

- (1) Care in the selection of student character as a credit basis.
- (2) Detailed budgeting of expenses and receipts to assure that the sums borrowed are not disproportionate with the student's capacity to repay.
- (3) Insurance against loss by a "Contract of Guaranty" signed by the parent or guardian.
- (4) Effective follow-up system on delinquent loans.

The J. T. Apperson Agricultural College Educational Fund. By the will of the late Hon. J. T. Apperson, Regent of the College from its foundation, a fund amounting to between \$55,000 and \$75,000 is to be a perpetual endowment, administered by the State Land Board of Oregon, for the assistance of worthy young men and women, "who are actual bona fide residents of the State of Oregon, and who would otherwise be unable to bear the expense of a college course at the Oregon State Agricultural College." The income from this estate is lent to students at a low rate of interest. Applicants for loans must be recommended to the State Land Board by the President of the College and the State Superintendent of Public Instruction. Application is made through the Student Loan Committee.

The Masonic Educational Funds. The Grand Lodge of the State of Oregon has assigned two thousand dollars (\$2,000) to a fund which may be used by needy sons and daughters of Master Masons. Loans from this fund are made at the discretion of the Trustees of the Grand Lodge, upon the recommendation of the President of the College and the approval of the master and wardens of the Lodge at Corvallis. Loans to any one student may not exceed three hundred dollars (\$300) in a school year, subject to repayment in full or in installments at the borrowing student's earliest convenience.

The Grand Chapter of Royal Arch Masons of Oregon has established a loan fund of \$2,500 jointly between Oregon State Agricultural College and the University of Oregon for the sons or daughters of Royal Arch Masons of Oregon. Loans from this fund are obtained as in the case of other Masonic loan funds.

The Knights Templar have a national fund available for the aid of students in their junior and senior years. The student applying need not necessarily have Masonic affiliations as a prerequisite. Loans from this fund are obtained in the manner above described.

The Eastern Star Educational Fund. Loans are available to students who are members or daughters of members of the Order of the Eastern Star. Loans are made in amounts of not more than three hundred dollars (\$300) in a school year. Notes are for one year and renewable at the pleasure of the Worthy Matron, and shall draw four percent interest. Loans are made upon honor, no security being asked, and will be made by the Trustees of the Grand Lodge on the recommendation of the president

of the institution which the student is attending and the approval of the Worthy Matron and Worthy Patron of the chapter of the Order of the Eastern Star located in the same place as the institution of learning.

The Harmon Foundation. This corporation of New York City, founded for the sake of assisting worthy self-supporting students in the last two years of their collegiate courses, assigned three thousand dollars (\$3,000) per annum to Oregon State Agricultural College. This money is loaned under conditions peculiar to this Foundation, perfectly protecting the principal yet requiring no security from the student. Loans made under this fund must be repaid by regular payments begun not later than twelve months after graduation or the leaving of school.

The Simon Benson Fund. Mr. Simon Benson of Portland has placed the sum of two thousand dollars (\$2,000) on deposit with the Loan Committee for the assistance of needy and worthy students. This fund is administered in the same manner employed with the other moneys of the regular Student Loan Fund.

Bernard Daly Educational Fund. Under terms of the will of the late Dr. Bernard Daly of Lakeview, Oregon, worthy self-supporting young men and women of Lake county, Oregon, may receive a part or all of their necessary college expenses. The terms of the will provide that the income from this fund be used to pay the college expenses of at least fifteen students each year. The fund is administered by a board of trustees who select candidates annually from a list of applicants recommended by the county judge and county school superintendent.

The Arthur Palmer Tift Memorial Loan Fund. By the will of the late Mrs. Joan C. Palmer Tift, practically her entire estate is left as a permanent loan fund for deserving young men needing financial assistance while attending Oregon State Agricultural College. This fund is left as a memorial to her son Arthur Palmer Tift, Portland attorney, who died on January 14, 1919. The fund is irreducible and all interest accruing therefrom is added to the Foundation.

The Oregon State Pharmaceutical Association Educational Fund. The O. S. P. A. Educational Fund, established by the Oregon State Pharmaceutical Association at its thirty-sixth convention held at Corvallis in July 1925, is a fund to be used primarily in making loans to needy and deserving students of Oregon State School of Pharmacy. It may be used also, at the discretion of the trustees of the corporation, for endowing a pharmaceutical library or a chair of research or instruction in the School. The O. S. P. A. Educational Fund is maintained through subscriptions from Oregon druggists and other sources. On an average, subscriptions are for \$100 each, payable in ten annual installments. John F. Allen, '95, of Corvallis, who initiated the establishment of the fund, subscribed \$1,000. Granting of loans, rate of interest, and other features are on the same basis as that of the Loan Fund Committee for the other loan funds donated to the College.

The Crawford Loan Fund. By the wills of the late Edward G. Crawford and his wife Ida M. Crawford a fund has been left in trust with the United States National Bank of Portland to assist worthy young men desiring to

educate themselves. Applications for assistance under this will are made through the local loan office. Applicant must be a native-born citizen of the United States, have attended primary school, either public or private, and have shown a desire and ability to help and educate himself. He must be regularly enrolled as a student in the school or college at which the proceeds of the loan will be used. According to the terms of the will, this fund can be used to assist young men who require financial aid in obtaining an education in any of the mechanical arts, trades, or in practical business, or along any particular line of study save and except the professions of medicine, law, theology, pedagogy, and music.

The Joseph N. Teal Loan Fund. By request in his will the late Joseph N. Teal of Portland gave to the College the sum of five thousand dollars (\$5,000) "to be administered as a perpetual revolving fund to be loaned . . . to worthy students pursuing courses of instruction in said College."

Prizes and Scholarships

IN addition to the various honor societies, listed elsewhere in this catalogue, which have as a primary purpose the recognition of superior scholarship and other qualities, a number of honors and prizes have been provided to be awarded to students of unusual achievement. Many of these awards are announced at the Phi Kappa Phi convocation in May, while Senior Honors are announced in the Commencement program.

Senior Honors are conferred by the Administrative Council upon those members of the graduating class who have maintained throughout their entire college course the highest scholastic standing in their school or department. No student is eligible to such honor unless his general average for all subjects has been 2.25 or higher. Election is limited to ten percent of the graduating members of a school or department.

The Clara H. Waldo Prizes, totaling one hundred and forty dollars annually, are awarded each spring in the proportions of fifty, forty, thirty, and twenty dollars respectively to the woman of highest standing registered as a regular student in the senior, junior, sophomore, and freshman year. The committee having charge of the award of these prizes is guided by the following points: (a) proficiency in scholarship, (b) success in student activities, (c) qualities of womanhood, and (d) qualities of leadership.

The Benton County State Bank Prizes, totaling one hundred and forty dollars annually, are awarded each spring in the proportions of fifty, forty, thirty, and twenty dollars respectively to the man of highest standing registered as a regular student in the senior, junior, sophomore, and freshman year. The committee having charge of the award of these prizes is guided by the following points: (a) proficiency in scholarship, (b) success in student activities, (c) qualities of manhood, and (d) qualities of leadership.

The **Joseph H. Albert Prize** of twenty-five dollars is an award annually made to the senior student who is adjudged by a joint committee of faculty and students to have made the greatest progress toward the ideal of character, service, and wholesome influence.

The **Chi Omega Prize**. Eta Alpha of Chi Omega offers an annual award of twenty-five dollars to the senior woman who is adjudged by a college committee on honors and awards to approach most nearly an ideal of intellect and spirituality and to have exerted the most wholesome influence and inspiration upon her associates.

The **Mountain States Power Company Prize**. This prize, offered by the Mountain States Power Company, is a silver loving cup presented to the senior man who during his entire college career has maintained a high standard of scholarship and manhood and has excelled in athletics.

The **Jacob Reichart Prize**. Through the generosity of Mr. Jacob Reichart, whose sons were prominent in debating while at the College, an award of twenty-five dollars is made annually to the senior student who during his college career has contributed most to forensics.

The **Alpha Zeta Scholarship Cup** is awarded during the first term of the sophomore year to the student in Agriculture receiving the highest grade average in the freshman class.

Oregon State Society of Certified Public Accountants Scholarship. For the purpose of stimulating the students in Commerce to achieve the utmost in the study of accounting, the Oregon State Society of Certified Public Accountants offers an annual scholarship, consisting of books on accounting to the value of twenty-five dollars. The faculty of the School of Commerce designates the student most worthy of the award.

The **Adolphe Wolfe Prizes** of two hundred dollars were established in 1927 for the purpose of promoting business scholarship and research. The award is made annually to the sophomores, juniors, and seniors in Commerce who in the opinion of the Commerce faculty give the greatest promise of business leadership. The award is divided into three prizes for men totaling one hundred dollars (\$20, \$30, and \$50 to sophomore, junior, and senior respectively) and three prizes for women in like amounts. In awarding the prizes, character, scholarship, and qualities of leadership are considered.

The **American Society of Civil Engineers Prizes** comprise junior memberships in the society awarded annually for the three best papers prepared and delivered in the student branch of the society.

The **American Society of Mechanical Engineers Prizes** comprise awards of twenty-five, fifteen, and ten dollars respectively awarded annually for the three best papers prepared and delivered in the student branch of the society.

Eta Kappa Nu Cup. This cup is awarded annually to the best student in the sophomore Electrical Engineering class.

The Mary J. L. McDonald Fellowship in Reforestation. Through the generosity of Mrs. Mary J. L. McDonald of San Francisco, a fellowship has been established giving opportunity to do advanced study in problems of reforestation. The fellowship is awarded each year by a committee of the faculty of the Oregon State School of Forestry to a graduate of a recognized school of Forestry on the basis of proficiency in forestry studies, personality, and demonstrated ability to do independent work.

The Charles Lathrop Pack Forestry Prize. Through the generosity of Mr. Charles Lathrop Pack of New Jersey, a gift of two thousand dollars has been made to the College to encourage Forestry students to write for publication. The income from the gift is awarded each year to the junior or senior student in Forestry who produces the most interesting, logical, and technically significant paper for publication.

The Omicron Nu Plaque is awarded each year to the senior woman who has best lived the teachings of home economics throughout her college career. Candidates are first selected by a committee of the Home Economics faculty and their names then submitted to vote of the Home Economics Club, final decision resting with the committee.

The Home Economics Prize of a ten-dollar gold-piece was established (1928) by members of Omicron Nu for the purpose of promoting scholarship and leadership in home economics, the recipient being selected by a joint committee representing Omicron Nu and the faculty in Home Economics.

International Friendship Scholarship. The Home Economics Club of the College on March 2, 1926, established a scholarship of five hundred dollars which is awarded annually to a graduate foreign student to study Home Economics at Oregon State Agricultural College. The recipient of the scholarship is selected by a committee composed of the executive council of the Home Economics Club, the Dean of the School of Home Economics, and a representative of Omicron Nu.

The Drucilla Shepard Smith Prizes. Through the generosity of John E. Smith of the Class of 1902 a sum of five hundred dollars has been contributed as a memorial to his mother, the late Drucilla Shepard Smith (Mrs. F. S. Smith) of Polk county, Oregon. The income from this gift, in accordance with the wishes of the donor, is divided each year into two prizes in the proportion of three-fifths and two-fifths respectively for the best articles or series of articles published during the year by graduate or undergraduate students giving practical solutions of problems that confront women in rural homes. These problems may be concerned with club work, education, finance, family government, health and sanitation, marketing, psychology, recreation, social affairs or any other subject in which difficulties arise for the rural homemaker. The judges determining the award of these prizes are appointed by the President of the College.

The Lee Scholarship is awarded at Commencement time each year to the woman student in Home Economics registered as a junior, who during her career in college has shown improvement in her work, stability and meritorious record in all her activities, and general all-around worthiness.

This scholarship provides a sum of money derived from the annual income of a fund of one thousand dollars bequeathed by the will of Minnie E. Lee as a memorial to her husband J. B. Lee and herself, to be paid to the recipient at the time of her registration in the senior year. The award is not open to any student who has received any other monetary prize.

The Rho Chi Prize of ten dollars is awarded annually to the freshman in Pharmacy who in the judgment of the Rho Chi society and the faculty in Pharmacy has been most outstanding in scholarship and activities.

The Kappa Delta Pi Award of twenty-five dollars is made annually to the sophomore enrolled in the School of Vocational Education who as a freshman in that school made the highest scholastic average.

The E. D. Ressler Memorial. This award, given by the Oregon State Teachers Association, is presented to the junior in Vocational Education who in the judgment of the faculty of the School of Vocational Education, as approved by the Committee on Honors and Awards, has made the best all-around record as an undergraduate.

The American Association of University Women Graduate Scholarship. Every three years beginning 1931 the Oregon Division of the American Association of University Women gives a scholarship of twelve hundred dollars to a woman who is a resident of Oregon, and who holds at least a bachelor's degree, for advanced study at any American or foreign university.

The College Folk Club Scholarship is an award of fifty dollars made annually to an outstanding woman, a high school graduate, selected by the scholarship committee of the College Folk Club.

Research and Teaching Fellowships. A number of fellowships are open annually or biennially to graduate students. Most of these afford opportunity to combine teaching or research with study for an advanced degree.

Campus Activities

ONE of the most important factors in rounding out the benefits of college life is the formation of civic habits of responsibility and leadership through student clubs, associations, and societies. Through the activities of these organizations opportunity is afforded for the practice of citizenship in the campus community, the development of friendship through congenial associations, and the broadening of outlook and sympathies of participants. As a result of the diverse interests of campus life and the varied tastes of the students, the following activities and organizations, besides many others, are maintained by students and faculty.

Student Government

STUDENT self-government at the College places the general disciplinary powers of the institution in the hands of the students, operating under a constitution and by-laws approved by the faculty.

The **Associated Students** is an organization of the entire student body having general authority over all student body enterprises. Officers are elected annually, nominations and elections being conducted in a manner similar to that of the state electorate. The officers consist of a president and a secretary chosen from the senior class, and three vice-presidents chosen one each from the senior, junior, and sophomore classes. The president, the three vice-presidents, and the secretary constitute the executive committee of the student body, having general supervision of all student body interests.

The **Associated Women Students**, organized in 1916, includes all the women of the student body. In the fall of 1919 it became a member of the Oregon Federation of Women's Clubs. The purpose of the organization is to develop unity among the women of the campus and to promote the spirit of democracy. With the approval of the Dean of Women, who is vitally interested in all phases of the activities of the organization, the young women determine the general regulations governing women students.

The **Board of Control** consists of three faculty members appointed by the President of the College, one alumnus chosen by the Alumni Association, and five students. The student members are the president, first vice-president, and secretary of the Associated Students, and a junior and a senior chosen by their respective classes. The student body constitution vests in this Board of Control authority to supervise all student body interests entailing the expenditure of student body funds. The Board exercises functions in the main by the approval of budgets and schedules. The imme-

diate supervision is exercised through a general manager appointed by the Board of Control.

The Student Council, an organization made up of ten students, five of whom are seniors, three juniors, and two sophomores, is vested with such powers as are necessary to enforce the rules and regulations for men students. The *Women's Council* performs a similar function among women students.

The Honor Council. The system of student self-government includes an Honor Council and an Honor Court. The student honor code states: "The spirit of honor assumes that at all times you will avoid any act which you feel your fellow students would condemn as unfair or unjust." The Honor Council, composed of nine members of the student body, strives constantly to foster a spirit of honor and constitutes the jury for trying all cases of student violation of honor. Such cases of dishonesty are reported to the council by students and faculty members, the aim being to promote the highest possible degree of student honor and responsibility on the campus.

Memorial Union Governors and Directors. The Board of Governors of the Memorial Union is composed of seven members. One is a student elected by the student body as President of the Memorial Union; one is a student named by the executive committee of the student body; one is a member of the State Board of Higher Education named by the Board; and four are members of the Union; of these last, three are alumni selected by the board of directors of the Alumni Association. The Board of Governors has control of all financial matters connected with the Union, appoints the general manager, and exercises general supervision over the Union.

The Board of Directors of the Memorial Union is composed of seven members, of whom the president is selected by the Associated Students; one is an alumnus selected by the Alumni Association, one is a member of the faculty appointed by the President of the College, and the following are members ex officio: the president and the secretary of the Associated Students, the editor of the *Daily Barometer*, and the general manager of student activities. The Board of Directors has immediate charge of the administration and government of the Memorial Union.

General Campus Organizations

STUDENT body traditions are fostered among men students by the Beaver Knights chapter of the National Order of Intercollegiate Knights and among women students by a chapter of the national organization, Spurs. Other important organizations concerned with student traditions are the Homecoming Committee, the Educational Exposition Committee, Women's Week-end Committee, and the Campus Week-end Committee.

The Classes. The respective student classes are organized throughout their undergraduate years at the College and thereafter maintain per-

manent class organizations within the Alumni Association for the holding of class reunions and other activities. Most of the graduating classes have left gifts of various kinds as tributes to their Alma Mater, such gifts being commonly presented during the class-day exercises at Commencement time. The classes which hold Silver Jubilee reunions in celebration of the twenty-fifth anniversary of their graduation have likewise presented notable gifts. The Class of 1930 made a gift of a Mason-Hamlin grand piano for the main lounge of the Memorial Union.

The Alumni Association. The Oregon State Alumni Association is fostered by the graduates and former students of the College. There are 7,620 graduates and approximately 16,000 former students. The purpose of the organization, as stated in its constitution, is to upbuild the general welfare of the members; to give to the community what the College has given to them; and, by united effort, to promote all the interests of the College, the State, and the Nation.

Alumni of the College live and work in all parts of the world. A magazine, *THE OREGON STATE MONTHLY*, published regularly throughout the year, provides the chief means of keeping members, and the public in general, informed concerning happenings and the progress of the College and its alumni.

The Alumni Association is governed by a board of five directors, one of whom is elected each year at the annual business meeting held at Commencement time.

The Association was a powerful factor in the building of the Memorial Union on the campus and maintains its permanent secretary and office staff in Room 111, Memorial Union.

The Young Men's Christian Association is a campus Christian movement of students and faculty. The local association was organized in 1890. The large and varied program of activities, built around the Christian idea, includes cooperation with the churches; Bible classes and discussion groups; securing of speakers with positive Christian messages; promotion of the Northwest College Students' Conference at Seabeck on Puget Sound; hundreds of student interviews with the secretaries; employment bureau, obtaining part-time work valued at \$30,000 to \$50,000 each year; assistance in obtaining rooms and board; special work with new students; wholesome social activities; sick visitation; work with foreign students; cooperation with the Student Volunteer Band and the Fellowship for Life Service. The association fills a unique place in campus life as a unifying and vitalizing spiritual force.

The Young Women's Christian Association aims to cooperate with all forces of the College and of the community in promoting among the women students a well-developed life. The General Secretary is at the service of all of the women of the campus, at the Association headquarters in the Memorial Union. On registration days members of the Y. W. C. A. meet the incoming students and assist them in adjusting their work. The meetings of the Association are held the first and third Thursdays of every month. All women are cordially welcomed to these meetings. Bible, mis-

sion, and industrial study classes, community service, parties and teas form part of the year's program.

The Cosmopolitan Club. This organization of foreign and American students, installed in 1911, is the local chapter of the Association of Cosmopolitan Clubs of the World. Its purpose is to provide social and educational advantages for its members and to promote international friendship. About twenty countries are represented in the local chapter.

Miscellaneous Organizations. Among miscellaneous organizations may be mentioned the Four-H Club, Masonic Club, Temenids, Bernard Daly Club, and the Filipino Club. The Oregon State Dames is a social organization composed of wives and mothers of students affiliated with the national organization of University Dames. The College Folk Club, organized in 1908, affords general social intercourse for women connected with the staff directly or through immediate family connection. The American Association of University Women, in which women students of the College have full privileges of membership, maintains a Corvallis branch. Other organizations of special interest to members of the faculty are the Faculty Men's Club, which maintains its club rooms in the Memorial Union; the Biology Club; the Order of the Spoon; and the Sigma Xi and Phi Beta Kappa associations, the two last-named being composed of local members of these national honor societies.

Forensic and Dramatic Organizations

THE College is a member of the Pacific Forensic League, which is composed of the leading colleges and universities of the Pacific Coast, and of the Intercollegiate Forensic Association of Oregon, which includes ten of the colleges and universities of the state.

Forensic Association. This organization brings together for cooperative activity all campus organizations and individuals interested in any phase of forensics. Through its members it has charge of all business pertaining to competitive work in oratory and debate and cooperates in the promotion of forensics and dramatics at the College.

Intercollegiate Debate and Oratory. Each year Oregon State participates in approximately sixty intercollegiate debates, putting into the field from thirty-six to forty teams, supporting both the negative and the affirmative of many questions. The College sends one representative each year into the old-line State Oratorical Contest in which eight colleges take part, and a representative to an interstate contest in which twelve colleges of the West participate (Stanford, Whitman, Washington, Arizona, Pomona, California at Los Angeles, Oregon, Willamette, Idaho, Washington State, Southern California, and Oregon State). Representatives from the colleges participate in the state Peace oratorical contests and in the state and Pacific Coast extempore speaking contests. Monogrammed sweaters and medals are awarded to the men and women who represent the College in these events.

Each year the Public Speaking department of the College is in charge of the State High School Interpretation and Extempore Speaking contests, in which representatives from different sections of the state compete. Cash prizes and medals are awarded the winners by Delta Sigma Rho, honor society in forensics; National Collegiate Players, honor society in dramatics; and the Oregon State Alumni Association.

Local Debate and Oratory. Interclass and interorganization contests are held in debate, oratory, and extempore speaking, those in extempore speaking being carried on in connection with the classes in public speaking. For the best extempore speaking by a student in these contests a prize is given by the Corvallis Lions Club. Approximately forty teams participate in interorganization debates each year. The winners receive loving cups.

National Collegiate Players. The Oregon State Chapter of National Collegiate Players is a chapter of the national honorary dramatic fraternity. Its members are chosen from juniors and seniors who have done outstanding work in dramatics and maintained a high scholastic standing. The club room, which is also used for rehearsals, is located in the Memorial Union. Two major productions of standard plays are given each year, under direction of members of the Public Speaking department. Other plays are produced under direction of members of the organization. Each term there are meetings, both social and educational, at which invited speakers talk on various subjects of interest to the members.

Delta Sigma Rho. The first chapter of Delta Sigma Rho in the state was established at the College in 1922. Men and women are elected to this honor society in forensics only after they have participated successfully in at least two intercollegiate forensic contests of major importance.

Athletic Organizations

INTRAMURAL sports are organized on the basis of class, military, social, and other organizations, these in some cases being grouped into leagues under the several sports. A number of physical education clubs and associations are maintained both for men and for women students. In the field of intercollegiate athletics the Minor O and the Varsity O associations give recognition to participants and cooperate in the upbuilding of major and minor sports.

Minor O Association. This organization is of an athletic type and includes all men who have been awarded a letter in any of the minor sports and who have been duly voted upon and initiated into it. Its purpose is to uphold the status of all sports on the Oregon State campus and to cooperate with the athletic department in all matters pertaining to minor sports. All members are presented with Minor O pins or keys. Regular meetings are held the second Wednesday of each month.

Varsity O Association. This includes all men who have been awarded a major-sport letter in recognition of service on the intercollegiate athletic

teams and who have been duly voted upon and initiated into the Association. The function of the Varsity O Association is to promote athletic ideals and to cooperate with the coaching staff in furthering athletic recognition of the College.

The **Women's Athletic Association** sponsors women's athletic contests, working in close harmony with similar associations in other colleges. Members are chosen for achievement in athletics and outstanding character.

Musical Organizations

MUSICAL organizations of the College are under the direction of the faculty in Music. The standards have been developed to afford music of the highest type. Membership in student musical organizations is free.

The College Band. Membership in the R. O. T. C. Band is open to any student who can pass a satisfactory examination in the elements of music and ability to perform on his instrument. Attendance at rehearsals, as well as individual practice, is required. Members must furnish their own instruments, except basses, baritones, altos, and drums, which are furnished by the organization. Instruments must be in low pitch.

The Orchestras. Students and faculty members who play violin, viola, cello, or double bass, as well as wood-wind and brass instruments, are admitted to membership in one of the four orchestras. Admittance may be gained by passing a test conducted in private by the conductor of the orchestras. The student is then classified and assigned to the orchestra best suited to him. The Advanced Orchestra prepares regular symphonic programs and gives several concerts each term with assisting soloists. The Preparatory Orchestra confines itself to compositions of lesser difficulty and from its ranks fills vacancies in the Advanced Orchestra. The Junior and Beginners' Orchestras devote their time to the elements of sightreading, knowledge of orchestral instruments, recognition of musical symbols, and the principles of ensemble playing.

The Glee Club. Membership in the Glee Club is determined by the conductor upon personal examination of the candidates and is open to any male student in the College who can pass the required test. The club participates in many campus functions, and a tour is usually undertaken annually. Programs of male choruses, glees, and compositions of a lighter nature are prepared, and in conjunction with the Madrigal Club a joint program is given each year, such as a light opera or other work of recognized merit for mixed voices. Regular attendance at rehearsals is required.

The Madrigal Club. Membership in this organization is open to any woman student in the College who can pass a test similar to the one for the Glee Club. Compositions for women's voices of various types are studied, and concerts are given alone and in conjunction with the Glee Club at various times during the year.

The Mandolin and Guitar Club. To the student who is proficient on instruments of this nature is given an opportunity to play in ensemble under the direction of the instructor in small stringed instruments. Regular weekly rehearsals are held.

Social Organizations

EVERY student in the College is a member of some one of the various social organizations. These are organized primarily as living groups, including the clubs maintained within the halls of residence, the fraternities and sororities, and the several independent clubs, some of which include living groups as well as students living either in their own homes or at rooming and boarding houses.

Independent Students. Independent men living in halls of residence maintain the Buxton Hall, Cauthorn Hall, Hawley Hall, Poling Hall, and Weatherford Hall clubs. Those living outside the halls maintain the Tri-V, Hesperian, Alpee, Ionian, Mizanian, Orion A and Orion C clubs. Women students living in halls of residence maintain the Kidder Hall, Margaret Snell Hall, and Waldo Hall clubs. Independent women students not residing in the halls are organized in the local chapter of Phrateres, national society for independent college women.

The men's clubs outside the halls are further organized into the Rosswood Association, formed in 1926. The men's halls and the women's halls have their respective councils, in addition to a central council representative of all eight residence halls. Finally the various independent organizations are represented in the Independent Student Council, which is a member of the Independent Intercollegiate Student Association.

Fraternities and Sororities. Similarly, the fraternities on the campus are organized into the Interfraternity Council, which is a member of the national Interfraternity Conference. The sororities (women's fraternities) are organized into the Panhellenic Council, which is a member of the national Panhellenic Congress. Fifty-one fraternities and sororities are maintained at the College, of which forty-nine are chapters of national organizations.

Chapters of thirty-three national men's fraternities are maintained on the campus, the dates of their establishment being as follows: Acacia (1924), Alpha Chi Rho (1927), Alpha Gamma Rho (1924), Alpha Sigma Phi (1920), Alpha Tau Omega (1882, 1916), Beta Kappa (1926), Beta Theta Pi (1923), Chi Phi (1931), Delta Chi (1931), Delta Sigma Phi (1928), Delta Tau Delta (1930), Delta Upsilon (1922), Kappa Delta Rho (1928), Kappa Psi (1911), Kappa Sigma (1915), Lambda Chi Alpha (1917), Phi Delta Theta (1918), Phi Gamma Delta (1921), Phi Kappa Tau (1925), Phi Pi Phi (1929), Phi Sigma Kappa (1921), Pi Kappa Alpha (1920), Pi Kappa Phi (1924), Sigma Alpha Epsilon (1915), Sigma Chi (1916), Sigma Nu (1917), Sigma Phi Epsilon (1918), Sigma Phi Sigma (1923), Sigma Pi (1924), Tau Kappa Epsilon (1924), Theta Chi (1916), Theta Kappa Nu (1930), Theta

Xi (1927). Two local fraternities have been established at the College as follows: Beta Phi Tau (1929), Kappa Delta Sigma (1917).

Sixteen national sororities have established chapters at the College, as follows: Alpha Chi Omega (1915), Alpha Delta Pi (1926), Alpha Gamma Delta (1921), Alpha Omicron Pi (1926), Alpha Xi Delta (1919), Beta Phi Alpha (1928), Chi Omega (1917), Delta Delta Delta (1918), Delta Zeta (1919), Gamma Phi Beta (1918), Kappa Alpha Theta (1917), Kappa Delta (1926), Kappa Kappa Gamma (1924), Pi Beta Phi (1917), Sigma Kappa (1918), Zeta Tau Alpha (1923).

Technical and Professional Clubs

A NUMBER of clubs and associations in the various technical schools and departments have as their object the advancement of interest and information in the respective technical fields. Some of these are student or local branches of national professional societies. Further details concerning some of these clubs are given under the respective schools. Among the technical and professional clubs are the following:

- Advertising Club
- Agriculture Club
- Agricultural Engineers
- American Institute of Electrical Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- American Society of Military Engineers
- Associated Engineers
- Chamber of Commerce
- Charles Eliot Club (Landscape Architecture)
- Chemical Engineers
- Dairy Club
- Forestry Club
- 4-H Club
- Home Economics Club
- Industrial Arts Club
- Miner's Club
- Pharmaceutical Association
- Withycombe Club (Animal Husbandry)

Professional Societies

A NUMBER of departmental and professional societies, most of them national organizations having chapters in colleges and universities throughout the country, are maintained by students for the purpose of fostering high professional standards and scholarship. Election to membership is as a rule on the basis of special fitness or attainment in the

respective departmental or professional fields. Chapters of the following societies are at present maintained on the campus:

- Alpha Delta Sigma (Advertising, men, chapter established 1925).
- Alpha Kappa Psi (Commerce, men, chapter established 1914).
- Beta Alpha Psi (Accounting, men, chapter established 1922).
- Chi Alpha Chi (Advertising, women, established 1928).
- Kappa Delta Pi (Education, men and women, chapter established 1928).
- Phi Chi Theta (Commerce, women, chapter established 1920).
- Phi Tau Chi (Industrial Arts, established 1925).
- Sigma Delta Chi (Journalism, men, chapter established 1920).
- Sigma Delta Psi (Physical Education, men, chapter established 1928).
- Xi Sigma Pi (Forestry, chapter established 1921).

Honor Societies

VARIOUS societies having as their chief purpose the promotion and recognition of scholarship elect annually from among the student body limited numbers of those who have shown superior scholastic attainment, qualities of leadership, and personal character. The fact that most of these societies are national in scope, with chapters in the leading colleges and universities and with uniformly high standards for membership, makes election to one of the honor societies a distinction greatly prized. The following list includes the honor societies at present represented at the College.

- Phi Kappa Phi (National Scholastic, all-College, men and women, Oregon State chapter established 1924).
- Alpha Zeta (Agriculture, men, chapter established 1918).
- Cap and Gown (Senior women, established 1925).
- Delta Sigma Rho (Forensic, men and women, chapter established 1922).
- Eta Kappa Nu (Electrical Engineering, chapter established 1921).
- Euterpe (Music, women, established 1920).
- Gamma Sigma Delta (Agriculture, chapter established 1909).
- Kappa Kappa Alpha (Art, men and women, established 1926).
- Kappa Kappa Psi (Band, chapter established 1923).
- Mu Beta Beta (4-H Clubs, men and women, chapter established 1928).
- National Collegiate Players (Dramatic, men and women, chapter established 1923).
- Omicron Nu (Home Economics, chapter established 1919).
- Parthenia (Physical Education, women, established 1920, reorganized 1929).
- Phi Lambda Upsilon (Chemical Engineering, chapter established 1927).
- Rho Chi (Pharmacy, men and women, chapter established 1919).
- Scabbard and Blade (Military, chapter established 1920).
- Sigma Alpha (Physical Education, men, established 1925).
- Sigma Tau (Engineering, chapter established 1913).
- Tau Beta Pi (Engineering, chapter established 1924).
- Theta Sigma Phi (Journalism, women, chapter established 1925).

Student Publications

PUBLICATIONS at the College may be classified into two groups: those maintained by the student body and the official publications of the institution. Those in the latter class are listed on another page. Publications at present issued by students include one daily, one monthly, two quarterlies, one semi-annual, and two annuals.

The Oregon State Barometer. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the "Barometer." The enterprise met with deserved success, and "the organ of the student body" is now issued as a four-page, eight-column daily. It publishes the news of the College, and is of general public importance as representing the interests, character, and accomplishments of the student body at the College. By action of the Board of Regents, resulting from a unanimous recommendation of the Associated Students, a portion of the regular Student Body fee is devoted to the "Barometer," and every student regularly receives the paper.

The Beaver. The annual publication of the Associated Students made its initial appearance as "The Orange" in 1907. It is a carefully compiled publication, substantially bound, and fully illustrated with photoengravings, pen-and-ink sketches, and line and wash drawings. It is a full-dress carnival of the year's life, representing the dignity, the beauty, the versatility, the gaiety, the traditions, the sentiment, and the solidarity of Oregon State.

The Manuscript, established 1927, is a literary magazine published by the English department from material originating for the most part in composition classes and designed to afford laboratory material for students in these courses.

The Oregon State Monthly. This is a monthly periodical edited and issued by the General Alumni Association in cooperation with the undergraduate student bodies of the several schools. The magazine is devoted to the upbuilding of the College and the furtherance of its program of service to the state. It reports news of the schools, alumni, and faculty, and affords expression of both alumni and undergraduate opinion. The offices of the Alumni Secretary and of the Editor of the Monthly are at the College.

The Oregon State Technical Record. This is a quarterly magazine devoted to engineering and mechanic arts. Its purposes are to record engineering progress in the Northwest; to furnish news; to publish records of scientific work done by students in this institution; and to publish any matter of special technical and scientific interest to civil, mining, mechanical, and electrical engineers, foresters, and others engaged in technical pursuits. The magazine is a member of the Engineering College Magazines Associated.

The Oregon State Directory, published twice a year by the students of the School of Commerce under the supervision of the faculty of the

School, comprises a complete directory of all the members of the institution, students, faculty, and employees.

The **Annual Cruise** is an illustrated magazine published by the Forest Club. Its objects are to unite more closely the forestry and lumbering interests of the Pacific Northwest, to advance scientific forestry and lumbering, and to promote forest interests in every feasible way. Articles of technical value are contributed by members of the faculty and by graduates, experts in their respective fields of effort.

History and Organization

THE location of the State College is Corvallis, a city of 8,000 inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the Willamette Valley, famous for its varied and abundant resources. It is readily accessible by steam and electric railway from all parts of the state, the main-line Southern Pacific steam trains all connecting with Corvallis, and both the "Westside" Southern Pacific and the Oregon Electric trains running into the city. In addition to these north-and-south railways, an east-and-west railway running through the city connects the College with the Cascade Mountains on the east and the ocean, at Newport, on the west. Motor stage lines afford travel accommodations to and from Corvallis in all directions. Both Pacific Highways, one on the east and the other on the west side of the Willamette River, are completely paved from Portland to Corvallis. Corvallis has free mail delivery, excellent paved streets, good schools, many churches, attractive residences, a modern sewer system, and a first-class gravity water system supplied from springs on the slopes of Mary's Peak (Mount Chintimini), the tallest mountain of the Coast Range, sixteen miles to the west.

Situated on high, well-drained land, open to the invigorating sea breeze, Corvallis is one of the most healthful cities in Oregon. The climate is remarkably equable, and severe storms are almost unknown, summer or winter. The average annual temperature for forty-two years (1889-1930 incl.) was 51.8 degrees Fahrenheit, and the average annual rainfall for the same period was 41.47 inches. The lowest temperatures for the five years 1926 to 1930 were respectively 20, 9, 20, 16, and 4 degrees Fahrenheit in December and January; and the highest temperatures for the same years, in June, July, and August, were respectively 100, 100, 102, 97, and 98 degrees Fahrenheit.

The glens and gorges of the Coast Range, beginning only a few miles west of Corvallis, the distant splendor of the Cascades, sixty miles to the eastward, with their wealth of trees and the perennially snow-capped peaks—Hood, Jefferson, and the Three Sisters—present a constant panorama of picturesque mountain scenery.

Oregon State Land-Grant College

WHEN Corvallis was but a village the frame building at Fifth and Madison streets later called Corvallis College was projected in 1856 as a private undertaking. For several years the edifice—noble for that early time—served as a school building and meeting house. Instruction was coeducational, and all grades from the primary to the academic department were accommodated. It was the principal school of the place, yet it was dependent in a large measure upon subscription for support. In

1858 the institution was incorporated under the name of Corvallis College. In 1865 the College passed under the control of the Methodist Episcopal Church, South.

While in its inception and maintenance a private enterprise, the institution from the beginning served a public purpose. It was destined to become, not only a state college, but one of a system of national colleges unique in the history of higher education.

A National College. The Federal Land-Grant Act, approved by President Lincoln on July 2, 1862, was designed to inaugurate a new type of higher education. For generations education in America, as well as in the rest of the world, had been for the privileged ranks of society, providing culture for leisure, or training for service in a few polite professions, such as divinity, law, or medicine. The Land-Grant Act sought to democratize higher education, introducing science and the inductive method of reasoning in place of the classics and deductive reasoning. The Act provided Federal aid, derived from what is known as the Land-Grant fund, for each state that should avail itself of the benefits of the Act for the support and maintenance of a "college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." To each state was granted land to the amount of thirty thousand acres, or its equivalent, for each senator and representative in Congress to which the state was entitled by the apportionment of the 1860 census. The proceeds under the Act were to constitute a perpetual fund, the principal remaining forever undiminished and the interest arising from the fund being inviolably applied by each state toward its land-grant college.

Ninety thousand acres of land were apportioned to Oregon; and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the Congressional law. The legislature of 1868 provided for the location of the land received under the Act of 1862, and as there were no state colleges in Oregon at that time Corvallis College was "designated and adopted" as the state's agricultural college and the recipient of the interest on funds to be derived from the sale of this Government land. For a number of years, however, none of the land was sold, and the legislature made small annual appropriations for the support of the institution.

A State College. The history of the College as a state institution thus dates from 1868. The first class was graduated in 1870, including three candidates for the bachelor's degree. The legislature in 1870 "permanently adopted" Corvallis College "as the agricultural college of the State of Oregon." During subsequent years the catalogue of the institution bore various designations, including "Corvallis State Agricultural College" (1872-1875), "State Agricultural College" (1876-77), "Corvallis College" (1881-82), "Corvallis and Oregon State Agricultural College" (1885-86), "The State Agricultural College of the State of Oregon" (1888-89). In 1885, the church voluntarily relinquished its claim on the funds of the

College, and the State assumed entire control of the institution. The legislature of that year ratified and confirmed the "permanent location of the State Agricultural College at Corvallis, in Benton county," on the condition that the citizens of said county should, within four years, erect on the "farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College Farm, brick buildings for the accommodation of said State agricultural college, at a cost of not less than \$20,000." During the summer of 1887, the cornerstone of the building erected by the citizens of Benton county was laid by the Governor of Oregon amid appropriate ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster, as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew, more land was needed and provided. For the first twenty years the annual enrollment never reached a total of one hundred students, but by 1907-08 it was more than one thousand and since then the growth in attendance has been very rapid. For the first thirty years most of the students came from Benton and neighboring counties; today, thirty-six counties in Oregon, many other states, and a number of foreign countries are represented. The increase in the number of students called for an increase in the number of the faculty. This body, from a maximum of five up to 1884, has grown until now, in addition to many other employees, the teaching staff numbers more than three hundred. Year by year the curricula have been strengthened, the standards, both for entrance and graduation, have been advanced, organization has kept pace with development, and other improvements have been made from time to time which have added to the thoroughness and efficiency of the institution.

Purpose and Scope

IN accordance with the acts of Congress under which it is maintained, the purpose of the College is to provide "liberal and practical education"—education that will afford the training required for efficient service both in different branches of industry and in civic duties. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the application of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is based on scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development, and of culture, is recognized in all the work of the institution. The object is to meet the demand for special technical and professional training supplemented by broad general education. State and Federal support imposes upon the College the obligation to give training for intelligent citizenship.

The curricula, therefore, cover a broad field, including technical training in the different phases of agriculture, forestry, home economics, engineering, mining, commerce, pharmacy, vocational education, military tactics, and industrial arts, with the necessary basic subjects of mathematics and the biologic and physical sciences, and the general instruction in

language, literature, history, economics, political science, and physical education, which constitutes an essential part of a liberal education.

Liberal and Practical Education. The land-grant colleges, through two generations, have demonstrated the feasibility of making technical training liberal. Technical preparation, rightly understood, only in part involves details of actual application of scientific facts to concrete technical problems, important as is this practical side; it is more especially concerned with mastery of the principles upon which such applications are based. Attention is so focused as to involve both the theoretical and the practical in the most effective way possible for the mastery of principles. A true education, indeed, consists in a firm grasp of principles. No one gains so fundamental a mastery of basic principles as the discerning student who sees them applied. It is now fully recognized, moreover, that the applied sciences, which combine thinking with doing, taught by competent instructors, with suitable equipment, have an educational value not surpassed, if equaled, by the traditional subjects of classical education.

One of the distinctive contributions of the land-grant colleges, therefore, is their success in accomplishing a dual educational objective. It is recognized that manhood and citizenship on the one hand and efficient service in some vocational field on the other are not things distinct and apart. Except in the case of a negligible leisure class, manhood or citizenship and a share in the world's work are so intricately interrelated that from a practical point of view it is impossible to say where one leaves off and the other begins. It is logical to recognize this fact in constructing the curricula which aim to prepare a student for his future career as a citizen and a worker. This the College seeks to do. Its curricula beginning with the freshman year look toward both objectives. Each technical school at Oregon State Agricultural College provides preparation in its particular field, while all share the common obligation to maintain at the same time curricula training men and women of character who are efficient citizens.

Curricula. Following the acceptance by the State of Oregon of the provisions of the Act of 1862, the Board of Trustees of Corvallis College "appointed a committee for the purpose of preparing a course of study in Agriculture and the Mechanic Arts." In 1869 the first work in Agriculture, a two-year course, was announced. The curriculum of the College for a number of years, however, was composed chiefly of the academic and classical subjects originally taught by Corvallis College—mathematics, sciences, history, English, Latin, Greek, philosophy, logic, and political economy. Other subjects were mensuration, mechanics, surveying and navigation, and bookkeeping, the last-named being taught originally in the "Preparatory Department." Students desiring to omit ancient languages were registered in the "scientific course."

In 1872 the course of study was organized into seven coordinate divisions: Physics, Mathematics, Moral Science, Language, History and Literature, Engineering, Agriculture. Each of these divisions constituted a sort of major group of studies leading to a degree and was called a "school." This plan of organization was superseded in 1885 by a four-year "course of study prescribed by the State" for all students. This curriculum included mathematics, science, English, languages, philosophy, agriculture, and military training.

For some time after the establishment of the land-grant colleges, neither agriculture nor engineering was a well-developed science or profession. Neither agriculture nor engineering had a literature, or skilled teachers, or tested methods of instruction. At the College both branches were developed in connection with existing science departments. The first instruction in agriculture, beginning 1872-73, was given principally in the Chemistry department, the studies including soil analysis, fertility, drainage, stock raising, fruit culture, and farm buildings. A professor of Chemistry and Agriculture (1883-1886), later (1888-89) professor of Agriculture only, was in charge of the instruction. The earliest actual instruction in engineering was about 1888-89, in connection with the department of Mathematics. A professor of Mechanics and Mechanical Engineering was appointed in 1889 and a regular curriculum started.

The departments of Agriculture and Engineering thus established were the first of their kind in any college in the Pacific Northwest. The same was true of the department of Household Economy established in 1889. By 1889, therefore, definite establishments had been made that were to develop by 1908 into full degree-granting schools of Agriculture, Engineering, and Home Economics. In 1908 also, the School of Commerce was established. The College was among the pioneers in this field likewise. Business training, comprising political economy, political science, and accounting, was given at Corvallis College before 1868, and such training was continued thereafter, at first in the "Preparatory Department" and later in the College proper. By 1889 the College had a "professor of Bookkeeping." In 1898 a regular two-year collegiate course in business training was organized; in 1900 this was developed into a four-year curriculum, and eight years later became one of the four major schools of the College.

Other schools soon followed. Instruction in mining and chemical engineering, first developed in connection with the other engineering work, was organized into the School of Mines in 1913; the Department of Chemical Engineering, under a professor of Industrial Chemistry, was established as a separate division in 1918. Forestry, initiated in 1906-7, was organized as a School in 1913. Pharmacy, established as a department in 1898 on petition of the druggists of the state, was organized as a school in 1917. Vocational Education, first established as a department of Industrial Pedagogy in 1909, was organized as a School in 1918. Military Science and Tactics, first taught at the College in 1872, when the first training of college cadets in the Pacific Northwest was begun in conformity with the requirements of the Land-Grant Act, became a degree-granting division in 1921.

The several degree-granting divisions of the College, while providing distinctive curricula for definite vocations, are closely interrelated. While a student majors or pursues his principal studies in some one school, his curriculum usually requires him to take certain work in other schools within the College and he has opportunity to elect work in other schools as well as his own, according to his individual interests and objectives. In many cases a student majors in one school and minors in another. Certain students in Agriculture or Engineering, Forestry or Home Economics, Mines or Pharmacy, for example, carry a minor in business subjects; or vice versa, students majoring in Commerce elect minors in Agriculture, Engineering, Mines, or other schools. The College, therefore, while composed

of a number of separate technical schools, constitutes at the same time a single, closely articulated institution.

Concurrently with the development of the major curricula, provision has been made for instruction in the basic and nontechnical subjects essential in all training of college grade. The College has at all times sought to keep its work in the fundamental and cultural courses fully equal to the highest standards of its technical courses.

In the gradual development of its major curricula, through a period of more than half a century, the College has kept pace with the progress of higher education generally and with the special needs of Oregon. In accepting the provisions and conditions of the Land-Grant Act of 1862 the State Legislature in 1868 provided that "the students shall be instructed in all the arts, sciences, and other studies, in accordance with the requirements of the Act of Congress making such donation." In fulfilling its function as a national and state institution of higher education, the College has throughout its history served the most important needs of a developing commonwealth.

Three Grand Divisions

THE work of the College is organized into the three grand divisions that characterize the land-grant colleges throughout the country; namely, Resident Instruction, Research, and Extension. Resident Instruction, which includes all work of teaching students at the institution, is the most distinctive feature of the College life. It has always been regarded as of first importance, and will doubtless continue to be so regarded, in spite of the increasing usefulness of other divisions of work. The Experiment Stations, through systematic experiments and research, are engaged in a search for fundamental truth. This work is of great importance; for without it, the work of the other two grand divisions would soon become sterile and ineffective. College Extension includes all means of imparting the message of the College to the people in their own communities. It is virtually an effort to make practical and more or less immediate application throughout the state of the available truths worked out by the research divisions or used for resident instruction.

Administration

UNDER the State Board of Higher Education, which is the legal governing body of the institution, the Administrative Council, the several faculties, staffs, and special officers perform various functions of administration.

The State Board of Higher Education. By act of the 1929 State Legislature the boards of regents of the State University, the State Agricultural College, and the State Normal Schools were abolished, effective July 1, 1929, and their several functions vested in a State Board of Higher Educa-

tion composed of nine members appointed by the Governor with the approval of the State Senate. The members as appointed serve for terms of from one to nine years respectively, a new member being appointed each year for a nine-year term.

The Administrative Council is composed of the President of the College, the deans of the several schools, the Director of the Agricultural Experiment Station, the Director of the Extension Service, the Dean of Men, the Dean of Women, the Commandant of Cadets, the Executive Secretary, and the Registrar. It is the function of the Administrative Council to consider and determine the larger questions of institutional policy and administration, particularly those affecting more than one school or division, in so far as these are not reserved to the State Board of Higher Education or to the President.

The College Staff is composed of all members of the resident and field staffs of the resident instruction, research, and extension divisions of the College. An annual meeting is held in September, and occasional meetings are held at the call of the President.

The College Council is composed of the President of the College and all officers of administration and instruction with the rank of professor, associate professor, or assistant professor. It considers such matters of general policy and institutional interest, particularly those involving the welfare of the institution as a whole, as may be referred to it by the President or the Administrative Council.

Standing Committees. A number of committees, appointed each year by the President, perform certain administrative functions subject to the approval of the Administrative Council or the President. The personnel of these committees and the duties assigned to each are published in a special pamphlet.

The Faculties include the several school and departmental faculties. Each school within the College has its own faculty consisting of the dean, professors, associate professors, assistant professors, and instructors. Depending upon size of staff, school faculties may be further organized into groups of ranking professors or committees for such definite administrative functions as may constitute a feature of school policy. The faculty of each school is organized for administrative functions relating solely to its own unit of administration. Meetings of school faculties are held at the call of the dean. The President is ex-officio a member of all school faculties.

Each department has its own faculty, consisting of all members of its staff whether engaged in instructional, research, or extension activities. The departmental faculty considers matters which concern primarily its own internal policy and problems, and meets on call of the head of the department, who is its presiding officer. The school dean is ex-officio a member of all departmental faculties.

The Agricultural Experiment Station Staff includes the President of the College, the Director of the Agricultural Experiment Station, the Sec-

retary of the Experiment Station, the superintendents of the branch experiment stations, the heads of the various departments of the School of Agriculture, the heads of departments of the School of Basic Arts and Sciences who are also heads of corresponding Experiment Station departments, and all assistants engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in the development of the agricultural interests of the state. They distribute, by correspondence, circulars, and station bulletins, information regarding their investigations.

The Extension Service Staff includes the President of the College, the Director of Extension Service, the Secretary of Extension Service, the State Leaders and Assistant State Leaders of County Agents, Home Demonstration Agents, and Four-H Club work; the Extension Field Specialists in Dairying, Animal Husbandry, Farm Crops, Horticulture, Poultry Husbandry, Farm Management, Economics, Commerce, Rodent Control, Agricultural Engineering and Soils, Clothing, Nutrition, Home Management, Information and Radio, Visual Education, Rural Organization; County Agents, Home Demonstration Agents, and County Club Agents.

The Income of the College

FUNDS for the support of the College in the three divisions, Resident Instruction, Agricultural Experiment Station, and Extension Service, are derived from both the National Government and the State of Oregon. In addition, Resident Instruction is in part supported by student fees. Beginning with July 1, 1931, all the work of the College will be administered by the State Board of Higher Education on the basis of a unified budget for all the state-supported higher education of the state.

The total income of the institution for the fiscal year 1929-30 for Resident Instruction was \$1,468,841; for Agricultural Experiment Station, \$250,733; for Extension Service \$235,410. The sources of income are summarized as follows:

FOR RESIDENT INSTRUCTION

From the National Government. *Land-Grant Interest Fund:* Interest under the land-grant fund accruing under the act of Congress of 1862 approximates \$10,500 a year. No part of this fund may be used for the purchase, erection, or maintenance of any building. *Morrill-Nelson Fund:* An additional annual appropriation of \$50,000 a year is provided in the Morrill Act of 1890 and the Nelson amendment thereto of 1907, with the same limitation as to usage indicated for the land-grant interest fund.

From the State of Oregon. *The Millage Tax:* The Resident Instruction work of the College is chiefly dependent for maintenance, including buildings and betterments, upon the income from the millage tax, as provided by the State Legislature of 1913, and by vote of the people May 21, 1920. The income from this source for the fiscal year of 1929-30 was \$1,219,974. *Fees and Tuition:* From the entrance and other student fees and non-resident tuition for the

year 1929-30, Resident Instruction work derived an income of \$162,173, of which \$71,473 was from non-resident tuition. For the fiscal year 1929-30 receipts from Commerce, Vocational Education, Summer Session, diploma and thesis fees and Federal Smith-Hughes reimbursement approximated \$26,194.

FOR AGRICULTURAL EXPERIMENT STATION

Funds for the Agricultural Experiment Station, including the main station at Corvallis and eight branch stations, each in an important agricultural section of the state, are derived from the National Government, the State of Oregon, and Oregon counties.

From the National Government. *Hatch Fund:* Under an act of Congress, approved March 2, 1887, the College receives \$15,000 a year for the maintenance of an agricultural experiment station "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture." *Adams Fund:* An act of Congress, approved March 20, 1906, provides an annual appropriation of \$15,000. This fund is "to be applied only to paying the necessary expenses of conducting original research or experiments bearing directly on the agricultural industry" of the state, and therefore supplements the Hatch Fund in the maintenance of the Experiment Station. *Purnell Fund:* An act of Congress, approved February 24, 1925, provides an appropriation of \$60,000 for the fiscal year 1929-30. This fund is "for more complete endowment of agricultural experiment stations." Special attention is being given to investigations in agricultural economics and home economics. *For Branch Stations:* For the support of the branch station at Moro the National Government expended annually about \$8,420, for the branch station at Hermiston about \$3,000, for the branch station at Hood River \$600, and for the Crop Rotation Field Station at Pendleton about \$10,000 for the year 1929-30.

From the State of Oregon. *State Funds:* The State Legislature of 1929 appropriated \$70,000 annually for the general work of the Agricultural Experiment Station; for crop pest and horticultural investigations; for soil, drainage, and irrigation investigations; for dairy investigations; and for poultry disease investigations. The State also appropriated \$54,500 annually for the support of branch experiment stations at Astoria, Burns, Hermiston, Hood River, Moro, Talent, and Union. In addition, a \$2,000 annual appropriation was made for cereal nurseries and rotation experiments in counties east of the Cascades, to be directed from the Moro Station. Receipts from stations approximated \$34,233.

FOR EXTENSION SERVICE

From the National Government. *Smith-Lever Fund:* This fund was established by the Smith-Lever Agricultural Extension Act passed by Congress May 8, 1914. By its provisions Oregon State Agricultural College received \$10,000 from the Federal Government to apply toward the support of the Extension Service for the fiscal year ending June 30, 1915. This sum was increased annually for seven years. The maximum of \$41,300.38 was reached July 1, 1922, and continues as a permanent appropriation for each fiscal year, as long as an equal sum, less the basic \$10,000, is "appropriated for that year by the legisla-

ture" of the state, "or provided by state, county, college, or local authorities, or individual contributions within the state for the maintenance of the cooperative agricultural extension work provided for in this Act." In order to maintain Extension work, which expanded rapidly during the war, Congress, beginning with the fiscal year 1919-20, has appropriated annually a Supplemental Federal Smith-Lever fund. Oregon's share of this Supplemental fund for the fiscal year 1929-30 is \$12,024.15, making the total Smith-Lever funds for this year \$53,324. The first session of the Seventieth Congress passed an act known as the Capper-Ketcham Act for further development of the cooperative extension work inaugurated by the Smith-Lever Act of 1914. Under the provisions of this new act Oregon receives \$20,000 annually without State off-set or duplication. Beginning July 1, 1929, the Act carries an additional \$500,000 to be divided among the several states on the basis of percentage of rural population to the total rural population. Oregon's share of this increase is \$3,805 per year and is duplicated by the State. An additional Federal cooperative fund of \$20,000 was established for the year 1930-31. *Department of Agriculture Cooperative Funds:* For the fiscal year ending June 30, 1929, the United States Department of Agriculture expended in Oregon \$22,000 for Extension work in agriculture and home economics, the state duplicating this amount up to \$15,000, as shown under "Cooperative Work"; \$4,800 for cooperative work on reclamation projects, \$15,040 from the Bureau of Biological Survey for rodent control work; and \$5,000 for market news.

From the State of Oregon. For General Extension Work: The state appropriates \$25,000 a year for general extension work, including extension schools, lectures, demonstrations in agriculture and homemaking, publications, and Farmers' and Homemakers' Week. Toward meeting the Smith-Lever increase the State appropriated \$31,301 for 1929-30. *For Cooperative Work:* For cooperative work with the United States Department of Agriculture, as above mentioned, the State appropriates \$15,000 a year. *For County Extension Work:* To meet the appropriations made by various counties for maintaining county extension work, including agricultural and home demonstration agent work, the State is now appropriating approximately \$60,675 a year. *For Rodent Control:* For the rodent control work carried on in cooperation with the Biological Survey of the United States Department of Agriculture the State appropriated \$2,500 a year.

Official Publications

BESIDES miscellaneous circulars, pamphlets, and reports issued from time to time, the College publishes a number of bulletins in series which are named below. Student publications are listed on another page.

The College Bulletin. The College BULLETIN includes the biennial reports of the College, the general College Catalogue, special announcements of courses of study, vocational guidance booklets, illustrated booklets depicting institutional activities of special interest or timeliness, announcements of the Summer Session, announcements of the various Short Courses, and circulars to prospective students.

Engineering Experiment Station Publications. These include a series of BULLETINS, CIRCULARS, and REPRINTS, reporting progress in engineering research.

Agricultural Experiment Station Publications. The Station BULLETINS include reports upon research problems and upon experimental investigations in agronomy, horticulture, drainage and irrigation, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, home economics, and special subjects of interest to the husbandman, conducted at the home station or the several branch stations. The Station also issues a series of CIRCULARS, briefer and less technical than the bulletin series, a mimeograph series of CIRCULARS OF INFORMATION, and occasional pamphlets and reports.

Extension Service Publications. The Extension Service publishes a regular series of BULLETINS written in such style as to be easily understood, thus meeting the popular demand for scientific knowledge in such form that the people of the state may profit by its application to every-day life. The subjects covered by these monographs include the various phases of agriculture, home economics, engineering, mining, and commerce. A special FARM INCOME SERIES deals with standards necessary for successful management of various types of farming in order to assure incomes adequate for a proper standard of living for the farm home. Similarly, the series of OUTLOOK CIRCULARS deals from time to time with the agricultural outlook of the state in respect to the major lines of agricultural production. The Extension Service also issues twenty-one different series of CLUB CIRCULARS in furtherance of the Club work for boys and girls in the public schools and the home cooperative demonstration projects. In addition to its regular series, the Extension Service publishes occasional miscellaneous circulars, posters, and reports.

Lands and Buildings

FROM 1868, when the College was designated as the land-grant college of Oregon, until after 1885, when it passed completely under State control, it was located on the original small campus at Fifth and Madison streets. The first land for the present campus, 34.85 acres, was purchased in 1871. The first building, the old Administration Building, was begun in 1887 and completed according to the original plan in 1889. Both this first land and first permanent building were the gift of citizens of Benton county.

The Campus

THE campus of the College begins a half-block west of Ninth Street, near the civic center of Corvallis, extending westward between Monroe and Jefferson streets in a wedge shape to Sixteenth, thence in a rectangular shape to the Agricultural Mall (Thirtieth Street). The area from Ninth to Fourteenth streets, known as the East Campus, is a spacious, attractively planted recreation park. Directly west is the East Quadrangle, including among other buildings Administration, Science, the Armory, and the Library, with the Engineering Group immediately to the north. In the West Quadrangle are the Memorial Union, the Men's Gymnasium, and the Women's Building. Both quadrangles include buildings devoted to the several technical schools and other divisions of the institution. South of these quadrangles are the stadium and athletic fields. West from Twenty-sixth Street are the Men's and the Women's Quadrangles, including the Men's Dormitory group comprising five halls, and the recreational areas around which are planned halls of residence for men and for women students respectively. To the north are the Greenhouses with adjacent gardens.

Across the Mall, facing east, will be a number of buildings devoted to instruction in agriculture, so located as to articulate with both the campus on the east and the farms and experimental plots to the west. Between this row of buildings, and the farms are the areas assigned to the barns and stables.

The campus includes well-kept lawns and is tastefully planted with native, exotic, and ornamental trees, shrubs, and herbs. The buildings are so arranged as to afford the greatest possible convenience for the many activities of the institution. The landscape plan is being rapidly developed, assuring a campus of distinctive and increasing beauty.

Farm and Forest Lands

IN addition to the lands west of the Mall, the South Farm, including horticultural and poultry tracts, lies just south of the city limits. The College owns at Corvallis 555 acres of land, including the tracts immediately to the west and to the south of the city limits. Five miles north of

Corvallis the College owns a tract of 124 acres devoted entirely to the purpose of the Agricultural Experiment Station. The Peavy Arboretum, eight miles north of the campus, contains 461 acres. On the east slope of Mary's Peak (Mount Chintimini) is a 160-acre tract used for demonstration purposes in forestry. The College at present has lease on 1,098 acres adjoining the campus, or within a radius of five miles of the campus, for the uses of the School of Agriculture and the Agricultural Experiment Station. The several branch experiment stations contain varying acreages with title vested in the County, State, or Federal governments. A tract of 100 acres near the campus is under lease by the United States War Department for pasturage and target range requirements of the R. O. T. C. work at the College. In addition to the foregoing, the College holds title to a timber tract of 640 acres in Jackson county, a gift from Mrs. Mary J. L. McDonald of San Francisco. A logged-off timber tract of 2,400 acres in Columbia county is owned by the College through the gift of John W. Blodgett of the Blodgett Company, Ltd., Grand Rapids, Michigan.

Buildings

THE following brief descriptions, arranged alphabetically, will convey a general idea of the principal buildings and the purposes for which they are used. The date of erection is indicated in each case; if a building was erected by units, the dates of erection for the respective units are indicated. The location of the various buildings is shown on the map elsewhere in the Catalogue. Equipment is described in connection with the respective departments of instruction and research.

The Administration Building (1889) is a three-story brick structure, 90 by 120 feet, containing recitation rooms, music studios, the Workshop Theater, and the offices of the Registrar, the Business Manager, and the Director of Music. Located on a slight eminence, it commands an unsurpassed view of the campus, the city of Corvallis, and the picturesque Cascades.

Agriculture Hall (1909, 1913) is an imposing edifice of brick and sandstone, consisting of the central or administrative section, the north or Agronomy wing, and the south or Horticulture wing.

The central section is 66 by 140 feet, four stories and basement, and contains conveniently arranged and well lighted classrooms, laboratories, and offices. On the first floor are the offices of the Director of the Agricultural Experiment Station, the Dean of the School of Agriculture and the Director of the Extension Service, the State Leader of 4-H Clubs, various other offices of the Extension Service, and the soils research laboratories of the Experiment Station. The second floor is occupied by the offices, classrooms, and laboratories of the department of Animal Husbandry; the third floor, by the departments of Zoology and Entomology with their respective museums; and the fourth floor, by the department of Bacteriology.

The north or Agronomy wing is 72 by 130 feet, three stories high. The first and second floors are occupied by the departments of Soils, Farm Management, and Farm Crops, including the cooperative seed-testing laboratory. The third floor is occupied by the departments of Art and Entomology.

The south or Horticulture wing is 72 by 130 feet, three stories high. In the basement are located laboratories for plant propagation, spraying, vegetable preparation, and fruit packing. The basement also contains the general storage rooms for the department, and rooms which are especially adapted for the storage of fruits. The first floor contains the offices of the department of Horticulture, the research laboratories, systematic pomology laboratory, lecture rooms, and the visual instruction department of the Extension Service. The second floor contains the offices, research laboratories, and museums of the department of Botany and Plant Pathology, recitation rooms and student laboratories. The third floor contains the zoological laboratories, photograph room, large student lecture room, drafting rooms, lecture rooms, and office and drafting rooms for Landscape Architecture.

Apperson Hall (1898, 1920) is 90 by 120 feet in size, three stories high, constructed of Oregon gray granite, sandstone, and terra cotta. The third story was added during the summer of 1920 and the interior completely remodeled. The first floor contains offices and laboratories for the departments of Electrical Engineering and Light and Power. The second floor contains offices of the Dean of the School of Engineering and various offices, classrooms, and laboratories of the department of Electrical Engineering. The third floor contains offices for Civil Engineering and Railroad Engineering, four drawing rooms, and five class and lecture rooms.

The Armory (1910-11) is one of the largest of its kind in the United States and is built of concrete and steel, 126 by 355 feet. The drill hall portion, with an unobstructed area of 36,000 square feet, is used by the Infantry for formation in inclement weather, by the Engineers for bridge construction, and by the Field Artillery for mounted and dismounted instruction; it is also used for playing indoor polo and by the track teams, an excellent track encircling the drill hall portion having been recently completed. It also has arms rooms, instrument rooms, store rooms, offices, and class rooms. In all, the facilities of the Armory afford instructional or recreational facilities for approximately 1,600 students.

Commerce Hall (1922), constructed of brick and terra cotta, has entrances from both the north and the south. It is of "U" shape, 186 feet long and 67 wide, with wings 28 by 107 feet. There are three floors above a well-lighted ground floor. The most approved methods of heating, lighting, and ventilating are employed. The building houses the offices of the President and the Executive Secretary; the Dean of Men; the College Editor; the Clerical Exchange; the College Press; the executive office of the School of Commerce; the departments of Business Organization and Operation, Economics and Sociology, Political Science, and Secretarial Training; and that part of the department of Mathematics which deals with commercial mathematics.

The Dairy Building (1912) in both outside and inside finish is of architecture similar to that of Agriculture Hall. The structure is 54 by 141 feet, three stories high. On the first floor are the offices of the Dairy department and laboratories for buttermaking, cheesemaking, and market milk instruction, including a boiler room and student lockers. On the second floor are the testing laboratory, advanced laboratory, etc. The third floor is temporarily occupied by the department of Mathematics.

Engineering Laboratory (1920). The Engineering Laboratory is a brick and concrete building 63 by 220 feet in dimensions and three stories high. The main laboratory is 40 by 220 feet and includes three principal divisions: (a) a materials laboratory occupying about one-third of the building at the east end; (b) a hydraulics laboratory occupying the middle third; and (c) a steam and gas engine laboratory occupying the west end of the building. Each of these divisions has floor space on the basement, main floor, and mezzanine or gallery floor. All are served by a five-ton electric traveling crane. The south part of the building contains offices, recitation rooms, drafting rooms, and special laboratories, these last including highway materials laboratory, fuel and oil testing laboratory, metallography laboratory, and automotive laboratory. A 100-horse-power water tube boiler is located in the basement to furnish heat for the building and steam for experimental use in the laboratory.

Farm Mechanics Building (1912). A well-lighted two-story brick building affords drafting rooms, classrooms, and laboratories for the work in agricultural engineering. The first floor provides facilities for the study of farm power equipment, water systems, and irrigation equipment, together with shops for giving instruction in repair and adjustment of all mechanical farm equipment, including automobile, truck, and tractor. The second floor has laboratories for farm carpentry, farm shop, and rural electric studies.

The Forestry Building (1917), three stories high, 80 by 136 feet, constructed of brick, houses the work in forestry and logging engineering. This building contains roomy laboratories for work in silviculture, dendrology, mensuration, forest protection, technology, mapping, and logging engineering. These laboratories are supplied with the various instruments and equipment which the peculiar work of each requires. In addition to the laboratories, space is devoted to a collection of manufactured wood products, designed to show the various uses to which wood may be put, and to a forest museum in which are assembled large specimens of all commercial woods of the United States. All available publications dealing with forestry and logging subjects are provided for the use of students.

The Foundry (1899) is a brick structure and has a floor area approximately 40 by 85 feet. It is equipped with a 24-inch cupola, brass melting furnaces, core ovens, cranes, bull-ladles, etc., of ample capacity for commercial production.

Greenhouses (1928). A modern range of greenhouses with steel frame and curved eaves is available for the use of students, experiment station workers, and those concerned with campus maintenance. There are ap-

proximately 27,000 square feet under glass, and this area is divided among the various branches of the work as the needs develop. One house, 33 feet by 100 feet, is especially designed and equipped for the class work of the different departments in the School of Agriculture. Interior glass partitions and a control of heat make it possible to grow any of the crops generally handled by florists and vegetable forcers. In addition, any plant material required by research men can be grown in the spaces assigned to them.

The Heating Plant (1923) is 52 by 80 feet in dimensions and one story high. It is constructed of brick and concrete, with concrete tunnel and conduits leading to the various buildings of the campus. The radial brick chimney is 175 feet high and 10 feet inside diameter, having an outside ladder and platforms permitting student work on temperatures of flue gases. The plant is equipped with three 500-horse-power boilers set with dual furnaces permitting the burning of either fuel oil or the Oregon mill refuse known as hogged fuel. The present building is designed to permit enlargement.

The Home Economics Building (1914, 1920) lacks only the west wing to complete the original plan of a central unit, two connecting links, and two wings. As it now stands the building measures about 215 feet in length and 120 feet in total width. It consists of three stories above a high basement, and is built of brick and terra cotta. Heating, lighting, and ventilating systems of the most modern type are installed, and every provision—including an electric elevator, rest room, reading room, lockers, and dressing rooms—is made for the comfort and convenience of the young women pursuing work in Home Economics. In addition a number of classrooms and offices are temporarily used by the department of English.

Lecture rooms and laboratories for all phases of home economics teaching are provided in this building. Adequate office room is also available for members of the Home Economics staff. A large, well-equipped auditorium is located on the third floor of the central unit.

Home Management Houses. The home management houses, Kent House (purchased 1930) and Withycombe House (purchased 1918), are an important part of the Home Economics equipment. These are large residences built for family life but now used as campus laboratories for advanced students in Home Economics. Groups of senior women occupy these houses and carry on all the activities of home life, including the care of a child.

The Horticultural Products Building (1919, 1923) is of brick, 46 by 72 feet, three stories high, with a one-story wing 46 by 60 feet. The offices, lecture rooms, and instructional and research laboratories have all been designed and equipped for work in food products. The building is arranged for practical and technical work in commercial canning, fruit juices, vinegar, carbonated beverages, dehydration, and other lines of food manufacture.

Kidder Hall (1892), one of the halls of residence for women, is a well-proportioned frame building, 50 by 160 feet, three stories and basement,

containing fifty-one rooms. On the first floor are situated the reception rooms, dining-room, kitchen, and several student rooms. Each floor is supplied with baths, showers, hot and cold water, electric light, and steam heat. A laundry for student use is provided. The equipment and furnishings are thoroughly modern and adequate, and the hall throughout is attractive and homelike.

The Library Building (1918) consists of three stories and basement at the back and two stories and basement in front, the general reading room being double height. Constructed of red brick and gray terra cotta, with the most modern and effective system of lighting, heating, and ventilating, the building is ample to accommodate the growth of the library for the next four years, and its architecture permits stack expansion as time and growth demand it.

The southwest room of the basement is used for storage of documents, newspaper and periodical files. The east portion of this floor is temporarily devoted to the College Museum. The first floor consists of an entrance hall, the technical periodical room, binding room, an auditorium for classes too large to be accommodated by the classroom of ordinary size, one other classroom, the office of the Dean of Women, and coatrooms. The second and third floors at the front are occupied by the main reading room, ample to seat more than three hundred for reference work. Back of this room on the second floor are the faculty seminar room, the periodical reading room, offices, cataloguing and other workrooms. The third floor consists of comparatively small rooms designed ultimately for seminar rooms for the use of such departments as will make the library their chief laboratory; however, under present crowded conditions on the campus, this story is used for offices and laboratories of the department of Public Speaking and Dramatics and the office of the Dean of the School of Basic Arts and Sciences.

The northwest part of the Library contains the fireproof steel stack room, housing in safety the book collections and permitting their easy and effective use. An electric elevator and a book-lift connect all five decks of the stack room.

Margaret Snell Hall (1921), one of the halls of residence for women, is 96 by 235 feet in size, built of brick and terra cotta, three stories high above a basement. On the first floor are located the reception rooms and the dining-room and kitchens, together with a few student rooms. The laundry and freight room are located in the basement, which is connected by an elevator with a trunk-storage room on each floor. Sixty-nine rooms, most of them designed to accommodate two students, are equipped with individual closets, running water, steam heat, and electric lights. Compartment bathrooms, with showers in addition, a hair-dressing room, and a clothes-pressing room, are provided on each floor, all with thoroughly modern and sanitary equipment. The stairways are easy and convenient. Throughout the building every facility is provided in keeping with good management, health, and home comfort.

Mechanic Arts Building (1908) is a modern, well-lighted structure of brick. A central portion, 52 feet square and 2 stories high, is flanked by a

one-story wing on the east, 40 by 220 feet, and a similar wing on the south, 40 by 200 feet. The first floor of the central portion contains the office of the department of Mechanical Engineering, a classroom for the machine shop, and the shop of the Engineering School mechanic. On the second floor are the office of the department of Industrial Arts, two offices of the Mechanical Engineering department, a general drafting room, a reading room, and a recitation room. The south wing contains the main wood-working shop, 40 by 97 feet, mill room, glue room, finishing laboratory and spray equipment, sheet metal shop, store rooms, and recitation room. The east wing contains the machine shop, 40 by 80 feet; the blacksmith shop, 40 by 100 feet; store room for coal and iron; locker and toilet rooms.

The Memorial Union (1928) is a center of student life constructed from funds subscribed by students, alumni, faculty members, and other friends of the College as a memorial to the men and women of the institution who gave their lives in service to their country during the Spanish-American and World wars. Erected at a cost to date of \$652,319, the building occupies a central location in the West Quadrangle, facing north. The main entrance is into the great memorial hall, under the central dome, leading across the main corridor to the general lounge, with a men's lounge to the east and a women's lounge to the west. Above these separate lounges are similar rooms for faculty men and faculty women, respectively. The ground floor contains the ball room, which has a stage at one end, men's dining-room, coffee shop, kitchens, and fountain. The mezzanine floor contains the student "co-op" store, barber shop, rest rooms, and ticket office. A series of banquet rooms extend across the entire west end of the building, affording accommodations for groups of all sizes desiring meal service; in addition, the ball room is used as a banquet room for large assemblages. Besides a trophy room, the building affords offices for student publications, honor organizations, the Associated Students, the Associated Women Students, the Alumni Association, the Young Women's Christian Association, and the Memorial Union headquarters.

The Men's Dormitory Building (1928), comprising five halls of residence for men, affords accommodations for 344 students. Built of brick with stone trim and tile roof, three stories above a basement and with a central tower five stories in height, the building is arranged on the unit plan, each unit being non-communicating with the other units and constituting a separate hall accommodating from forty-eight to seventy-six men. Each hall has a club or social room comfortably and tastefully furnished, electric elevator, trunk storage room, laundry and pressing rooms. Within each hall there is further division into floor units, each floor unit accommodating approximately twenty-four men. Each floor has its own telephone booth, tiled lavatory and shower rooms, and dormitory or sleeping hall. The study rooms, arranged for two men each, average ten by twelve feet in size. Modern heating and lighting are provided, and floors are covered with linoleum. The central unit, Weatherford Hall, faces northeast, with Buxton and Poling halls extending as wings to the south and Cauthorn and Hawley halls to the west. Weatherford tower contains a general reception room, available for all students in the men's halls for the entertainment of parents and other guests, together with a suite of rooms for general offices for the manager-hostess, council room, and guest bedroom.

The Men's Gymnasium (1915, 1921) comprises four units. The central unit, 90 by 150 feet in size, provides a main hall with 13,500 square feet of floor space for three basketball courts and space for general gymnasium and indoor athletic work. A deep balcony extends around this main hall, which is occasionally used as an auditorium for large assemblies and entertainments. A modern system of lockers, dressing-rooms, and showers, School of Health and Physical Education offices, department of Physical Education for Men office, department of Hygiene offices, department of Intramural Sports offices, department of Intercollegiate Athletics offices, and a large entrance lobby are also located in the central unit. The east wing, 52 by 96 feet in dimensions, provides two large classrooms, locker department, and three offices on the main floor. On the gymnasium level there is an auxiliary gymnasium and apparatus room. The west wing, 52 by 96 feet, provides a wrestling and boxing room and four handball courts, as well as various equipment and athletic dressing-rooms. The fourth unit provides a natatorium 50 by 100 feet in size, of white tile construction, equipped with modern high and low diving boards, and with a recirculating filtration automatic chlorination system which keeps the water sterile. The pool, which is one of the largest and finest in this part of the country, is surrounded by a gallery for spectators.

The Mines Building (1913), 65 by 81 feet in dimensions, is a four-story building, constructed of brick, trimmed with stone, and similar in type to all the newer buildings on the campus. The first floor of the building contains the main offices and the assaying and the metallurgical laboratories. In the basement are the crushing and sampling rooms, stock rooms, ore-dressing laboratory, and a small laboratory now used by the Art department for jewelry instruction. On the second floor are drafting, lecture, and classrooms. On the third floor are the geological museum, mineralogical and general geology laboratories, and lecture room. Most of the laboratories are provided with water, and gas as well as electric lights. On the second floor the building affords classrooms and offices now used by the department of Modern Languages. For the clay modeling and pottery work of the Art department a laboratory and china firing equipment are maintained in the basement.

Nursery School. Covell House (purchased 1927) has large, pleasant rooms adapted for the work of the Nursery School. Adjoining is an enclosed playground equipped for outdoor activities of the school.

The Old Gymnasium (1899), 70 by 120 feet, is built of stone and wood, and comprises a basement, or first floor, facing east, with the main floor above it, having a bank entrance on the west end. The building is used as headquarters for the Cadet Band and College Orchestra, for instruction in band instruments, for concerts and assemblies, and for various instructional purposes.

The Pharmacy Building (1924), is a three-story brick structure, 62 by 123 feet. Gray terra cotta, white cast stone, and iron gratings in the areas furnish embellishment. In addition to the regular classrooms and laboratories, special features of the building include a model drug store for instructional work, a drug museum, a sign-card and window trimming

department, dark room, fire-proof vault, stock rooms, and an amphitheater seating two hundred persons and provided with modern equipment for motion-pictures. The Oregon State Board of Pharmacy maintains in this building the State Drug Laboratory with a competent staff for enforcing the pure drug law of Oregon. The lighting, heating, and ventilating systems are all modern and effective.

The Physics Building (1928) is a three-story red brick structure that architecturally forms the east wing of the Mines Building, though the two buildings have no inside connection. The new building is somewhat irregular in shape, conforming in part to the Engineering buildings parallel with Monroe Street and in part with the East Quadrangle, upon which the Mines Building faces. The structure has a maximum length of 169 feet north and south and 85 feet east and west with a total floor area of approximately 32,700 square feet. It provides permanent quarters for the departments of Physics and Highway Engineering and temporary office room for the department of History.

The first or ground floor is designed for laboratory and service purposes. There are three laboratories for courses in general physics, several more for advanced courses and one for research. There are also a main switchboard room, a storage battery and chemical room, a substation, a fan room, a janitor's room, and an instrument shop. The second floor is occupied by a suite of rooms for the department of Highway Engineering, the general offices of the department of Physics, a suite of rooms for instructional and service work in photography, and a number of classrooms. The third floor provides a temporary suite of offices for the department of History, three lecture rooms, a classroom, and a suite of rooms for radio. The last-named affords space for the college broadcasting station KOAC, including an operating room, a battery room, a large studio, a small studio, an announcer's room, and a waiting room. A special laboratory for the teaching of astronomy is located on the roof of the building.

Poultry Building (1927). The Poultry Building is a new, modern three-story brick and stone building 53 by 128 feet. Equipped with the necessary laboratories for judging, incubation, fattening, dressing, egg grading and candling, it has excellent facilities for instruction in these poultry subjects. The building has modern cold-storage equipment. In addition to classrooms the building provides laboratories for the department of Veterinary Medicine.

In connection with the Poultry Building the poultry demonstration farm equipped with commercial laying houses, brooding and rearing facilities, affords special opportunity for the study of commercial poultry farm management and practices.

Somewhat removed from the Poultry Building is a building devoted to research study of poultry diseases carried on by the department of Veterinary Medicine.

Science Hall (1902), constructed of gray granite and sandstone, covers a ground space of 85 by 125 feet, has four stories, and contains fifty-five rooms. Within it are housed the department of Chemistry, with its various laboratories, recitation rooms, and lecture halls, together with the offices

and laboratories of the department of Chemical Engineering and of the Agricultural Experiment Station chemists.

Shepard Hall (1908-1909), now housing the Y. M. C. A., was erected by the organization as a tribute to the memory of Clayborne Shepard, who gave his life to the cause of cleaner and truer citizenship as exemplified in student life. The basement contains a club room, kitchen, shower room, wood room and accessories. The first floor contains a large lobby, which is used as a reading and game room, offices of the General Secretary and Employment and Housing Secretary, a large cabinet room, and a committee room. The second floor is used for classrooms and offices of the School of Vocational Education.

Stables and Barns. The stables and barns are located in the western part of the campus, the area assigned to them lying west of Agricultural Mall. All recent barns have been built west of the Mall, and the older structures will eventually be moved from their present locations, thus concentrating all barns midway between the campus proper and the College farms. The principal stables and barns are described briefly in the following paragraphs.

The Military Stables (1920) accommodate seventy-seven horses used by the Field Artillery unit. The stalls are double, with earth and wooden floors. There are two through driveways of concrete, limited storage space for forage, and a farrier's room. Box stalls are provided for sick horses and private mounts of officers. Adjacent to the stables are the gun sheds housing the 75-millimeter and 3-inch field-pieces and the harness of the Field Artillery unit. There are also a blacksmith shop, saddler's shop, artillery and motor repair shop, and a saddle room.

The Horse Barn (1925), is probably the most modern and most carefully planned horse barn in the state, although it is not elaborate or expensive. The main barn is 40 by 130 feet, with a wing 28 by 40 feet. It will house forty head of horses, together with a year's supply of grain, hay, and bedding.

The Cattle Barn (1914), devoted to beef-cattle, is 52 by 120 feet, with storage capacity for three hundred tons of hay and straw. Adjoining the barn are several concrete-floored exercise lots and a stave silo. Especial conveniences are provided for the feeding, watering, weighing, and handling of livestock.

The Dairy Barn (1907) is a frame building with cement foundation and brick pilasters. The main part is 50 by 100 feet, two stories high, with two wings extending to the south, each 46 by 80 feet, one story in height. There is also a milkroom, boiler room, and fuel room, as well as bins for the storage of grain and feed. The cow stables are floored with concrete and provided with modern stanchions, milking machines, and feeding facilities. Wide aisles afford convenience to students and visitors. Three silos of different types, erected adjoining the Dairy Barn, are regularly utilized in the feeding of the dairy animals. The second story has storage capacity for one hundred tons of loose hay.

The Hog Barn and Feeding House (1916) is designed especially for farrowing, and contains twenty-nine pens, together with a feed house 28 by 40 feet in dimensions, three stories high, with a capacity of 15 tons of roots, 6,308 bushels of grain, and 40 tons of straw.

The Sheep Barn (1929), 40 by 60 feet in size, is designed and equipped for the accommodation of sheep for classroom use and as a laboratory for shearing and management work.

The Veterinary-Dairy Barn (1929) is 42 by 110 feet in dimensions, designed especially for research studies in diseases of dairy cattle. Twelve separate screened box stalls and exercising paddocks are provided, together with a milk house, silo, and other facilities.

The Stock Judging Pavilion (1912) provides comfortable and commodious quarters for all of the demonstration work with livestock. The main room is 40 by 90 feet, well lighted and heated. A movable partition is provided whereby this large room may be divided into two smaller ones, each large enough for all regular classes.

The Veterinary Building (1918), a frame structure 56 by 65½ feet, is used for both instructional and research work. The front part of the building consists of two rooms, lighted by skylights and large windows. One of the rooms is a small amphitheater, with a seating capacity of about one hundred and twenty. The arena is sufficiently large for casting animals for surgical work. The opposite room is used for dissection and for holding autopsies. The back part of the building is divided into two stories. The first floor consists of a dressing-room, toilet and shower-bath room, drug and instrument room, and stalls. The second floor has space for storing feed.

Waldo Hall (1907), one of the halls of residence for women, is a large building of pleasing appearance, with a concrete foundation and basement wall, and a cream-colored, pressed-brick superstructure, three stories high. The building is 96 by 240 feet, and contains one hundred and nineteen rooms for students. On the entrance floor are located the dining-rooms and kitchens and a well-appointed laundry for students. On the first floor are spacious reception rooms and a considerable number of student rooms. The upper floors are given up entirely to student rooms. Each floor has a trunk room, baths and showers. Each room has closets, running water, steam heat, and electric light. The hall is modern in its appointments, and all equipment and furnishings necessary for health, comfort, and homelike atmosphere have been provided.

The Women's Building (1927) provides complete facilities for a well-rounded program in physical education. The building measures 254 feet in length and 150 feet in width. All parts of the structure except the swimming pool are above ground. The pool, 75 feet by 35 feet, is finished in white tile and adjoins the tile shower rooms equipped with 75 individual showers. Also on the first floor are the large dressing-room provided with 256 dressing booths and 1,500 lockers, a laundry, a rest room, and a hair-drying room. The main room on the first floor is the large gymnasium, 72 by 100 feet, with a balcony on three sides and tall, arched windows on the

fourth. Adjoining and opening from the gymnasium is the games room, 46 by 70 feet. Space is provided for dancing classes in a special room with mirrored walls and large French windows. The physical education office and offices and dressing-rooms for the staff complete the second floor. The third floor provides rooms and equipment for measuring and examining women students and for the special work in corrective gymnastics. Three rooms used as social or study rooms have been furnished by the Women's Athletic Association and the Physical Education Club. The building is admirably located as a campus headquarters of women's interests.

The Library

SO planned as to permit expansion as demands upon the library facilities increase, the Library Building occupies a central location in the East Quadrangle. The building is described in detail under Buildings, page 99. At present some of the rooms designed for seminar use are occupied as offices by other departments. The public service rooms include the Reference and Reading room, 150 by 41 feet extending the entire length of the building, the Periodical room, and the Technical Reference room, providing a total seating capacity of 406 readers.

The Reference and Reading Room. The general reading room contains a collection of encyclopedias, dictionaries, standard reference books in the different departments of study, and current and bound files of general, literary and economic periodicals. The "Culture collection" of books for general reading is also shelved in this room.

The Periodical Reading Room. Adjoining the general reading room is the periodical room, containing current issues of periodicals, together with special collections of material pertaining to current interests.

The Technical Reference Room. This room on the first floor includes bound sets of technical periodicals and the current numbers of technical periodicals. The continuations material includes a collection of the publications of the United States and foreign governments, and the states of the United States, of colleges and learned societies, and other material appearing in numbered series at irregular intervals. Duplicates of the most-used material are kept for circulation and for class reserve work.

Seminar Rooms. One seminar room is maintained at present: a Debate Seminar equipped as a work shop for the various intercollegiate and interclass debate teams. It is expected that other seminar rooms will be established as soon as space can be released now used for other purposes. Individual desks are placed on each deck of the stacks for the use of faculty members and advanced students engaged in special study.

Catalogues. A general catalogue of all library books on the campus is accessible to the public. This is arranged alphabetically by author, title, and subject. There are also a card catalogue of the publications of the

United States Department of Agriculture arranged in the same manner, and a card index of the publications of the state experiment stations, which is a subject catalogue.

Special card-indexes of Short Stories and Essays are kept up to date in the Reference department. Current indexes of *THE OREGON VOTER*, *THE BAROMETER*, and one of the larger dailies of the state are maintained.

Collections. The main working collection of the library is housed in the Library Building, and includes the books provided for the activities of the various schools of the College and the Experiment Station; a good collection of the publications of other colleges and experiment stations; and publications of the departments of Agriculture of the United States and many foreign countries. The library is a designated depository for the publications of the United States Government and the Carnegie Institution of Washington. It owns a collection of more than 2,000 documents received as a gift from the late United States Senator Dolph. The collection of books on the history of horticulture is notable, and that on home economics is unusually complete for the size of the library, while good foundations have been laid for research work in plant pathology, entomology, horticultural products, chemistry, and pharmacy.

The total number of books, including depository set of 3,696 volumes, is 98,700. The number of catalogued pamphlets is 4,812, uncatalogued 379,374. The number of different periodicals currently received is 1,033, and 112 newspapers are received by subscription, gift, or exchange.

Departmental collections are limited to the few books that may be constantly required for laboratory purposes, but a liberal charging system permits faculty members to draw books for several weeks or a term when best service can be rendered thereby.

All books classified and catalogued according to the Dewey decimal system are being reclassified under the Library of Congress system. Books may be drawn for home use by all officers and students of the College. Books may be kept by the students for two weeks with the privilege of a renewal, and by officers for as long a time as best service to all will permit. Seniors and graduate students may have access to the stacks for special study if recommended to the Librarian by the department head under whom they are studying.

Service. The library is open from 7:50 a.m. to 10:00 p.m. every day but Sunday and legal holidays, and Sunday from 2 to 5 p.m. for reading purposes only. The library is both a reference and a circulation library for all persons connected with the institution, and reference service is rendered to others as far as possible. An excellent system of interlibrary loans is maintained with other libraries on the Coast, especially within the state. The library is also able to borrow from the United States Department of Agriculture Library and the Library of Congress, and from certain specialized scientific libraries in the East when there is a real need. Small branch circulation libraries are maintained in the various halls of residence on the campus and at the Y. M. C. A. These collections are changed once a month.

Instruction. The Library Staff gives instruction for one week during the term in all classes in freshman English composition (Eng 101), covering elementary principles of library practice. In addition, the Staff gives the following course intended especially for advanced students.

Lib 300. **BIBLIOGRAPHY.** The sources of printed materials, with methods and practice in search for information in standard reference books, periodicals, government documents, and scientific and technical literature; the preparation of bibliographies. Given by members of the Library Staff, with lectures by specialists in cooperating departments.

Third term; 2 credits; 2 lectures.

The Museum

FORMALLY opened on February 20, 1925, the College Museum is temporarily accommodated on the ground floor of the Library Building. The Museum is rapidly growing and while occupying the entire east half of one floor, including the corridor, is greatly crowded for space. The exhibits include the Hill Collection of natural history, presented to the College in 1924 by the heirs of the late Dr. J. L. Hill, of Albany, Oregon; the J. G. Crawford collection from prehistoric burial mounds; the E. E. Boord collection of specimens of animals of the Northwest and the Far North; the Leslie M. Davis collection of Brazilian weapons; the Wiggins, Anthony, Lisle, and Rice collections of American historical weapons; the Dr. C. E. Linton collection of birds of the ocean; the D. A. R. antiques; the Mrs. J. E. Barrett collection of Indian basketry; commercial, zoological, and botanical collections, together with many smaller collections, representing the generosity of one hundred donors. In addition there are on the campus extensive collections of fauna and flora, economic plants, soils, insects, textiles and embroideries, woods, crude drugs, and geologic specimens. Some of these collections are described in connection with the various departments and schools.

Part III

Resident Instruction

The Resident Instruction Division comprises the degree-granting schools or departments of Agriculture, Chemical Engineering, Commerce, Engineering and Mechanic Arts, Forestry, Home Economics, Military Science and Tactics, Mines, Pharmacy, and Vocational Education; the various service divisions including the School of Basic Arts and Sciences, the School of Health and Physical Education, and the departments of Industrial Journalism and Music; the department of Religion; Graduate Study in the several departments; the Summer Session and the Short Courses.

School of Agriculture

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.
ARTHUR BURTON CORDLEY, D.Sc., Dean of the School of Agriculture.
MARIE BERRY LEWIS, Pd.B., Secretary to the Dean.

Agricultural Education

HEBER HOWARD GIBSON, M.A., Professor of Agricultural Education.
OLIVER KENNETH BEALS, B.S., Critic Teacher in Agricultural Education.

Agricultural Engineering

WILLIAM JAMES GILMORE, B.S., Professor of Agricultural Engineering.
CLYDE WALKER, M.S., Assistant Professor of Agricultural Engineering.
RALPH NICHOLAS LUNDE, B.S., Instructor in Agricultural Engineering.

Animal Husbandry

*ERMINE LAWRENCE POTTER, M.S., Professor of Animal Husbandry.
ORAN MILTON NELSON, M.S., Professor of Animal Husbandry.
BENJAMIN WILLIAM RODENWOLD, M.S., Assistant Professor of Animal Husbandry.
ALFRED WEAVER OLIVER, M.S., Assistant Professor of Animal Husbandry.
WARD LEMERT STUDOR, B.S., Instructor in Animal Husbandry.
FLOYD MARVEN EDWARDS, B.S., Teaching Fellow in Animal Husbandry.

Dairy Husbandry

PHILIP MARTIN BRANDT, A.M., Professor of Dairy Husbandry.
GUSTAV WILSTER, Ph.D., Professor of Dairy Manufacturing.
IDWAL RALPH JONES, Ph.D., Associate Professor of Dairy Husbandry.
HOWARD NOTSON COLMAN, A.B., B.S., Assistant Professor of Dairy Husbandry.
FRANCIS DALE WILSON, B.S., Teaching Fellow in Dairy Husbandry.
ARTHUR WILLIAM COLE, B.S., Teaching Fellow in Dairy Manufacturing.
LYALL DE FOREST SEARING, B.S., Teaching Fellow in Dairy Husbandry.

Extension Methods

PAUL VESTAL MARIS, B.S., Professor of Extension Methods.

*On leave of absence.

Farm Crops

- GEORGE ROBERT HYSLOP, B.S., Professor of Farm Crops.
 EARL NORMAN BRESSMAN, Ph.D., Associate Professor of Farm Crops.
 DONALD DAVID HILL, M.S., Associate Professor of Farm Crops.
 DONALD CLYDE SMITH, M.S., Instructor in Farm Crops.
 GRACE M. COLE, A.B., Seed Analyst (Assistant Botanist, Seed Laboratory,
 United States Department of Agriculture).
 ALBERT FREDERICK SANDER, B.S., Teaching Fellow in Farm Crops.
 LINDEN ELY HARRIS, B.S., Teaching Fellow in Farm Crops.

Farm Management

- HENRY DESBOROUGH SCUDDER, B.S., Professor of Farm Management.
 GUSTAV WESLEY KUHLMAN, M.S., Assistant Professor of Farm Management.

Horticulture

- WALTER SHELDON BROWN, D.Sc., Professor of Horticulture.
 EDWARD MARIS HARVEY, Ph.D., Professor of Research in Horticulture.
 ARTHUR LEE PECK, B.S., B.A., Professor of Landscape Architecture and Flori-
 culture; Superintendent of Campus and Greenhouses.
 ARTHUR GEORGE BOUQUET, M.S., Professor of Vegetable Crops.
 ERNEST HERMAN WIEGAND, B.S. (in Ag.), Professor of Horticultural Products.
 WILLIS PIERRE DURUZ, Ph.D., Professor of Pomology.
 FREDERICK ALEXANDER CUTHBERT, M.L.D., Assistant Professor of Landscape
 Architecture.
 THOMAS ONSDORFF, B.S., Instructor in Horticultural Products.
 HERBERT REEVES SINNARD, M.S., Instructor in Landscape Architecture.
 OSCAR JEFFERSON DOWD, B.S., Teaching Fellow in Horticulture.
 GEORGE LEONARD RYGG, B.S., Teaching and Research Fellow in Horticulture.

Poultry Husbandry

- ALFRED GUNN LUNN, B.S., Professor of Poultry Husbandry.
 FRANK ELMER FOX, M.S., Associate Professor of Poultry Husbandry.

Soils

- *WILBUR LOUIS POWERS, Ph.D., Professor of Soils.
 CHARLES VLADIS RUZEK, M.S., Professor of Soil Fertility.
 ROSCOE ELMO STEPHENSON, Ph.D., Associate Professor of Soils.
 EDWARD FRITCHOFF TORGERSON, B.S., Assistant Professor of Soils.
 EARL ROSENDALE FOGARTY, B.S., Research Fellow in Soils.
 ARTHUR REYNOLD MARQUARDT, M.S., Research Fellow in Soils.

*On leave of absence.

Veterinary Medicine

BENNETT THOMAS SIMMS, D.V.M., Professor of Veterinary Medicine.
 WALTER THEODORE JOHNSON, D.V.M., Professor of Veterinary Medicine.
 ADELBERT MORTEN McCAPES, D.V.M., Assistant Professor of Veterinary Medicine.
 JAMES NIVEN SHAW, D.V.M., Assistant Professor of Veterinary Medicine.

THE School of Agriculture offers a number of curricula which lead to the degree of Bachelor of Science in General or Specialized Agriculture, in Agricultural Engineering, in Landscape Architecture, in Horticultural Products, or in Sciences Basic to Agriculture. The completion of 207 credits by men (including Military and Physical Education) or 192 by women (including Physical Education) is required for graduation from any curriculum.

The curricula are arranged in the following groups:

- I. Curricula in General and Specialized Agriculture (pages 113-119).
- II. Curriculum in Agricultural Engineering (pages 120-121).
- III. Curriculum in Landscape Architecture (pages 121-122).
- IV. Curriculum in Horticultural Products (pages 122-123).
- V. Curricula in Science Basic to Agriculture (pages 123-127).

In addition to these degree curricula the School of Agriculture offers two-year curricula as follows: (1) General and Specialized Agriculture, including options in Animal Husbandry, Dairy Husbandry, Soils and Farm Crops, Poultry Husbandry, Pomology and Vegetable Growing. (2) Pomology and Vegetable Crops. (3) Horticultural Products. These curricula are all of college grade, students being required to meet the regular entrance requirements. Satisfactory completion of any of the two-year curricula leads to a certificate. For the two-year curricula see pages 127-130.

A minor in Agriculture for Commerce students is outlined under School of Commerce.

Graduate Work. Opportunities are provided in all the departments of these groups for graduates of this College, or of other institutions of equal rank, to do graduate work leading to the degree of Master of Science. The requirements for this degree are explained in full elsewhere in this catalogue. For information concerning graduate work in Agricultural Economics and Rural Sociology, see the School of Commerce section of the catalogue.

I. Curricula in General and Specialized Agriculture

B.S. Degree

Agricultural Economics
Agricultural Education
Animal Husbandry
Dairy Husbandry
Farm Crops
Farm Management

Horticulture—
Pomology
Vegetable Crops
Poultry Husbandry
Soils

CURRICULA in General and Specialized Agriculture are planned to train young men or women to become successful farmers, stockmen, dairymen, poultrymen, or fruit or truck growers; to be efficient managers of farm or orchard properties, commercial creameries, cheese plants and ice-cream factories, market milk plants, and other business enterprises in which a knowledge of practical and scientific agriculture is of value; to serve as agricultural advisers and land appraisers for banks, trust companies and real estate dealers, as specialists in the United States Department of Agriculture or in agricultural colleges as teachers, investigators, extension specialists, county agricultural agents, 4-H club leaders, or as teachers of agriculture in secondary schools.

The work of the first two years in all curricula of this group is prescribed. During the junior and senior years the student may follow the curriculum in Agricultural Economics (page 115); in Agricultural Education (page 115); in Animal Husbandry (page 116); in Dairy Husbandry (page 116); in Farm Crops (page 117); in Farm Management (page 117); in Horticulture (Pomology page 117 or Vegetable Crops page 118); in Poultry Husbandry (page 118); in Soils (pages 118-119); or may, on consultation with the Dean, be permitted to pursue a more general program.

PROGRAM FOR FRESHMEN AND SOPHOMORES¹

	Term credits—		
	1st	2d	3d
Freshman Year			
English Composition (Eng 101, 102, 103).....	3	3	3
General Chemistry (Ch 101, 102, 103).....	3	3	3
General Botany (Bot 101, 102, 103).....	3	3	3
Cereal Production (FC 101).....	3	.....	.....
Methods of Study (Ed 101).....	.....	3	.....
Mathematics.....	.....	.....	3
Stock Judging I (AH 111).....	3	.....	.....
Landscape Architecture (LA 131).....	.....	3	.....
Agricultural Engineering (AE 100).....	.....	.....	3
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
	17½	17½	17½
Sophomore Year			
² Organic Chemistry (Ch 221).....	5	.....	.....
Principles of Zoology (Z 130).....	.....	5	.....
Elements of Horticulture (Hrt 200).....	.....	.....	5
Soils (Sls 201, 202).....	3	3	.....
Principles of Farm Management (FMg 302).....	.....	.....	4
Physical Education (Men).....	2	2	2
Military Science and Tactics.....	.....	.....	.....
	10½	10½	11½

In addition to the foregoing courses sophomores select one of the following programs.³

	Section I		
	10½	10½	11½
General Bacteriology (Agricultural) (Bac 210).....	4	.....	.....
Principles of Economic Entomology (Ent 201).....	3	.....	.....
Practical Poultry Keeping (PH 201).....	.....	3	.....
Elements of Dairying (DH 200).....	.....	4	.....
Livestock Management (AH 221).....	.....	.....	4
Forage and Root Crop Production (FC 200).....	.....	.....	3
	17½	17½	18½

¹Special provisions for former Smith-Hughes students in Agriculture. With the approval of the Dean, students who have had Smith-Hughes Agriculture in high school may be excused from taking certain beginning courses in Agriculture ordinarily required in the freshman and sophomore years and may register immediately in the various departments concerned for more advanced and intensive courses. Exemptions may be made for such courses as correspond with those phases of the instruction that have been most stressed in high school agriculture. Each case is considered in consultation with the Dean and on individual merit.

²Or an elective.

³With the approval of the Dean one course in each group may be postponed to enable the student to elect Elementary Industrial Journalism (IJ 200).

Section II

	Term credits		
	1st	2d	3d
Elements of Dairying (DH 200).....	4	10½	11½
Practical Poultry Keeping (PH 201).....	.....	3	.....
Forage and Root Crop Production (FC 200).....	3	.....	.....
Livestock Management (AH 221).....	.....	4	.....
General Bacteriology (Agricultural) (Bac 210).....	.....	.....	4
Principles of Economic Entomology (Ent 201).....	.....	.....	3
	17½	17½	18½

Section III

Livestock Management I (AH 221).....	10½	10½	11½
Forage and Root Crop Production (FC 200).....	4	.....	.....
Principles of Economic Entomology (Ent 201).....	3	.....	.....
General Bacteriology (Agricultural) (Bac 210).....	.....	3	.....
Elements of Dairying (DH 200).....	.....	4	.....
Practical Poultry Keeping (PH 201).....	.....	.....	4
	17½	17½	18½

PROGRAMS FOR JUNIORS AND SENIORS

The following courses, to be taken during the junior and senior years, are required of all students for graduation. These, together with other requirements, are included in the various departmental curricula which follow.

	Term credits		
	1st	2d	3d
Genetics (Z 351).....	3	.....	.....
Extempore Speaking (PSP 254).....	3	.....	.....
National Government (PS 301).....	3	.....	.....
Farm Accounting (BO 361).....	.....	3	.....
Outlines of Economics (ES 203).....	.....	4	.....

AGRICULTURAL ECONOMICS

Junior Year

Outlines of Economics (ES 203).....	4	.....	.....
Business Organization and Management (BO 331, 332).....	3	3	.....
Agricultural Economics (ES 362).....	.....	3	.....
Rural Sociology (ES 464).....	.....	.....	3
Markets and Marketing (ES 402).....	.....	4	.....
Cooperation and Farmers' Movements (ES 364).....	.....	.....	3
Courses in Agriculture.....	5	5	5
Electives.....	5	3	5
	17	18	16

Senior Year

Money and Banking (ES 311).....	4	.....	.....
Markets and Marketing (ES 603).....	.....	.....	4
Cooperative Marketing Organization (ES 606).....	3	.....	.....
Rural Finance (ES 468).....	.....	3	.....
Farm Accounting (BO 361).....	.....	3	.....
Economic Development of Agriculture (ES 467).....	.....	3	.....
Courses in Agriculture.....	3	3	3
Electives.....	7	5	9
	17	17	16

AGRICULTURAL EDUCATION

Junior and Senior Years

Since students who desire to prepare for teaching Agriculture will ordinarily major in one of the departmental curricula in General or Specialized Agriculture, no fixed curriculum in Agricultural Education is provided. The work in Agriculture and in Education which is required for teaching credentials in Agricultural Education is described on pages 131-132.

	Term credits		
	1st	2d	3d
ANIMAL HUSBANDRY			
Junior Year			
Animal Nutrition (AH 351).....	4	---	---
Feeds and Feeding (AH 352).....	---	5	---
Outlines of Economics (ES 203)	---	---	4
Farm Accounting (BO 361).....	---	3	---
Genetics (Z 351).....	3	---	---
Comparative Anatomy (VM 301, 302).....	3	3	---
Comparative Physiology (VM 321).....	---	---	3
Electives	7	6	9
	17	17	16
Senior Year			
Extempore Speaking (PSP 254).....	3	---	---
National Government (PS 301).....	3	---	3
Diseases of Livestock (VM 441, 442, 443).....	3	3	3
Livestock Management (AH 661).....	---	---	5
Electives	8	14	9
	17	17	17
DAIRY HUSBANDRY			
Junior Year			
Animal Nutrition (AH 351).....	4	---	---
Genetics (Z 351).....	3	---	---
Dairy Bacteriology (Bac 311).....	4	---	---
Comparative Anatomy (VM 301, 302) or Commercial Buttermaking (DH 302, 303)	3	3	---
Farm Accounting (BO 361).....	---	3	---
Agricultural Analysis (Ch 352).....	---	3	---
Dairy Herd Management (DH 352).....	---	3	---
Outlines of Economics (ES 203).....	---	---	4
National Government (PS 301).....	---	---	3
Comparative Physiology (VM 321).....	---	---	3
Electives and options (see below).....	5	3	8
	17	17	18
<i>Junior Options¹</i>			
Dairy Products Standards (DH 304).....	---	---	1
Judging Dairy Products (DH 305).....	---	---	1
Dairy Breed Types (DH 351).....	---	---	3
Market Milk (DH 301).....	---	---	3
Senior Year			
Extempore Speaking (PSP 254).....	3	---	---
Seminar (DH 481, 482, 483).....	1	1	1
Milk Production (DH 453).....	---	---	3
Options (see below).....	5	4-6	3-6
Electives	8	11-9	9-6
	17	16	16
<i>Senior Options¹</i>			
Dairy Breed Types (DH 451).....	2	---	---
Dairy Products Judging Team (DH 454).....	2	---	---
Economics of Dairy Plant Operation (DH 403).....	2	---	---
Diseases of Livestock (VM 441, 442, 443).....	3	3	3
Breeding Dairy Cattle (DH 452).....	---	3	---
Pedigree Study (DH 455).....	---	1	---
Cheesemaking (DH 401).....	---	3	---
Ice-cream and Condensed Milk (DH 402).....	---	---	3
Market Milk (DH 301).....	---	---	3
Dairy Technology (DH 404).....	---	---	3
Refrigeration and Cold Storage (ME 363).....	---	---	2

¹Optional courses selected depend on whether Production or Manufacturing is chosen for major.

FARM CROPS

	Term credits		
	1st	2d	3d
Junior Year			
Cereal Production (FC 311).....	5	---	---
Principles of Plant Pathology (Bot 311).....	4	---	---
Genetics (Z 351).....	3	---	---
Crop Inspection (FC 312).....	---	5	---
Farm Accounting (BO 361).....	---	3	---
Forage and Related Crops (FC 331).....	---	---	4
Plant Physiology (Bot 321).....	---	---	4
Animal Nutrition (AH 351).....	---	---	4
Outlines of Economics (ES 203).....	---	4	---
Electives	5	5	5
	17	17	17
Senior Year			
Seed Production (FC 432).....	3	---	---
Applied Plant Genetics (FC 442).....	5	---	---
Extempore Speaking (PSp 254).....	3	---	---
Potato Growing (FC 314).....	---	3	---
Soil Fertility Lectures (SIs 425).....	---	3	---
Crop Efficiency (FC 451).....	---	---	5
Introduction to Business Law (PS 263).....	---	---	3
General Psychology (Psy 201).....	---	---	5
Electives	6	11	3
	17	17	16

FARM MANAGEMENT

Junior Year			
Genetics (Z 351).....	3	---	---
Operation Efficiency (FMg 303).....	3	---	---
Farm Accounting (BO 361).....	---	3	---
Animal Nutrition (AH 351).....	---	---	4
Principles of Plant Pathology (Bot 311).....	4	---	---
Outlines of Economics (ES 203).....	---	---	4
Farm Organization (FMg 411).....	---	3	---
Enterprise Costs and Profits (FMg 433).....	---	---	3
Electives	7	11	6
	17	17	17
Senior Year			
Extempore Speaking (PSp 254).....	3	---	---
National Government (PS 301).....	---	---	3
Farm Management (FMg 442, 443).....	---	2	2
Farm Management Seminar (FMg 422, 423).....	---	1	1
Agricultural Land Economics (FMg 452).....	---	3	---
Electives	14	11	10
	17	17	16

HORTICULTURE: POMOLOGY

Junior Year			
Commercial Pomology (Pom 311).....	4	---	---
History and Literature of Horticulture (Pom 312).....	---	3	---
Plant Propagation and Greenhouse Practice (Hrt 341).....	---	3	---
Fruit Production (Pom 313).....	---	---	4
Farm Accounting (BO 361).....	---	3	---
Outlines of Economics (ES 203).....	---	4	---
Genetics (Z 351).....	3	---	---
Plant Physiology (Bot 321).....	---	---	4
Principles of Plant Pathology (Bot 311).....	4	---	---
Fruit Diseases (Bot 412).....	---	---	3
Electives	6	4	6
	17	17	17
Senior Year			
Dehydration of Fruits and Vegetables (HP 371).....	3	---	---
Systematic Pomology (Pom 411).....	4	---	---
Pruning (Pom 412).....	---	3	---
Seminar (Pom 481, 482, 483).....	1	1	1
Economic Entomology (Ent 404).....	3	---	---
Extempore Speaking (PSp 254).....	3	---	---
National Government (PS 301).....	---	---	3
Spraying (Pom 413).....	---	---	3
Electives	3	13	9
	17	17	16

HORTICULTURE: VEGETABLE CROPS

	Junior Year		
	1st	2d	3d
Farm Accounting (BO 361).....	3	3	---
Outlines of Economics (ES 203).....	---	4	---
Genetics (Z 351).....	3	---	---
Principles of Plant Pathology (Bot 311).....	4	---	---
Diseases of Field Crops and Vegetables (Bot 413).....	---	---	3
Plant Physiology (Bot 321).....	---	---	4
Principles of Vegetable Production (VC 321).....	3	---	---
Plant Propagation and Greenhouse Practice (Hrt 341).....	---	3	---
Vegetable Growing Practices (VC 323).....	---	---	3
Electives	7	7	7
	17	17	17

Senior Year			
Extempore Speaking (PSP 254).....	3	---	---
National Government (PS 301).....	---	3	---
Seminar (Pom 481, 482, 483).....	1	1	1
Vegetable Forcing (VC 421, 422).....	---	2	2
Vegetable Varieties (VC 423).....	2	---	---
Vegetable Marketing (VC 424, 425).....	3	3	---
Truck Crop Products (VC 426).....	---	---	3
Electives	8	8	10
	17	17	16

POULTRY HUSBANDRY

Junior Year			
Farm Accounting (BO 361).....	---	3	---
Outlines of Economics (ES 203).....	---	---	4
Genetics (Z 351).....	3	---	---
Anatomy of the Fowl (VM 309).....	---	3	---
Animal Nutrition (AH 351).....	4	---	3
Diseases of Poultry (VM 351).....	---	---	3
Poultry Breeding, Breeds, and Judging (PH 311).....	4	---	---
Incubation and Brooding (PH 321).....	---	---	4
Poultry-house Design and Construction (PH 331).....	---	4	---
Electives	6	7	6
	17	17	17

Senior Year			
Extempore Speaking (PSP 254).....	3	---	---
National Government (PS 301).....	3	---	---
Poultry Feeding (PH 441).....	4	---	---
Marketing Poultry Products (PH 451).....	---	4	---
Poultry Plant Management (PH 463).....	---	---	4
Seminar (PH 481, 482, 483).....	1	1	1
Departmental Management (PH 484, 485, 486).....	3	3	3
Electives	3	9	8
	17	17	16

SOILS

Junior Year			
Genetics (Z 351).....	3	---	---
Principles of Plant Pathology (Bot 311).....	4	---	---
Farm Accounting (BO 361).....	---	3	---
Outlines of Economics (ES 203).....	---	---	4
Plant Physiology (Bot 321).....	---	---	4
Irrigation Farming (Sls 311).....	3	---	---
Western Land and Water Laws (Sls 314).....	---	3	---
Soil Drainage and Irrigation (Sls 203).....	---	---	3
Soil Bacteriology (Bac 321).....	4	---	---
Electives	3	11	6
	17	17	17

	Term credits		
	1st	2d	3d
Extempore Speaking (PSP 254).....	3	.....	.....
National Government (PS 301).....	.....	3	.....
Soil Physics (Sls 421).....	5	.....	.....
Soil Fertility (Sls 424).....	.....	5	.....
Soil Management (Sls 428).....	.....	.....	5
Soil Survey (Sls 427).....	.....	.....	3
Irrigation (Sls 414).....	3	.....	.....
Plant Physiology (Bot 621).....	.....	3	.....
Seminar (Sls 481, 482, 483).....	1	1	1
Electives.....	5	5	7
	17	17	16

CURRICULUM FOR WOMEN

The following curriculum is suggested as meeting the interests and needs of the majority of women students in Agriculture. Women desiring a more specialized program should consult with the Dean.

	Term credits		
	1st	2d	3d
English Composition (Eng 101, 102, 103).....	3	3	3
General Chemistry (Ch 101, 102, 103).....	3	3	3
General Botany (Bot 101, 102, 103).....	3	3	3
Cereal Production (FC 101).....	3	.....	.....
Methods of Study (Ed 101).....	.....	3	.....
Landscape Architecture (LA 131).....	.....	.....	3
Mathematics.....	.....	.....	3
Elements of Dairying (DH 200).....	4	.....	.....
Stock Judging I (AH 111).....	.....	3	.....
Social Ethics (PE 121).....	½	.....	.....
General Hygiene (H 110).....	.....	1½	.....
Physical Education.....	1	1	1
	17½	17½	16

Sophomore Year			
Agricultural Biochemistry (Ch 251).....	5	.....	.....
Principles of Zoology (Z 130).....	.....	5	.....
Elements of Horticulture (Hrt 200).....	.....	.....	5
Soils (Sls 201, 202).....	3	3	.....
Principles of Farm Management (FMg 302).....	.....	.....	4
General Bacteriology (Agricultural) (Bac 210).....	.....	.....	4
Practical Poultry Keeping (PH 201).....	.....	3	.....
Textiles (CT 200).....	3	.....	.....
Principles of Vegetable Production (VC 321).....	3	.....	.....
Clothing (CT 211, 212).....	.....	3	3
Physical Education.....	1	1	1
	15	15	17

Junior Year			
Genetics (Z 351).....	3	.....	.....
Principles of Economic Entomology (Ent 201).....	.....	3	.....
Plant Physiology (Bot 321).....	.....	.....	4
Outlines of Economics (ES 203).....	.....	.....	4
Foods (FN 203, 204, 205).....	3	3	3
Physical Education.....	10 ½	10 ½	10 ½
Agricultural electives.....	10	10	5
	16½	16½	16½

Senior Year			
Principles of Plant Pathology (Bot 311).....	4	.....	.....
Extempore Speaking (PSP 254).....	.....	3	.....
National Government (PS 301).....	.....	3	.....
General Psychology (Psy 201).....	.....	.....	5
Home Nursing (HAd 230).....	2	.....	.....
Child Care and Training (HAd 225).....	.....	.....	3
Agriculture options.....	.....	5	5
Physical Education.....	9 ½	3 ½	2 ½
Electives.....	9	3	2
	15½	14½	15½

II. Curriculum in Agricultural Engineering

B.S. Degree

AGRICULTURAL Engineering involves the application of engineering principles in the industry of agriculture. The curriculum includes work in mathematics, physics, and chemistry, and fundamental courses in the different Engineering departments. Agriculture subjects are selected to familiarize the student with methods of scientific agriculture. This curriculum is jointly administered by the Dean of the School of Agriculture and the Dean of the School of Engineering.

Graduates in Agricultural Engineering take up work along the following lines: college extension, experiment station, and government work in agricultural engineering; sales and development work with manufacturers of implements such as tractors and farm equipment; agricultural specialists with building materials and equipment companies. For those who desire to enter the commercial field, unusual opportunities are afforded in the farm implement and lumber retail business. The teaching of vocational agriculture in the public schools and service as managers or operators of farms where the knowledge of drainage, farm structures, and machinery and power equipment is important also afford opportunities for graduate agricultural engineers.

	Term credits—		
	1st	2d	3d
Freshman Year			
English Composition (Eng 101, 102, 103).....	3	3	3
Trigonometry (Mth 122).....	5	—	—
College Algebra and Analytic Geometry (Mth 134, 135).....	—	5	5
Engineering Physics (Ph 101, 102, 103).....	3	3	3
Agricultural Engineering (AE 100).....	3	—	—
Engineering Problems (GE 102, 103).....	—	2	2
Mechanical Drawing (GE 111, 112).....	—	2	2
Linear Drawing and Lettering, Mechanical Drawing (GE 111, 112).....	—	2	2
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	16½	17½	17½
Sophomore Year			
Cereal Production (FC 101).....	3	—	—
Soils (Sis 201, 202).....	3	3	—
Forging and Welding (IA 250).....	—	2	—
Plane Surveying (CE 226).....	—	—	3
Elementary Industrial Journalism (IJ 200).....	—	—	3
*Calculus (Mth 251, 252, 253).....	4	4	4
Farm Shop I (AE 221).....	3	—	—
Farm Shop II (AE 222).....	—	3	—
Farm Motors (AE 111).....	—	—	3
General Chemistry (Ch 101, 102, 103).....	3	3	3
Physical Education.....	2	2	2
Military Science and Tactics.....	—	—	2
	18½	17½	18½
Junior Year			
Elements of Dairying (DH 200).....	4	—	—
Livestock Management (AH 221).....	—	4	—
Principles of Farm Management (FMg 302).....	—	—	4
Farm Structures (AE 380).....	3	—	—
Automobile Mechanics (AE 282).....	3	—	—
Farm Implements (AE 131).....	—	—	2
Hydrology (CE 411).....	—	3	—
Steam, Air, and Gas Power (ME 345, 346).....	—	3	3
Mechanics (MM 351).....	3	—	—
Materials of Engineering (MM 311).....	—	3	—
Strength of Materials (MM 353).....	—	—	3
Electives.....	4	4	5
	17	17	17

*Agricultural sciences may be substituted for Mth 251, 252, 253.

	Senior Year		
	Term credits		
	1st	2d	3d
Direct Currents (EE 251).....	3	---	---
Alternating Currents (EE 252).....	---	3	---
Alternating Current Machinery (EE 253).....	---	---	3
Farm Conveniences (AE 351).....	2	---	---
National Government (PS 301).....	3	---	---
Agricultural Economics (ES 362).....	---	3	---
Principles of Accounting for Engineers (BO 385).....	---	---	3
Electives.....	9	11	10
	17	17	16

III. Curriculum in Landscape Architecture

(Horticulture)

B.S. Degree

GRADUATES in Landscape Architecture are prepared to take up a number of different kinds of work: professional landscape architecture, work in offices of established landscape architects, or advanced study followed by office work serving to develop the professional to the point where he can open his own office. Both men and women prepare for the profession of landscape architecture. Those students not peculiarly fitted for the office find their way into nursery work, cemetery superintendents, park positions, seed business, teaching, landscape construction and contracting, golf course maintenance, and other similar occupations.

All drawings made by students in Landscape Architecture courses remain the property of the department.

Students majoring in Landscape Architecture are advised to consult with members of the departmental faculty concerning choice of electives.

	Freshman Year		
	Term credits		
	1st	2d	3d
English Composition (Eng 101, 102, 103).....	3	3	3
Modern Language.....	3	3	3
Trigonometry (Mth 121).....	---	4	---
Landscape Architecture (LA 131).....	3	---	---
Drawing (A 213).....	---	3	---
Cast and Still Life Drawing (A 214).....	---	---	2
General Botany (Bot 101, 103).....	3	---	3
Landscape Design A, B, C (LA 133, 134, 135).....	3	3	3
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
	17½	18½	16½
Sophomore Year			
Landscape Design I, II, III (LA 231, 232, 233).....	3	3	3
Plant Materials (LA 234, 235, 236).....	3	3	3
Plane Surveying (CE 226, 223).....	3	---	3
Modern Language.....	3	3	3
Pencil, Pen, and Ink Technique (A 251).....	---	2	---
History and Literature of Landscape Architecture (LA 237).....	---	---	3
Garden Perspective, Shades, and Shadows (LA 239).....	3	---	---
History of Landscape Architecture (LA 238).....	---	3	---
Soils (Sls 204a).....	---	2	---
Physical Education (Men).....	2½	2½	2½
Military Science and Tactics.....	2	2	2
	17½	18½	17½

	Term credits		
	1st	2d	3d
Junior Year			
Landscape Design IV, V, VI (LA 331, 332, 333).....	3	3	3
Introduction to Business Law (PS 263).....	.....	.....	3
Plant Propagation and Greenhouse Practice (Hrt 341).....	.....	3	.....
Composition (A 152).....	.....	.....	3
English Composition (Eng 201).....	3	.....	.....
General Geology (G 301).....	.....	.....	3
History of Art (A 322).....	.....	3	.....
Color Rendering (A 351).....	3	.....	.....
Garden Structures (LA 334).....	3	.....	.....
Plant Composition (LA 335).....	.....	3	.....
Flower Garden Design (LA 336).....	.....	.....	3
Maintenance (LA 337).....	.....	3	.....
Electives.....	3	3	3
	15	18	18

Senior Year			
National Government (PS 301).....	3	.....	.....
City Planning (LA 437a).....	.....	4	.....
Landscape Design VII, VIII, IX (LA 431, 432, 433).....	4	4	4
Field Practice (LA 434, 435).....	4	.....	4
Landscape Construction (LA 439).....	.....	4	.....
Principles of Accounting for Engineers (BO 385).....	.....	.....	3
Agricultural Economics (ES 362).....	.....	3	.....
Office Practice and Specifications (LA 436).....	3	.....	.....
Electives.....	3	3	4
	17	18	15

ELECTIVES FOR STUDENTS NOT MAJORING IN LANDSCAPE ARCHITECTURE

Plant Materials (LA 234, 235, 236).....	3	3	3
Landscape Architecture (Descriptive) (LA 130).....	2	.....	.....
City Planning (LA 437).....	.....	2	.....
Simple Home Ground Design (LA 438).....	.....	.....	3
Flower Garden Design (LA 336).....	.....	.....	3

IV. Curriculum in Horticultural Products

(Horticulture)

B.S. Degree

IN the Horticultural Products curriculum the objective is to train students in the fields of canning, preserving, fruit juice and vinegar making, carbonated beverage manufacture, pickling, dehydrating, and the by-products of these industries. Training in these and other phases of food manufacturing and handling is both technical and practical. Positions open besides those connected with the actual manufacture in the above mentioned fields are: buyers of raw materials, salesmen, food brokers, food inspectors, food chemists, food bacteriologists, food research workers, and instructors in foods.

	Term credits		
	1st	2d	3d
Freshman Year			
English Composition (Eng 101, 102, 103).....	3	3	3
General Chemistry (Ch 101, 102, 103).....	3	3	3
General Botany (Bot 101, 102, 103).....	3	3	3
Methods of Study (Ed 101).....	.....	3	.....
Landscape Architecture (LA 131).....	3	.....	.....
Mathematics.....	.....	.....	3
General Physics (Ph 111, 112, 113).....	3	3	3
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
	17½	17½	17½

	Term credits		
	1st	2d	3d
Sophomore Year			
Agricultural Biochemistry (Ch 251).....	5	.....	.....
General Bacteriology (Agricultural) (Bac 210).....	4	.....	.....
Bacteriology of Foods (Bac 212).....	.....	.....	3
Elementary Industrial Journalism (IJ 200).....	3	.....	.....
Principles of Accounting for Engineers (BO 385).....	.....	3	.....
Principles of Economic Entomology (Ent 201).....	.....	.....	3
Business Law (PS 201, 202).....	.....	4	4
Extempore Speaking (PSP 254).....	.....	3	.....
Outlines of Economics (ES 203).....	.....	.....	4
Principles of Canning Fruits (HP 251).....	3	.....	.....
Principles of Canning Vegetables (HP 252).....	.....	3	.....
Graphic Methods (AE 280).....	.....	2	.....
Physical Education (Men).....	2 ^½	2 ^¾	2 ^¾
Military Science and Tactics.....	.....	2	.....
	17 ^½	17 ^¾	16 ^½
Junior Year			
Plant Physiology (Bot 321).....	.....	.....	4
Dehydration of Fruits and Vegetables (HP 371).....	3	.....	.....
The Canning Plant and Its Equipment (HP 353).....	.....	.....	3
Money and Banking (ES 311).....	4	.....	.....
Labor Problems (ES 301).....	.....	4	.....
Fruit Production (Pom 313).....	.....	.....	4
Pickles, Relishes, and Condiments (HP 381).....	3	.....	.....
Principles of Plant Pathology (Bot 311).....	4	.....	.....
National Government (PS 301).....	.....	3	.....
Industrial Organization and Management (BO 381).....	.....	.....	3
Electives.....	3	11	4
	17	18	18
Senior Year			
Seminar (Pom 481, 482, 483).....	1	1	1
Fruit Juice and Vinegar Manufacture (HP 451).....	3	.....	.....
Commercial Jam and Jelly Manufacture (HP 452).....	.....	3	.....
Preserves, Glacéd Fruits and Candied Fruits (HP 473).....	.....	.....	3
Commercial Pomology (Pom 311).....	4	.....	.....
Electives.....	9	13	13
	17	17	17

V. Curricula in the Sciences Basic to Agriculture

B.S. Degree

Bacteriology
Botany and Plant Pathology
Chemistry

Entomology
Soil Science
Zoology

CURRICULA in the Sciences Basic to Agriculture train students for technical positions in agricultural industries. These curricula also afford adequate preparation for graduate studies leading to a career in research related to agriculture. The curricula are arranged so as to provide broad and thorough basic training combined with courses in Agriculture as a foundation for later specialized and applied work, such as that of specialists in the United States Department of Agriculture or in the various state experiment stations; in Federal or State plant quarantine service; in field, shipping point, and market inspection; technical advisers, experimenters, and field agents for commercial concerns which deal in agricultural supplies and equipment; soil and fertilizer technologists; specialists in plant and animal breeding investigations; or research or commercial bacteriologists or chemists in agricultural investigations or industries.

PROGRAM FOR FRESHMEN

	Term credits		
	1st	2d	3d
English Composition (Eng 101, 102, 103).....	3	3	3
¹ General Chemistry (Ch 101, 102, 103).....	3	3	3
² General Zoology (Z 101, 102, 103) or General Botany (Bot 101, 102, 103).....	3	3	3
³ College Mathematics (Mth 201, 202, 203).....	3	3	3
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
Electives	3	3	3
	17½	17½	17½

PROGRAMS FOR SOPHOMORES, JUNIORS, AND SENIORS

The curricula beyond the freshman year are arranged by the heads of the respective departments and approved by the Dean of the School of Agriculture. Students majoring in Sciences Basic to Agriculture are required to take Agriculture courses to the extent of at least 18 credits. Such courses should be concentrated largely in the field of agriculture in which the student expects to apply his scientific training. Two years of German or French should be taken by all students expecting to engage in research.

BACTERIOLOGY

Sophomore Year	Term credits		
	1st	2d	3d
Organic Chemistry (Ch 226, 227), Biochemistry (Ch 222).....	5	5	5
General Physics (Ph 111, 112, 113).....	3	3	3
² Botany or Zoology.....	3	3	3
Bacteriology (Bac 204, 205).....	3	3	---
Bacteriology of Foods (Bac 212).....	---	---	3
Principles of Economic Entomology (Ent 201).....	---	---	3
Physical Education (Men).....	2	2½	2½
Military Science and Tactics.....	2	2	2
	16½	16½	19½

Junior Year

Farm Accounting (BO 361).....	3	---	---
Principles of Farm Management (FMg 302).....	---	---	4
Outlines of Economics (ES 203).....	---	4	---
Genetics (Z 351).....	3	---	---
Physiological Chemistry (Ch 462).....	---	---	3
Bacteriology	5	5	5
Electives	6	8	5
	17	17	17

Senior Year

National Government (PS 301).....	3	---	---
Extempore Speaking (PSp 254).....	---	3	---
French or German.....	3	3	3
Physical Chemistry (Ch 381, 382, 383).....	3	3	3
Bacteriology	5	5	5
Electives	3	3	6
	17	17	17

BOTANY AND PLANT PATHOLOGY

Students intending to major in this department should consult with the department head before registering. Besides nine credits in general botany, at least 27 additional credits must be taken in this department. Students intending to pursue graduate studies in preparation for research should, if possible, take two years each of German and French.

¹Or Ch 104, 105, 106, if properly qualified.

²In case of Bacteriology, Botany, Entomology, and Zoology, if Bot 101, 102, 103 are taken in freshman year, Z 101, 102, 103 are taken in sophomore year.

³Freshmen planning to specialize in chemistry elect Mth 122, 134, 135.

	Term credits		
	1st	2d	3d
Sophomore Year			
Organic Chemistry (Ch 226, 227).....	5	5	4
Plant Physiology (Bot 321).....	3	3	3
Botany or Zoology.....	3	3	3
General Bacteriology (Bac 204, 205).....	3	3	3
Principles of Economic Entomology (Ent 201).....	3	3	3
General Entomology (Ent 303).....	3	3	3
Bibliography (Lib 300).....	2	2	2
Physical Education (Men).....	2	2	2
Military Science and Tactics.....	4	4	4
Electives.....	17½	17½	17½

Junior Year			
Principles of Plant Pathology (Bot 311).....	4	---	---
Comparative Morphology and Evolution of Plants (Bot 441) or Plant Anatomy (Bot 443).....	4 or 3	---	---
Range and Pasture Botany (Bot 341) or Forest Pathology (Bot 314).....	3	3	3
Plant Ecology (Bot 442).....	3	3	3
General Physics (Ph 111, 112, 113).....	3	3	3
Genetics (Z 351).....	3	---	---
Business Organization and Operation or Sociology.....	---	3	---
Elementary Industrial Journalism (IJ 200).....	---	6	3
Agriculture courses.....	3 or 4	3	4
Electives.....	17	18	16

Senior Year			
Seminar (Bot 481, 482, 483).....	1	1	1
Extempore Speaking (PSP 254).....	3	---	---
Historical Geology (G 302).....	---	3	---
General Geology (G 301).....	---	3	3
Political Science.....	---	3	---
Economics.....	---	3	3
Agriculture courses.....	3	3	3
Botany and other electives.....	10	7	7
Electives.....	17	17	17

CHEMISTRY

Sophomore Year			
Qualitative Analysis (Ch 231).....	5	---	---
Quantitative Analysis (Ch 244, 245).....	---	5	5
Calculus (Mth 251, 252, 253).....	4	4	4
General Physics (Ph 111, 112, 113).....	3	3	3
Physical Education (Men).....	2	2	2
Military Science and Tactics.....	3	3	3
Electives.....	17½	17½	17½

Junior Year			
Outlines of Economics (ES 203).....	4	---	---
National Government (PS 301).....	---	3	---
Social Orientation (ES 121).....	---	---	3
Organic Chemistry (Ch 322, 323).....	5	5	---
Physiological Chemistry (Ch 462).....	3	3	3
Agricultural Analysis (Ch 351, 352, 353).....	3	3	3
French or German.....	3	3	3
The Nature of the World (G 100).....	---	---	3
Electives.....	3	3	3
Electives.....	18	17	18

Senior Year			
Physical Chemistry (Ch 381, 382, 383).....	3	3	3
Biochemical Methods (Ch 455, 456).....	---	3	3
Extempore Speaking (PSP 254).....	3	---	---
French or German.....	3	3	3
Crystallography and Mineralogy (G 211).....	3	---	---
Mineralogy (G 212).....	---	3	---
Electives.....	5	5	6
Electives.....	17	17	15

ENTOMOLOGY**Sophomore Year**

	Term credits		
	1st	2d	3d
Organic Chemistry (Ch 226, 227).....	5	5	---
General Physics (Ph 111, 112, 113).....	3	3	3
Botany or Zoology.....	3	3	3
General Bacteriology (Bac 204, 205).....	3	3	3
Principles of Economic Entomology (Ent 201).....	3	---	---
Physical Education (Men).....	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Military Science and Tactics.....	2	2	2
Electives.....	1	1	6
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

Junior Year

Principles of Plant Pathology (Bot 311).....	4	---	---
Genetics (Z 351).....	3	---	---
Business Organization and Operation or Sociology.....	---	3	---
Elementary Industrial Journalism (IJ 200).....	---	3	---
Economic Entomology (Ent 404).....	3	---	---
Insect Morphology (Ent 351).....	---	3	---
Insect Taxonomy (Ent 452, 454).....	---	5	5
Principles of Forest Entomology (Ent 321).....	3	---	---
Bee Culture (Ent 333).....	---	---	3
Electives.....	4	3	9
	17	17	17

Senior Year

National Government (PS 301).....	3	---	---
Extempore Speaking (PSP 254).....	3	---	---
Economics.....	3	---	---
Insect Morphology (Ent 451).....	3	---	---
Insect Ecology (Ent 453).....	---	5	---
Principles of Insect Control (Ent 405).....	---	---	3
Seminar (Ent 481, 482, 483).....	1	1	1
Electives.....	4	11	13
	17	17	17

SOIL SCIENCE**Sophomore Year**

Qualitative Analysis (Ch 231).....	5	---	---
Quantitative Analysis (Ch 247).....	---	5	---
General Organic Chemistry (Ch 124).....	---	---	5
Soils (Sis 201, 202).....	3	3	---
Soil Drainage and Irrigation (Sis 203).....	---	---	3
General Geology (G 301).....	3	---	---
General Bacteriology (Agricoltura.) (Bac 210).....	---	4	---
Plant Physiology (Bot 321).....	---	---	4
Physical Education (Men).....	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Military Science and Tactics.....	2	2	2
Electives.....	4	3	3
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

Junior and Senior Years

See Soils major, pages 118-119.

ZOOLOGY**Sophomore Year**

Organic Chemistry (Ch 226, 227).....	5	5	---
Botany or Zoology.....	3	3	3
Principles of Economic Entomology (Ent 201).....	---	---	3
Mammalian Anatomy (Z 211, 212, 213).....	3	3	3
Physical Education (Men).....	1 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{1}{2}$
Military Science and Tactics.....	2	2	2
Electives.....	4	4	6
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

	Junior Year		
	1st	2d	3d
Genetics (Z 351).....	3	.....	.....
Evolution and Eugenics (Z 353).....	.....	3	.....
Animal Parasites (Z 362).....	.....	.....	3
Histology (Z 300).....	3	.....	.....
General Entomology (Ent 303).....	.....	.....	3
Farm Accounting (BO 361).....	.....	3	.....
Comparative Physiology (VM 321).....	.....	.....	3
Elementary Industrial Journalism (IJ 200).....	3	.....	.....
General Physics (Ph 111, 112, 113).....	3	3	3
General Bacteriology (Bac 204).....	3	.....	.....
Geology (G 302, 301).....	.....	3	3
Electives.....	3	6	3
	18	18	18
Senior Year			
Extempore Speaking (PSP 254).....	3	.....	.....
Introduction to Business Law (PS 263).....	.....	.....	3
Agricultural Economics (ES 362).....	.....	3	.....
Embryology (Z 310).....	3	.....	.....
Economic Ornithology (Z 223).....	.....	.....	3
Electives.....	10	13	10
	16	16	16

Two-year Curricula in Agriculture

NON-DEGREE curricula in Agriculture, two years in length, are provided for those who feel that they can not afford the time and expense necessary to complete the work for a degree. The requirements for admission to these curricula are the same as for admission to the four-year curricula and all credits earned will apply should the student decide at any time to become a candidate for a degree. A certificate is awarded to those who satisfactorily complete the work of any of these curricula.

The work comprises courses in English, including Public Speaking and Industrial Journalism, Agricultural Economics, together with courses in the departments of applied Agriculture. The curricula are so arranged that the student may register at the beginning of any term and remain one term or as many terms as he desires. Young men who have completed less than fifteen entrance units but who have attained the age of twenty-one years may be admitted to these courses upon approval of the Dean.

NOTE: For each year in the two-year curricula certain options are listed, from which credits should be registered for sufficient to make the total for any term approximately 17½ credits. In addition to the options, a list of recommended electives is given on page 130.

GENERAL AND SPECIALIZED AGRICULTURE

	First Year		
	1st	2d	3d
English Composition (Eng 101, 102).....	3	3	.....
Descriptive General Chemistry (Ch 100).....	.....	.....	3
Farm Accounting (BO 361).....	.....	3	.....
Agricultural Economics (ES 362).....	.....	3	.....
Principles of Farm Management (FMg 302).....	.....	.....	4
Stock Judging I (AH 111).....	3	.....	.....
Livestock Management I (AH 221).....	.....	4	.....
Agricultural Engineering (AE 100).....	.....	.....	3
Cereal Production (FC 101).....	3	.....	.....
Forage and Root Crop Production (FC 200).....	3	.....	.....
Farm Soils (Sls 111).....	3	.....	.....
Soil Improvement (Sls 204).....	.....	3	.....
Options (see list below).....	.....	.....	5
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
	17½	18½	17½

First-Year Options

Soil Drainage and Irrigation (Sls 203).....	3
Elements of Dairying (DH 200).....	4
Practical Poultry Keeping (PH 201).....	3
General Bacteriology (Bac 201).....	3
Elements of Horticulture (Hrt 200).....	5

Note: This curriculum will be modified in individual cases so as to permit the student to elect almost any other combination of courses that best meets his individual needs.

	Second Year		
	Term credits		
	1st	2d	3d
Extempore Speaking (PSP 254, 255).....	3	3	---
Elementary Industrial Journalism (IJ 200).....	---	---	3
Landscape Architecture (LA 131).....	3	---	---
Farm Organization (FMg 411).....	---	3	---
Markets and Marketing (ES 402).....	---	4	---
Cooperative Marketing Organization (ES 606).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Options (see list below).....	6	2	12
Physical Education (Men).....	---	---	2 $\frac{1}{2}$
Military Science and Tactics.....	2 $\frac{1}{2}$	---	2 $\frac{1}{2}$
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

*Second-Year Options**Animal Husbandry*

Breeds of Livestock I, II (AH 231, 232).....	3	3	---
Principles of Feeding (AH 261).....	3	---	---
Practical Feeding (AH 262).....	---	3	---
Diseases of Livestock (VM 341).....	4	---	---
Livestock Management II (AH 263).....	---	---	3
Meats (AH 471).....	---	3	---

Dairy Husbandry

Dairy Herd Feeding and Management (DH 205, 206).....	3	3	---
Dairy Breed Types (DH 351).....	---	---	3
Diseases of Livestock (VM 341).....	4	---	---
Market Milk (DH 301).....	---	---	3
Commercial Butter Making (DH 302).....	3	---	---

Soils and Farm Crops

Crop Inspection (FC 312).....	---	5	---
Applied Plant Genetics (FC 442).....	5	---	---
Soil Improvement (Sls 204).....	---	3	---
Farm Motors (AE 111).....	3	---	---
Farm Power and Power Machinery (AE 115).....	3	---	---
Dry Farming (Sls 317).....	---	2	---
Potato Growing (FC 314).....	---	3	---

Poultry Husbandry

Poultry Breeding, Breeds, and Judging (PH 312).....	4	---	---
Incubation and Brooding (PH 321).....	---	---	4
Poultry-house Design and Construction (PH 331).....	---	4	---
Marketing Poultry Products (PH 451).....	---	4	---
Poultry Feeding (PH 441).....	4	---	---
Poultry Plant Management (PH 463).....	---	---	4

Pomology

Commercial Pomology (Pom 311).....	4	---	---
Pruning (Pom 412).....	---	3	---
Spraying (Pom 413).....	---	---	3
Fruit Production (Pom 313).....	---	---	4

Vegetable Growing

Principles of Vegetable Production (VC 321).....	3	---	---
Vegetable Forcing (VC 421).....	---	2	---
Vegetable Growing Practices (VC 323).....	---	---	3

POMOLOGY AND VEGETABLE CROPS

First Year

English Composition (Eng 101, 102).....	3	3	....
Descriptive General Chemistry (Ch 100).....	.....	.....	3
Farm Soils (Sls 111).....	3	.....	.....
General Botany (Bot 101).....	3	.....	.....
Agricultural Economics (ES 362).....	.....	3	.....
Agricultural Engineering (AE 100).....	.....	.....	3
Landscape Architecture (LA 131).....	.....	.....	3
Plant Propagation and Greenhouse Practice (Hrt 341).....	.....	3	.....
Elements of Horticulture (Hrt 200).....	.....	.....	5
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
Options and electives.....	6	6	.....
	17½	17½	16½

First-Year Options

Commercial Pomology (Pom 311).....	4	.....	.....
Vegetable Forcing (VC 421).....	.....	2	.....
Principles of Vegetable Production (VC 321).....	3	.....	.....

Second Year

Farm Accounting (BO 361).....	3	.....	.....
Markets and Marketing (ES 402).....	.....	4	.....
Principles of Farm Management (FMg 302).....	.....	.....	4
Plant Protection (Bot 104).....	.....	.....	3
Principles of Economic Entomology (Ent 201).....	.....	3	.....
Physical Education (Men).....	2½	2½	2½
Military Science and Tactics.....	2	2	2
Options and electives (see list below).....	12	8	8
	17½	17½	17½

Second-Year Options

Dehydration of Fruits and Vegetables (HP 371).....	3	.....	.....
Pruning (Pom 412).....	.....	3	.....
Spraying (Pom 413).....	.....	.....	3
Fruit Production (Pom 313).....	.....	.....	4
Vegetable Marketing (VC 425).....	.....	3	.....
Vegetable Forcing (VC 422).....	.....	.....	2
Vegetable Growing Practices (VC 323).....	.....	.....	3

HORTICULTURAL PRODUCTS

First Year

English Composition (Eng 101, 102).....	3	3	.....
Descriptive General Chemistry (Ch 100).....	.....	.....	3
General Bacteriology (Bac 201).....	3	.....	.....
Markets and Marketing (ES 402).....	.....	4	.....
Landscape Architecture (LA 131).....	.....	.....	3
Principles of Canning Fruits (HP 251).....	3	.....	.....
Principles of Canning Vegetables (HP 252).....	.....	3	.....
The Canning Plant and Its Equipment (HP 353).....	.....	.....	3
Food Products (HP 363).....	.....	.....	2
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
Electives (see list below).....	6	5	4
	17½	17½	17½

Second Year

Commercial Pomology (Pom 311).....	4	.....	.....
Dehydration of Fruits and Vegetables (HP 371).....	3	.....	.....
Fruit Juice and Vinegar Manufacture (HP 451).....	3	.....	.....
Outlines of Economics (ES 203).....	.....	4	.....
Commercial Jam and Jelly Manufacture (HP 452).....	.....	3	.....
Preserves, Glacéd Fruits and Candied Fruits (HP 473).....	.....	.....	3
Pickles, Relishes and Condiments (HP 381).....	3	.....	.....
Machine Shop (IA 163).....	.....	.....	3
Physical Education (Men).....	2½	2½	2½
Military Science and Tactics.....	2	2	2
Electives (see list below).....	2	8	10
	17½	17½	18½

ELECTIVES IN TWO-YEAR CURRICULA

Courses from the foregoing lists of options and the following electives should be selected to bring the total credits during any term to approximately 17½. While the options and electives listed are recommended as suitable for any of the two-year curricula, students may select any other courses for which they have had the necessary preparation.

	Term credits		
	1st	2d	3d
Small Fruits and Grapes (Pom 415).....	.....	3	.....
Sub-tropical Pomology (Pom 362).....	3	.....	.....
Refrigeration and Cold Storage (ME 363).....	.....	.....	2
Practical Poultry Keeping (PH 201).....	3	or 3	or 3
Cereal Production (FC 311).....	5	.....	.....
Forage and Related Crops (FC 331).....	.....	.....	4
Livestock Management (AH 221).....	4	or 4	or 4
Elements of Dairying (DH 200).....	4	or 4	or 4
Elementary Industrial Journalism (IJ 200).....	3	or 3	or 3
Extempore Speaking (PSP 254, 255, 256).....	3	3	3
Farm Organization (FMg 411).....	.....	3	.....
Plant Materials (LA 234, 235, 236).....	3	3	3
Farm Conveniences (AE 351).....	2	or 2	or 2
Soil Drainage and Irrigation (SIs 203).....	.....	.....	3
Forging and Welding (IA 250).....	2	.....	or 2
Soil Improvement (SIs 204).....	.....	3	.....

Agricultural Economics

INSTRUCTION in agricultural economics is given in the department of Economics in the School of Commerce. Students who have completed the freshman and sophomore work in the School of Agriculture may, during their junior and senior years, major in Agricultural Economics, following the curriculum outlined on page 115. For descriptions of courses in Agricultural Economics see the School of Commerce section of the catalogue.

Agricultural Education

THIS department is responsible for the training of teachers and supervisors of agriculture in elementary and secondary schools, and the training for leadership in rural life and education. Special attention is given to the training of directors, supervisors, and teachers of agriculture as provided for by the Federal law for vocational education known as the Smith-Hughes Act. Certain field studies and extension activities are included within the scope of this department's work.

The department of Agricultural Education is a joint department within both the School of Agriculture and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

Preparation for Teaching Agriculture. Teachers of agriculture need to have a fundamental knowledge and a high level of doing ability in most of the departmental fields of the School of Agriculture. On account of requirements, very little provision can be made in the Agricultural Education curriculum for electives. In order to increase the number of electives that can be taken during a four-year period, courses in psychology and

education may be taken in the Summer Session prior to the junior or senior year.

Former graduates of the School of Agriculture may prepare themselves very satisfactorily for teaching agriculture by returning for a fifth year of work, during which they can elect certain courses in Agriculture that are fundamental for teaching and also complete the required courses in Education.

Requirements in Agriculture.

(1) Graduation from a college of agriculture of standard rank.

(2) The course requirements in Agriculture can be met in either of two ways. First, by selecting a curriculum in Agricultural Education including requirements in both Agriculture and Education. Such a curriculum should be arranged in conference with the head of the department of Agricultural Education and in keeping with the student's special needs, previous training, and experience. Second, by majoring in some department of the School of Agriculture and minoring in Education. This plan is recommended provided sufficient electives are available for meeting the course requirements in Agriculture as well as the 23 credits in Education required for state certification.

(3) Depending on the student's previous training and experience and his choice of subjects, 75 to 85 term credits of special work in Agriculture are desirable. The minimum credits required in the various departments of the School of Agriculture follow:

- (a) 11 credits in Agricultural Engineering
- (b) 11 credits in Animal Husbandry
- (c) 7 credits in Dairy Husbandry
- (d) 7 credits in Horticulture
- (e) 9 credits in Farm Crops
- (f) 8 credits in Farm Management and Agricultural Economics
- (g) 6 credits in Soils
- (h) 3 credits in Poultry Husbandry
- (i) 4 credits in Veterinary Medicine

(4) Former Smith-Hughes students in high school agriculture are advised to take advantage of the special provision described on page 114. This arrangement may make it possible for such students to obtain intensive training in more than one agriculture department.

As early as possible in his college course and as soon as he has decided on teaching agriculture, the prospective teacher should advise with the head of the department of Agricultural Education regarding the studies he should select in each of the fields in Agriculture mentioned above.

Requirements in Education. Not fewer than 23 credits in Education and Psychology, distributed as follows, the order of listing indicating the sequence by years and terms: *Junior year*, Educational Psychology (Psy 321) 5 credits, Secondary Education (Ed 212) 3 credits, Principles of Teaching (Ed 311) 3 credits. *Senior year*, Special Methods in Agriculture (AEd 411) 5 credits, Supervised Teaching (Ed 401, 402) 3 to 5 credits, Rural Survey

Methods (AEd 533) 2 credits. Sufficient electives are to be chosen in consultation with the department head to make a total of 23 credits required for state certification in Agricultural Education.

Curriculum in Agricultural Education for Teachers of Agriculture in City Schools. In cooperation with the department of Landscape Architecture a special curriculum is arranged to meet the growing demands for teachers of agriculture in the city schools of Oregon and elsewhere.

General Electives. Certain courses are open to all students in Agriculture and others who are interested in training for leadership in rural life. Special attention is called to AEd 431, Rural Education.

Graduate Study in Agricultural Education. Since the demands on teachers of agriculture the country over are becoming more exacting each year, graduate work in the fields of agriculture and education is desirable, and usually necessary for those who desire to enter the fields of supervision or teacher training. Programs of work leading to the degree of Master of Science are outlined by this department for students and teachers with approved standing.

DESCRIPTION OF COURSES

AEd 411. Special Methods in Agriculture. An analysis of problems and methods in teaching agriculture in secondary schools. Curriculum building and the teaching process; place and relationships of the teacher of agriculture in the public school system and in a system of State and Federal supervision; community and extension activities; up-to-date methods in teaching agriculture with special attention to the use of local farm and community resources; the place and use of the farm project and other forms of supervised farm practice.

Prerequisites: Psy 321, Ed 212. First or second term; 5 credits; 5 recitations. Fee \$0.50. Professor Gibson.

AEd 421. Agriculture in Secondary Schools. A study of the organization, administration, and methods of teaching agriculture. This course is based largely on the use of materials obtained from records and reports and by means of excursions and field studies which are required for the work.

Prerequisites: Psy 321, Ed 212. First or second term; 5 credits; 5 recitations. Fee \$0.50. (G) Professor Gibson.

AEd 431. Rural Education. Elements in the development of leadership and of a community program in rural education based on an analysis of the conditions and structure of rural society and the psychology of farm life; needs of the elementary and rural high school; principles and methods of extension teaching including club work and forms of adult education. For teachers, school administrators, and others interested in problems of rural education.

Third term; 3 credits; 3 recitations.

Professor Gibson.

AEd 432. Club Work and Agriculture in the Elementary School. Aims, materials, and methods of teaching and supervising elementary agriculture in upper elementary grades and junior high school. Stress is given to club work, covering its history, scope, organization, supervision, and administration. For prospective agriculture teachers, county agents, and club leaders.

Second term; 3 credits; 3 recitations.

AEd 482, 483. Seminar in Agricultural Education. A discussion of special problems in the teaching of agriculture and in the administration of agricultural education.

Prerequisites: Psy 321, Ed 311, AEd 411. Any two terms; time and credits to be arranged. (G)
Professor Gibson.

AEd 533. Rural Survey Methods. Principles and practice of making agricultural and rural education surveys as a basis for organizing programs for agricultural education. The technique of making such surveys and methods of analyzing, interpreting, and using the material and results of surveys already made is emphasized. Individual practice in making a survey is required as a part of the course. Open to graduates with teaching experience and seniors by special permission.

Prerequisites: Psy 321, Ed 311, AEd 411. Third term; 2 credits. (G)
Professor Gibson.

AEd 534. Extension Course in Teacher Training. This course is designed primarily for teachers of vocational agriculture in service who cannot be relieved of their professional duties to pursue courses that are offered in the Summer Session, but who wish to continue their professional improvement. Personal conferences, follow-up instruction, and supervision, supplemented by correspondence and reports.

Prerequisites: Psy 222, Ed 212. Any term; credits to be arranged.
Professor Gibson.

AEd 691, 692, 693. Graduate Study and Research. Advanced or graduate students qualified by previous training or experience may register for extended investigation of some specific problem in agricultural education. These studies are assigned and outlined by the instructor and stated reports are made by the student.

Three terms; credits to be arranged. Fee \$2.00 each term. (G)

AEd 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G)

Agricultural Engineering

THIS department offers two types of instruction: (1) a major curriculum in Agricultural Engineering and (2) service courses for students majoring in other departments. The technical major is planned to give training in the application of engineering to agriculture. Phases of

the work include farm equipment, farm power, farm structures, and the relation of electricity to agriculture. The sciences fundamental to engineering and agriculture, including mathematics, physics, chemistry, and economics, serve as a basis for practical work in agriculture and agricultural engineering. Opportunity is given to elect non-technical work of cultural value.

Graduates are fitted for design and sales opportunities with farm equipment concerns, for positions with public utility companies, in Smith-Hughes teaching, as county agents, in consulting agricultural engineering, in research, or as effective farm operators.

The increasing importance of modern equipment in reducing cost of production, together with the desirability of improving rural living conditions, demands, in any branch of agriculture, a more complete and effective grasp of agricultural engineering. Students majoring in other departments who recognize the need for a knowledge of farm shop, farm implements, farm gas engines, tractors and automobile mechanics, building materials, and home conveniences may elect non-technical courses in Agricultural Engineering.

Equipment. The most up-to-date equipment is lent the institution by the leading implement dealers of the Northwest, so that the student has constantly before him and is working with and studying the very best equipment of all types. The large, well-lighted gas-engine laboratory contains many different makes of gas engines, trucks and tractors, and accessories, such as sectional carburetors, magnetos, and lubricators.

The laboratory is also equipped with two large brakes for the testing of tractors, dynamometers for determining the draft of the field machines and the draw-bar horse-power of tractors, a gas and steam indicator for determining the efficiency of farm engines and tractors, and electric motors and measuring devices, so that the student may become familiar with the power requirements of belt-driven farm machines. Many tractors of the latest design are available for use of the students in the laboratory and in the field.

Light and water systems, septic tanks, and other equipment for the farm home are installed in the Farm Conveniences laboratory. The design of farm structures and graphic methods are taught in a room provided with filing cases, blue-printing equipment, and individual drafting tables.

DESCRIPTION OF COURSES

AE 100. Agricultural Engineering. Application of principles of mechanics, hydraulics, and electricity to study of farm equipment; practical farm problems.

Any term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00.

AE 111. Farm Motors. The principle, construction, operation, and adjustment of farm motors and accessories, carburetors, magnetos, ignition, governing, cooling, and lubricating systems; fuels and oils; testing,

timing, and trouble hunting of farm gas motors, such as are used in the tractor, truck, automobile, and stationary outfits.

Any term; 3 credits; 1 recitation; 3 two-hour laboratory periods. Fee \$3.00.

AE 112. Farm Tractors and Farm Trucks. Detailed study and operation of the tractor, truck, and automobile; indicated, brake, and draw-bar horse-power tests of tractors; tractor operation in the field.

Prerequisite: AE 111. Any term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

AE 115. Farm Power and Power Machinery. Study, operation, and adjustment of the gas tractor and tractor-operated equipment, including plows, disks, deep-tillage equipment, drills, cultivators, threshers, combined harvesters, ensilage cutters, and feed mills.

Any term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

AE 131. Farm Implements. Study of the latest horse- and tractor-drawn farm implements, plows and their adjustments and hitches, cultivating machinery, seeding and planting machines, hay and grain cutting machines, and manure spreaders; fences and roads; adjustment of machines.

Third term; 2 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$1.00.

AE 221. Farm Shop I. This course includes the construction and repair work relating to the needs of the farm and farm home, and involves carpentry, blacksmithing, concrete work, soldering, babbiting, harness repair, rope work, and tool sharpening.

First or second term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

AE 222. Farm Shop II.

Second or third term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

AE 280. Graphic Methods. Plotting and charting of figures and statistics relating chiefly to agricultural subjects; analyzing such material, putting it into a form which is easily read and understood, and charting the material in an attractive manner; use of drawing instruments.

Any term; 2 credits; 2 three-hour laboratory periods. Fee \$0.50.

AE 281. Automobile Mechanics. A detailed survey of the automobile and its parts; their functions, adjustment and simple repairs; advantages and disadvantages of different features in automobile construction; latest developments in the automotive field. This course is designed for the student who wishes to understand the principles of automobile operation together with simple repairs and adjustments which the operator of an automobile may have occasion to make.

Any term; 3 credits; 1 recitation; 2 three-hour shop periods. Fee \$3.00.

AE 282. **Automobile Mechanics.** Practical work in overhauling and repairing automobiles, tractors, and trucks, involving disassembling and assembling of parts, testing for and locating troubles, making replacements and repairs. Lectures, demonstrations, class discussions, and laboratory work.

Prerequisite: AE 111 or 281. Any term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$4.00.

AE 283. **Automobile Mechanics.** (Advanced course.) A continuation of AE 282 for students who wish to acquire additional skill and information relative to automobile repairing and overhauling, especially those intending to teach automobile mechanics.

Prerequisites: AE 111 or 281, and AE 282. Second or third term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$4.00.

AE 341. **Concrete Construction.** The selection, proportioning, mixing, and placing of concrete for floors, sidewalks, machine bases, and foundations. The building of forms is a part of the work.

Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$2.00.

AE 351. **Farm Conveniences.** Installation of farm water-supply systems, and farm electric-lighting plants; pipe-fitting and plumbing; meter reading; wells, pumps, hydraulic rams, and storage systems. Open to either men or women who desire a knowledge of modern farm conveniences with a view to installation.

Any term; 2 credits; 1 recitation; 1 three-hour laboratory period. Fee \$2.00.

AE 361. **Land Clearing.** The use of explosives, hand stump-pullers, horse pullers; tractor and donkey engine for removing stumps, char-pitting, stump burning, and chemical treatment; what is being done in other states; clearing, terracing, and leveling of lands.

Third term; 2 credits; 1 recitation; 1 three-hour laboratory period. Fee \$2.00.

AE 371. **Dairy Mechanics.** A study of the operation, construction, and efficiency of refrigeration and cooling devices, sterilizing equipment, pumps, steam boilers and steam engines; machine operation, care and repair as applied to modern dairy methods.

First term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$2.00.

AE 372. **Orchard Machinery.** Construction, operation, and adjustment of orchard machinery, such as gas engine, pump, tillage and seeding implements; orchard plowing and cultivation; demonstration of tractors for orchard work. Intended for students in Horticulture.

Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$2.00.

AE 380. Farm Structures. Planning of all farm buildings, fences, etc.; building materials; types of construction; lighting; ventilating; heating; plans, specifications, and estimated costs; designing of farm equipment.

Prerequisite: AE 321 or equivalent. Any term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$2.00.

AE 381. Farm Mechanics. (Advanced course in farm power equipment.) This course is designed primarily to fit students for positions with tractor and implement companies as demonstrators or as service men. It is also of much value to those who intend to operate farm power equipment. Recommended to students having had a year's work in farm power equipment. Detail study of design of farm power equipment; practical field work; tractor and truck service.

Prerequisites: AE 111, 112. Any term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

Animal Husbandry

COURSES in Animal Husbandry are planned to fit the student for the actual raising of livestock on the farm so that he may produce the highest grade of stock in the most economical and business-like manner. The student is thoroughly grounded in the underlying principles in order that he may successfully continue his study after leaving college, but the practical details are also thoroughly treated and a special effort is made to keep the student in close touch with the financial phases of the industry. Students who take this work as their specialty are expected not to devote their entire time to livestock; but, on the contrary, to familiarize themselves with veterinary science, crop production, soil fertility, range botany, and other phases of agriculture as well as general education subjects. Much work in economics and marketing is also expected.

Students majoring in Animal Husbandry must have had considerable practical experience in farming and stock raising before they may be graduated. The nature and extent of the experience required is left to the judgment of the head of the department. Students are given a very free range of electives so that they may fit their programs to their own particular needs.

Students not majoring in Animal Husbandry but desiring to elect some work in the department will be given careful attention to see that they get just the work fitted to their individual needs.

Equipment. The equipment of the department of Animal Husbandry consists essentially of livestock, barns, and the College stock farms. The department maintains good representatives of all the leading breeds. The department has adequate equipment for the conduct of laboratory, lecture, and recitation work. Attention is called to courses and equipment in Veterinary Medicine listed elsewhere.

DESCRIPTION OF COURSES

AH 111. Stock Judging I. The various types of farm animals are studied by score cards and comparative methods, and the student is made familiar with the desirable and undesirable types of beef and dairy cattle, sheep, swine, and horses.

Any term; 3 credits; 3 two-hour laboratory periods. Fee \$1.00.

AH 221. Livestock Management I. Practical details of the care and management of livestock, stabling, grooming, sanitation, practical feeding, and kindred details of livestock farming, all with special reference to western conditions.

Any term; 4 credits; 3 recitations; 1 two-hour laboratory period. Fee \$1.00.

AH 231, 232. Breeds of Livestock I, II. First term deals with the breeds of sheep and beef cattle, their development, breeding, type, and best uses. Second term deals with the breeds of horses and swine, their development, breeding, type, and uses.

Prerequisite: AH 111. First and second terms; 3 credits each term; 3 recitations. Fee \$0.25 each term.

Professor Nelson, Assistant Professors Oliver and Rodenwold.

AH 261. Principles of Feeding. Fundamental principles of animal feeding; deficiencies of common feeds; balancing and supplementing of rations. An elementary course for students who have not had chemistry.

First term; 3 credits; 3 recitations.

AH 262. Practical Feeding. Feeding of beef cattle, sheep, pigs, and horses, including wintering, fattening, and grazing.

Second term; 3 credits; 3 recitations.

AH 263. Livestock Management II. Livestock management from the financial standpoint; effect of various practices on cost of production and income.

Prerequisite: AH 221. Third term; 3 credits; 3 recitations.

AH 311. Stock Judging II. Course in judging of all kinds of stock, particularly market types.

Prerequisite: AH 111. Third term; 3 credits; 3 two-hour laboratory periods. Fee \$1.00.

AH 351. Animal Nutrition. The chemical and physiological principles of animal nutrition; function of the various classes of nutrients when taken into the animal body; nutritive ratios; feeding standards; compounding ratios; feeds with special reference to chemical composition, energy values, and general adaptability to stock-feeding purposes.

Prerequisite: Ch 251 or Ch 124. First or third term; 4 credits; 4 recitations. (g)
Professor Nelson.

AH 352. **Feeds and Feeding.** An advanced course in the feeding of horses, beef cattle, sheep, and swine. Special study is made of the practices of the best stockmen, and of investigations carried on by the various experiment stations. Students desiring to take only such parts of the course as relate to certain kinds of livestock will be permitted to do so by arrangement with the head of the department.

Prerequisite: AH 351. Second term; 5 credits; 5 recitations. (g)

AH 411. **Stock Judging III.** Practical judging of all kinds of livestock, with occasional trips to fairs and stock farms. Judging teams for the Pacific International Stock Show are chosen largely from among the members of this class.

Prerequisites: At least three credits in stock judging. First term; 4 credits; 4 two-hour laboratory periods. Fee \$1.00.

AH 421. **Livestock Practice.** Laboratory practice in such work as dipping, dehorning, hoof trimming, shearing, horse training, and other common operations of the stock farm. (Note: The department reserves the right to limit the number of students in this course.)

First term; 1 credit; 1 two-hour laboratory period. Fee \$1.00.

Assistant Professor Oliver.

AH 422. **Livestock Practice.** A continuation of AH 421.

Third term; 2 credits; 2 two-hour laboratory periods. Fee \$2.00.

Professor Nelson, Assistant Professor Oliver.

AH 431. **Reproduction Problems.** A study of the breeding efficiency of livestock, covering the effect of nutritional, genetic, and physiological factors on reproduction; the care and management of young and breeding animals. In the laboratory work the student has opportunity to observe and study animals during breeding, pregnancy, parturition, and suckling.

Prerequisites: AH 351, VM 321, Z 351. Second term; 3 credits; 2 lectures; laboratory work to be arranged.

AH 471. **Meats.** A study of meats of all classes of meat animals, covering butchering, location and cutting of standard and retail cuts, judging meat raw and cooked, economics of meat production, sanitation and inspection, abattoirs, packing houses, and retail markets.

Second term; 3 credits; 1 lecture or recitation; 2 two-hour laboratory periods. Fee \$2.00.

Assistant Professor Oliver.

AH 475. **Meats.** Similar to AH 471 omitting butchering.

Second or third term; 1 credit; 1 two-hour laboratory period. Fee \$1.00.

Assistant Professor Oliver.

AH 481. **Wool and Mohair.** A study of wool and mohair, covering commercial value, physical and chemical structure, preparation and marketing, judging, sorting, grading, scouring, and principles of manufacture.

Prerequisite: AH 231. Third term; three credits; 2 lectures; 1 two-hour laboratory period. Fee \$0.75. (g)

Professor Nelson.

AH 491. Investigative Work. The student selects some topic for individual investigation by library methods or otherwise. The object is: first, to allow the student to study some particular subject in which he is especially interested; and second, to give him training in working out problems for himself, such as he will have to undertake after leaving college.

Any term; credits and hours to be arranged. Professor Potter.

AH 611. Stock Judging IV. Continuation of AH 411.

Prerequisite: AH 411. First term; 4 credits; 4 two-hour laboratory periods. Fee \$1.00.

AH 645. Pedigree Study. A laboratory study of the blood lines of the various breeds of livestock. Each student is expected to select one or two breeds as the basis for special study rather than to attempt to cover all breeds.

First or second term; credits and hours to be arranged. (G)
Assistant Professor Rodenwold.

AH 661. Livestock Management. (Advanced course.) Management, dealing particularly with economic and financial phases of livestock production. (Formerly called Livestock Economics.)

Prerequisite: AH 352. Third term; 5 credits; 5 recitations. Fee \$2.00.
(G) Professor Potter.

AH 691, 692, 693. Graduate Study and Research. Graduate students are given opportunity to carry on research work along any lines desired. The department is well equipped for graduate work along lines of experimental feeding of hogs, sheep, and beef cattle, livestock management, and all forms of library work with either experiment station or general livestock literature.

Three terms; credits and hours to be arranged. (G) Professor Potter.

AH 694, 695, 696. Graduate Thesis. The preparation of a thesis leading to an advanced degree.

Three terms; credits and hours to be arranged. (G) Professor Potter.

Dairy Husbandry

AT the present time there are approximately 26,000,000 dairy cows in the United States. It is estimated that one-sixth of the food supply of the nation is derived from milk and its products. As the population of the country becomes more congested an increasing proportion of the animal food of the country will come from this source. Dairying is one of the most important agricultural industries of Oregon and the Pacific Northwest.

The student who plans to specialize in dairying may elect either dairy production or dairy manufacturing. The courses in dairy production are designed primarily to fit the student for dairy farming, although he may

enter upon extension, experiment station, or teaching work. The dairy manufacturing courses are designed to fit the student for technical and managerial work in the manufacturing field or for experiment station, teaching, inspection, and marketing work.

Equipment. The department has a herd of more than 100 head of pure-bred dairy cattle representing the four major dairy breeds. These animals are available for both instructional and experimental purposes and each year are used in teaching judging alone to more than 300 students. The herd is being developed in such a way as to be of unusual value in illustrating the important points in breeding and handling dairy cattle. The herd is free from both tuberculosis and infectious abortion. It is one of the first herds in the country from which infectious abortion has been eliminated. The methods of eradication found successful here are emphasized in teaching work.

The department has a well-equipped manufacturing laboratory. The manufacture of butter, ice-cream, and cottage cheese, and the handling of market milk, are carried on continuously on a commercial scale. The student thus has opportunity to see this work done under practical conditions, and he receives his systematic instruction under the same conditions. The equipment includes a modern cold-storage plant with an 8-ton ammonia compressor, a 20,000-lb., zero-degree butter storage room, and a 150-gallon 5°-below-zero ice-cream hardening room, together with necessary brine tanks.

DESCRIPTION OF COURSES

DH 200. Elements of Dairying. Fundamental principles and correct practices of modern dairying; testing of milk and cream; principles of buttermaking; operation of farm separators.

Prerequisite: Ch 103 or 124. Any term; 4 credits; 3 lectures; 2 two-hour laboratory periods. Fee \$4.00. Deposit \$2.00.

Assistant Professor Colman, Mr. Cole.

DH 205, 206. Dairy Herd Feeding and Management. Feeding and management practices necessary to successful dairy-herd operation.

First and second terms; 3 credits; 3 recitations; 3 lectures.

DH 301. Market Milk. To train for the production of market milk and for work in city milk plants and as milk inspectors. Distribution problem of the small town and city; methods of buying, standardizing, and distributing milk from the point of view of the plant owner or manager.

Prerequisite: DH 200. Third term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$2.00. Deposit \$1.00. Assistant Professor Colman.

DH 302, 303. Commercial Buttermaking. This subject is taught from the point of view of the inside operation of the creamery. The instruction includes the theory and practice of buttermaking and the operation of creamery equipment.

Prerequisite: DH 200. First and second terms; 3 credits each term; 2 lectures; 1 three-hour laboratory period. Fee \$3.00. Deposit \$2.00.

Professor Wilster.

DH 304. Dairy Products Standards. A critical study of butter, cheese, milk, and ice-cream with score cards; discussion of defects and reasons therefor.

Third term; 1 credit; 1 two-hour laboratory period. Fee \$2.00.

Professor Wilster, Mr. Cole.

DH 305. Judging Dairy Products. A study of the market grades and scores of dairy products.

Prerequisite: DH 304. Third term; 1 credit; 1 two-hour laboratory period. Fee \$2.00.

Professor Wilster, Mr. Searing.

DH 351. Dairy Breed Types. The correlation of the form of dairy cattle with milk production; gross breed characteristics; comparative judging, terminology of the show ring, and fitting for show.

Prerequisite: AH 111. Third term; 3 credits; 3 two-hour laboratory periods. Fee \$0.50.

Associate Professor Jones.

DH 352. Dairy Herd Management. History and characteristics of the breeds of dairy cattle and their adaptability to various conditions; the selection of a breed; development of a herd; keeping of records; raising calves and heifers; the principles of feeding dairy cattle.

Prerequisite: AH 351. Second term; 3 credits; 3 lectures.

Professor Brandt.

DH 401. Cheesemaking. Theory and practice of cheesemaking, manufacture of Cheddar cheese; practice in the manufacture of the common soft types, including cottage, edam, and pimiento.

Prerequisite: DH 200. Second term; 3 credits; 2 lectures; 1 six-hour laboratory period. Fee \$3.00. Deposit \$2.00.

Professor Wilster.

DH 402. Ice-cream and Condensed Milk. The commercial manufacture and sale of ice-cream and sherbet; manufacture of condensed milk; emphasis on the relation of these industries to each other and to the dairy industry in general.

Prerequisite: DH 200. Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$4.00.

Professor Wilster.

DH 403. Economics of Dairy Plant Operation. Taught from the standpoint of the factory owner or manager, correlating all the practices studied in factory methods with the problem of factory management.

Prerequisite: DH 303. First term; 2 credits; 2 lectures. Fee \$1.00. (G)

Professor Wilster.

DH 404. Dairy Technology. Theory and practice of the principles of chemistry and bacteriology used to determine the composition of milk and cream and especially manufactured products such as butter, cheese, ice-cream, condensed milk, milk powder, etc. The use of this knowledge in determining the source of trouble in various manufacturing processes is the objective.

Prerequisites: DH 302, 303; Ch 221; Bac 311. Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$3.00. Deposit \$2.00.
Professor Wilster, Mr. Cole.

DH 451. **Dairy Breed Types.** (Advanced course.) To train for inter-collegiate judging contests.

Prerequisite: DH 351. First term; 2 credits; several laboratory periods a week and short trips to farms. Fee \$0.50. Associate Professor Jones.

DH 452. **Breeding Dairy Cattle.** The application of the principles of genetics to the breeding of dairy cattle; selecting breeding animals; planning the breeding policy of a herd; study of pedigrees.

Prerequisite: Z 351. Second term; 3 credits; 3 lectures. Fee \$0.50. (g)
Associate Professor Jones.

DH 453. **Milk Production.** A further study of feeding for milk production; more detailed study of various feeding standards and recent feeding investigations; special problems.

Prerequisite: AH 351. Third term; 3 credits; 3 lectures. (G)
Professor Brandt.

DH 454. **Dairy Products Judging Team.** To train students for inter-collegiate products judging contests.

Prerequisite: DH 304. First term; 2 credits; 3 two-hour laboratory periods. Fee \$2.00. Professor Wilster.

DH 455. **Pedigree Study.** The methods of registration in the herd books of the various dairy cattle associations and a study of pedigrees.

Prerequisite: Z 351. Second term; 1 credit; 1 two-hour laboratory period. Fee \$0.50. Associate Professor Jones.

DH 481, 482, 483. **Seminar.** The object of this course is to train the student to do independent work and to develop the spirit of research. Each student prepares papers and discussions on recent scientific work. For senior and graduate students.

Three terms; 1 credit each term; 1 recitation. (G) Professor Brandt.

DH 491, 492, 493. **Special Studies.** Students who have demonstrated their ability to do independent work may pursue special studies along various lines of investigation. This is to be under the supervision of various members of the staff. Registration to be approved by the head of the department.

Three terms; credits to be arranged.
Professors Brandt and Wilster, Associate Professor Jones.

DH 691, 692, 693. **Graduate Study and Research.** Graduate students who desire to pursue advanced work may take up problems which they are qualified to study.

Three terms; credits to be arranged. (G)
Professors Brandt and Wilster, Associate Professor Jones.

DH 694, 695, 696. **Graduate Thesis.** The preparation of a thesis leading to an advanced degree.

Three terms; credits to be arranged. (G)

Professors Brandt and Wilster, Associate Professor Jones.

Extension Methods

INSTRUCTION in this department is intended to supplement that of the subject-matter departments in the training of students for positions as county agricultural agents, home demonstration agents, boys' and girls' club leaders, extension specialists, and similar service. The work is designed primarily for graduate students, who are expected to outline, in conference with the head of the department, a year's program of work of not less than 48 credits. Whenever possible, students are given opportunity to gain practical experience as assistant county agents, club leaders, etc. Excellent opportunities for training in Industrial Journalism, Public Speaking and Dramatics, Economics and Sociology, and the various production departments supplemented by work in Extension Methods should materially assist in meeting the need for better training on the part of extension workers.

DESCRIPTION OF COURSE

EM 400. **Extension Methods.** Intensive study of the history and present organization of extension work and of the most successful methods employed by extension specialists, county agricultural agents, home demonstration agents, 4-H club leaders, etc. For senior or graduate students only.

Third term; 3 credits; 3 lectures; 1 laboratory period. (G)

Director Maris and assistants.

Farm Crops

PROBLEMS of production, improvement, marketing, manufacture, and uses of each of the field crops produced for food, forage, textile, and special purposes are dealt with by this department. The purpose of the work is primarily to teach students scientific, practical, and economical methods of crop production, marketing, and improvement that may be put into actual use on the farm. In addition the courses are so arranged that men may fit themselves for business positions in connection with the marketing of farm crops; for civil service positions in agronomy, forage crops, grain standardization, plant breeding, and crop marketing; and for experiment station, extension, and teaching work. The object is to develop men with broad training for leadership along agricultural and general lines and to provide the scientific training that graduates may succeed in the professional and technical agricultural fields. Considerable flexibility in electives is encouraged in order to meet special needs of individual students.

Farm Crops graduates occupy technical, commercial, and teaching positions involving considerable responsibility and are successful in farm operation. They are in Federal experimental and regulatory positions and State experimental positions, several are county agents, others are in the seed and grain business, several farm successfully, and some are in graduate study and teaching positions. The field is a large one and deals principally with well-known and staple crops that are constantly in use and in demand. Farm Crops work is closely related to four important fields: (1) the daily food supply of our human population, (2) the feed requirements of all classes of farm animals, (3) the growth of plants for textiles, and (4) seed and special crops, such as drug plants. Crops courses make practical application of scientific principles from such fields as soils, physics, chemistry, bacteriology, plant pathology, and physiology. The relation of crops to both human and animal nutrition and their most effective utilization is emphasized. Special stress is placed on the methods of producing crops and on conditioning and blending to meet market demands as well as the various marketing methods for both foreign and domestic trade channels. Because of the relation of farm crops to so many fields, the work is of fundamental importance to all students of agriculture, and because of the wide range of material covered it affords a great diversity of fields for specialization.

Equipment. The department has excellent recitation rooms and well-equipped laboratories. The Experiment Station plots and farm fields afford superior opportunities for field study and make possible extensive collection of valuable material for class work. A large collection of the best books, periodicals, etc., dealing with the subject, is available. Oregon State Agricultural College is excellently equipped for grain and hay grading and inspection work; the crop inspection and grading work is a marked advance over anything heretofore offered.

DESCRIPTION OF COURSES

FC 101. Cereal Production. Fundamental principles of economic production, rotation, storage, costs, marketing, uses, and improvement of the leading small cereals, corn, the sorghums and broom corns, and fiber and seed flax. Prerequisite to all Farm Crops courses except FC 200, 351 and 361.

First term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$0.50.

FC 200. Forage and Root Crop Production. Fundamental principles of economic production, rotation, storage, costs, marketing, uses, and improvement of the important forage and pasture crops and their seeds, the root crops, and potatoes. Weed control principles.

First or third term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$0.50.

Professor Hyslop, Associate Professor Bressman.

FC 311. Cereal Production. A thorough study of the production and uses of cereals and allied grains from seed to consumer; varieties; distribution; adaptability; best production methods; markets; manufacture and use

of cereals; cereal judging; effects of seed treatment; practical ecological relationships and taxonomic studies; and studies of material in the field.

Prerequisites: FC 101; Bot 101, 102. First term; 5 credits; 3 recitations; 2 two-hour laboratory periods. Fee \$0.60. Associate Professor Hill.

FC 312. Crop Inspection. The inspection, grading, and valuation of cereals, hay, forage, potatoes, beans, seeds, stock feeds, and miscellaneous agricultural commodities according to Federal, State, and other adopted standards; theory and practice of grade fixation and application. A course for persons buying or selling agricultural commodities, grain supervisors, samplers, inspectors, warehousemen, millers, and others.

Prerequisites: FC 101, 200, 311; Ch 124, 247, 251; or equivalents. Second term; 5 credits; 2 lectures; 3 two-hour laboratory periods. Fee \$0.75. (g)
Associate Professor Hill.

FC 313. Crop Judging. Laboratory work in varietal identification and judging of seed, cereal, forage, and fiber crops. Especially suited to students desiring to enter commercial work in buying and selling crops or to become expert crop judges. Teams for judging contests are selected from students taking this course.

Prerequisites: FC 101, 200, 312, or equivalents. Third term; 3 credits; 3 two-hour laboratory periods. Associate Professors Bressman and Hill.

FC 314. Potato Growing. Potato production; improvement; storage; cost; marketing; distribution; uses; experimental work; varietal studies and identification judging and scoring.

Prerequisites: FC 101, 200; Bot 101, 102. Second term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$0.50.

Professor Hyslop.

FC 331. Forage and Related Crops. Special studies in the production, handling, marketing, and uses of forage and related plants. Reseeding, care, and management of range and pasture lands; use of various plants in green manuring, cover-cropping and sand-binding or soil-protecting purposes; development of turf; comparative use and cost of different forage crops.

Prerequisites: FC 101, 200. Third term; 4 credits; 3 lectures; 1 two-hour laboratory period. Fee \$1.00.

Professor Hyslop.

FC 351. Seed Testing. A study in seed identification and germination; seed legislation; standard methods of seed testing; seed grades and standards. A course for students preparing for private, State, or Federal seed-testing work. Men and women having a good knowledge of systematic botany and some knowledge of seed production may take this course.

Second term; 2 credits; 2 two-hour laboratory periods. Fee \$0.75.

Associate Professor Bressman.

FC 361. Weed Eradication. Lectures and reference work on weed types and their habits of growth; weed legislation; practical methods of

prevention, control, and eradication; special attention to noxious, persistent, perennial, and poisonous weeds of ranch and range.

Third term; 2 credits; 2 lectures. Associate Professor Bressman.

FC 411, 412, 413. **Special Crop Work.** Lecture or laboratory work, or both, for students desiring special work of undergraduate rank not specifically provided for in other courses.

Three terms; 1 to 3 credits each term; hours and fees to be arranged.
Professor Hyslop, Associate Professors Bressman and Hill.

FC 414, 415, 416. **Crop Work.** (Advanced.) Lectures or laboratory work, or both, to groups of students desiring additional work along special lines of crop production not treated fully in other courses, or for students desiring to carry on advanced work or investigation beyond that outlined in undergraduate courses. Individual students are assigned to some practical problem involving experimental or research work and the preparation of a thesis.

Three terms; 3 to 5 credits each term. Fee to be arranged. (G)
Professor Hyslop, Associate Professors Bressman and Hill.

FC 432. **Seed Production.** Principles and special methods of production, distribution, and use of seed crops of grasses, alfalfa, clover, and other forage legumes; field beans, horse-beans, soy-beans, peas, and other food legumes; and other special seed crops. Seed inspection, seed certification, and seed legislation.

Prerequisites: FC 101, 200, 311 or equivalents. First term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$1.00. (g)
Professor Hyslop.

FC 442. **Applied Plant Genetics.** Practical application of genetics to economic problems of improvement of field and horticultural crops. Methods of breeding for yield and special qualities are discussed. Modern conceptions of plant breeding, including Mendelism, disease resistance, mutation, selection, hybridization, and inbreeding are studied.

Prerequisites: FC 101, 200; Bot 101, 102, 103; Z 351; or equivalents. First term; 5 credits; 4 lectures; 1 two-hour laboratory period. Fee \$0.75.
Associate Professor Bressman.

FC 443. **Crop Breeding.** (Advanced course.) The theory and technique of breeding field crops; mode of inheritance; factor interaction; factor linkage; quantitative inheritance; and variability and its measurement. This course is especially for students expecting to make a business of seed production and improvement and for those wishing to enter Federal or experiment station work in crops.

Prerequisites: FC 101, 200, 311, 442; Z 351; or equivalents. Second term; 3 credits; 3 recitations. Fee \$0.35. (G)
Associate Professor Bressman.

FC 444. **Flax Production.** Adaptability, location and soils; production methods suited to growing flax for fiber or seed; historical, geographic, and

economic studies of flax production and marketing; uses of flax processes in oil and fiber production. Studies of seed and fiber quality as influenced by different treatments. Not offered 1931-32.

Prerequisites: FC 101, 200; Bot 101, 102, 311; or equivalents. Second term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$1.00.

Professor Hyslop.

FC 451. Crop Efficiency. The production, storage, and marketing of farm crops; comparison of methods leading to cheaper and more efficient production; crop adaptability and its relation to substitutes and competing markets; relation of preparatory methods to returns; cropping systems and crop rotations; crop specialization; amendments affecting yield, quality, and profits of special crops; crop storage and conditioning; warehousing problems; grade and standard fixation; marketing of farm crops; export and import regulations; crop statistics, their value and use; disposal of crop by-products; other problems affecting successful production.

Prerequisites: FC 101, 200, 311, 432 or equivalents; Ch 124, 247, 251; ES 362. Third term; 5 credits; 5 lectures. Fee \$0.35. (g) Professor Hyslop.

FC 691, 692, 693. Graduate Study and Research. Special research problems for an advanced degree.

Three terms; credits and fees to be arranged. (G)

Professor Hyslop, Associate Professors Bressman and Hill.

FC 694, 695, 696. Graduate Thesis. The preparation of a thesis leading to an advanced degree.

Three terms; credits and fees to be arranged. (G)

Professor Hyslop, Associate Professors Bressman and Hill.

Farm Management

FARM Management deals with the organization, equipment, and operation of the farm as a business enterprise; with the cost of production; and with the economics of agricultural land. Its aim is to correlate and synchronize the operations in the various phases of production on the farm in such a way as to result in a smoothly-running, efficient plant from which maximum returns may be obtained. The courses in Farm Management are designed to give the student a broad, well-rounded training in all the phases of agriculture that will prepare him for successful production, with emphasis laid upon those studies which will best fit him for successful management of the farm. They also prepare students for professional work as farm managers, county agriculturists, extension specialists, Smith-Hughes teachers, farm appraisers, agricultural statisticians, bank and railroad agriculturists, United States Department of Agriculture civil service candidates, college instructors, and experiment station research men.

Equipment. The Farm Management laboratory and seminar room are provided with drafting tables and instruments, surveying instruments,

original data and record sheets, lantern slides and charts, and a complete periodical and bulletin reference library. Investigational work carried on in many different parts of the state affords the advanced student excellent opportunities for field work or thesis study.

DESCRIPTION OF COURSES

FMg 302. Principles of Farm Management. Major factors affecting the labor income; types of farming; selection and purchase of the farm; capital investment and distribution; use of credit; quality and diversity of business; farm leases and rental methods; man and horse labor efficiency; farm equipment costs and duty; farm and farmstead layout; cropping systems and crop rotations; cost of production; use of farm records and accounts; getting started in the farming business. Short field trips.

Third term; 4 credits; 3 lectures; 1 recitation; 1 two-hour laboratory period. Fee \$1.00. Professor Scudder, Assistant Professor Kuhlman.

FMg 303. Operation Efficiency. A continuation of FMg 302 in which the minor factors in successful farm management are discussed, stress being laid on operation efficiency.

Prerequisite: FMg 302. First term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$0.50. Assistant Professor Kuhlman.

FMg 304. Farm Management Field Course. Practical application of farm management principles through direct field study and analysis of successful farms in the state combined with training in regular farm-management survey work. In the summer students registered in this course, accompanied by the instructor, spend four or five weeks in the field in various sections of the state, devoting about one week to each section.

Prerequisite: FMg 302. Summer; 6 credits; field work. Professor Scudder, Assistant Professor Kuhlman.

FMg 411. Farm Organization. Application of farm management principles to the organization of the individual farm; methods of measuring the efficiency of any given farm; organizing a farm business; standards for farm planning; efficiency practices in production and operation; planning production programs, cropping systems, and fertility balances; labor programs; livestock, machinery, and building equipment; methods of increasing productive business; methods of financing, etc. Field trips.

Prerequisite: FMg 302. Second term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$0.50. (G)

Professor Scudder, Assistant Professor Kuhlman.

FMg 412. Semi-arid Farm Management. For senior and graduate students. The farm-management problems of the dry farmer and irrigation farmer; preparation of management plans dealing with forms of production; profitable enterprises; fertility rotations, equipment, labor distribution, marketing, etc., as adapted to semi-arid conditions; when possible, a field excursion into the dry farming and irrigated sections of Oregon for farm survey work.

Prerequisite: FMg 302, 411. Second term; 2 credits; 2 lectures. (g $\frac{3}{4}$) Professor Scudder.

FMg 422, 423. **Farm Management Seminar.** Senior and graduate students majoring in Farm Management meet together in seminar work, and juniors are required to attend open meetings as listeners. The class constitutes the students' technical association in Farm Management. Phases of problems of research character are presented by the senior and graduate students working under the supervision of the instructor. Discussion of investigational methods and results; inquiry into opportunity and requirements for professional and practical work in Farm Management; presentation of management methods by successful farmers in the state, etc. Each year a three-day field trip is taken to successful farms.

Second and third terms; 1 credit each term; fortnightly meetings. (G)
Professor Scudder, Assistant Professor Kuhlman.

FMg 431. **Cost of Production.** For senior and graduate students. Methods of obtaining and determining costs of agricultural products, including the survey method; assembling, tabulation, analysis, and interpretation of cost data; cost record forms for different types of farms and enterprises and for cost surveys.

Prerequisite: FMg 302, 433. First term; 3 credits; 3 lectures.
Professor Scudder, Assistant Professor Kuhlman.

FMg 433. **Enterprise Costs and Profits.** A survey of the whole field of farm enterprises, particularly those of the Northwest and Pacific Coast, to give the student a needed basis for the correct selection of enterprises in different regions. The importance of each enterprise; causes of failure; size, capital, labor and maintenance requirements; production possibilities and markets; costs, prices, and profits; analyses of new or questionable enterprises; field study of major enterprises.

Prerequisite: FMg 302. Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$0.50. (g) Professor Scudder.

FMg 434. **Enterprise Costs and Profits.** Continuation of FMg 433.

First term; 2 credits; 2 lectures. Fee \$0.50. (G) Professor Scudder.

FMg 441, 442, 443. **Farm Management.** (Advanced.) Field work on individual problems such as preparation of detailed organization and management plans for specific farms; efficiency testing of groups of farms; field studies of costs and profits of specific farm enterprises; field study of specific farm practices and their efficiency; studies in equipment and building improvement; farm management factor studies, etc.; directed and reviewed through weekly round-table discussions. Courses 442, 443 are required of students majoring in Farm Management.

Prerequisite: FMg 302. Three terms; 2 to 5 credits each term; all laboratory and field work. Fee \$1.00 each term. (g)

Professor Scudder, Assistant Professor Kuhlman.

FMg 452. **Agricultural Land Economics.** Applied economics of the subject presenting an inventory of our agricultural land resources; bases and procedure in agricultural land classification, utilization, and disposal; costs and problems of land reclamation; land settlement plans, procedure, and results; problems in land tenure and conservation; agricultural land

values and appraisal methods. (Attention of the student is called to course ES 315, Land Economics, in which the underlying economic principles bearing on this subject are treated.)

Prerequisite: FMg 302. Second term; 3 credits; 3 lectures. (G)

Professor Scudder.

FMg 463. Accredited Farm Work. Senior or graduate students who have taken the regular four-year major in Farm Management or its equivalent and who have previous good records of practical experience in farming and the necessary personal qualifications as to character, industry, etc., have opportunity in this course as workmen on "accredited farms"—farms operated by progressive and successful farmers—both for actual experience and to study the management of these farms, making written reports, and where advisable, preparing reorganization plans. Work is inspected by the instructor and reported upon by the farm owner. College credit given the students depends upon extent and quality of practical work and written reports.

Prerequisite: FMg 302. Any term; 8 to 16 credits. Professor Scudder.

FMg 691, 692, 693. Graduate Study and Research. Graduate research other than thesis work.

Three terms; credits to be arranged. (G)

Professor Scudder, Assistant Professor Kuhlman.

FMg 694, 695, 696. Graduate Thesis. Under this head all graduate thesis work in Farm Management is registered. Thesis work in this field may be selected from a wide variety of subjects, related, if desired, to the economic phases of certain agricultural commodities, or practices or types of farming in which the student is especially interested.

Three terms; credits to be arranged. (G)

Professor Scudder, Assistant Professor Kuhlman.

Horticulture

INSTRUCTIONAL work in Horticulture includes Pomology, Vegetable Crops, Floriculture, Landscape Architecture, Horticultural Products, and Horticultural Research. In these courses the student is first thoroughly grounded in the fundamentals, and is then allowed to specialize as he desires.

The courses consist of lectures, reference reading, field exercises, and laboratory work. Much stress is placed upon the practical phases of all the work. In all courses horticultural truths are illustrated by practice, whenever possible. Students are given field and laboratory exercises in all such operations as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and spraying.

Equipment. The Horticulture wing of Agriculture Hall, Horticultural Products Building, modern greenhouses, orchards and gardens, the large

campus containing good plant material, and a very good library are at the service of the department. The laboratories are well equipped for giving instruction in spraying, plant propagation, fruit packing, vegetable grading and crating, and systematic pomology. There are large lecture rooms, a drafting room, photography room, and a Horticultural Museum.

The Horticultural Products Building is equipped with a 40-horse-power boiler for high-pressure steam. Ample provisions are made for hot and cold water and electric power. In the basement are located boiler and storage rooms, also juice room for the manufacture of fruit juices, carbonated beverages, and vinegars. This room is equipped with hydraulic press, centrifuge, multiple drum, silver-lined filter, carbonating equipment, and settling vats. On the first floor is located dehydrating equipment, such as three-tunnel Oregon drier with recirculation, and a steam heated experimental dehydrator of one-ton capacity. This is automatically controlled by compressed air. Preparation machines, such as power peelers, slicers, washers, etc., are located in this room. This floor contains vacuum pans with distilling apparatus for manufacture of fruit essences, jams and marmalades under vacuum and various food products of like nature. A large research laboratory for chemical investigation of by-products of the fruit industry is also located on the first floor. On the second floor are located office and lecture rooms. The new wing, occupied entirely by the canning laboratory, is equipped with two complete lines of canning machinery. Cooling facilities are provided for the proper handling of the canned products. The new wing is of steel-girded construction, the interior finished in white enamel, lighted by windows around three sides and saw-tooth skylights, and amply ventilated. This wing contains equipment for the manufacture of fruit butters, jams and jellies on a commercial scale, finishers, copper-jacketed kettle, and various machinery.

In addition to the orchards and gardens of the College, the region is well provided with orchards, canneries, etc., which can be used in the laboratory work.

The department of Horticulture is well equipped for research work. The laboratories, the greenhouses, the experimental plots, and an excellent research library of scientific books and periodicals, facilitate effective investigation in the field of horticulture.

NOTE: The courses in Horticulture comprise the following groups, under each of which the respective courses are listed in numerical order: General Horticulture and Floriculture, Pomology, Vegetable Crops, Landscape Architecture, Horticultural Products, Graduate and Research Courses.

General Horticulture and Floriculture

DESCRIPTION OF COURSES

Hrt 200. Elements of Horticulture. This course is designed as an introduction to the subject. Fruit growing from the farm and commercial standpoints; home vegetable growing and important truck crops; the fundamental phases of food preservation, including drying, cider and vinegar manufacture, etc.

Third term; 5 credits; 4 lectures; 2 two-hour laboratory periods. Fee \$2.00. Professors Duruz, Bouquet, and Wiegand.

Hrt 341. Plant Propagation and Greenhouse Practice. Designed to meet the needs of students both in Horticulture and in other departments who are interested in the subject. Different methods of propagating plants, including budding and grafting, are shown. Students grow their own stock in the greenhouses and care for it throughout the term. The work also meets the needs of students who expect to be engaged in agricultural research requiring an understanding of greenhouse practices in the handling of soils, water, sunlight, heat, and ventilation.

Second term; 3 credits; 1 lecture; 1 recitation; 2 two-hour practicums.
 Fee \$3.00. Professor Duruz.

Hrt 441, 442, 443. Greenhouse Crops. Actual work in the greenhouse. Propagation; culture; soils; ventilation; watering; heating; as wide a range of experience as possible in growing of plants used in the florist trade.

Prerequisite: Hrt 341. Three terms; 3 credits each term; 9 periods laboratory work.
 Professor Peck.

Pomology

DESCRIPTION OF COURSES

Pom 311. Commercial Pomology. The problems of handling fruit, including the picking, grading, and packing of fruits; study of the problems of transportation, distribution, and marketing, storage and storage plants.

First term; 4 credits; 3 lectures; 1 recitation; 1 two-hour laboratory period. Fee \$1.50. (g)
 Professor Duruz.

Pom 312. History and Literature of Horticulture. Brief study of the history of horticulture; systematic survey of the literature of horticulture, acquainting the student with the various sources of horticultural knowledge.

Second term; 3 credits; 1 lecture; 2 recitations. Fee \$0.50. (g?)
 Professor Duruz.

Pom 313. Fruit Production. Principles and practices of fruit growing as related to temperature requirements, water requirements and food requirements of plants; pollination; frost fighting; root stocks, and other practical problems.

Prerequisites: Hrt 200; Bot 321 prerequisite or parallel. Third term; 4 credits; 3 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$1.50.
 Professors Brown and Duruz.

Pom 362. Subtropical Pomology. This course takes up in a general way the history, growing, and handling of such subtropical fruits as the citrus fruits, vinifera grapes, figs, olives, dates, oriental persimmons, pomegranates, avocados, papayas, jujubes, passion fruits and others. Offered in alternate years. Not offered 1931-32.

Prerequisite: Hrt 200. First term; 3 credits; 2 lectures; 1 recitation.
 Professor Duruz.

Pom 411. **Systematic Pomology.** Principles underlying pomological nomenclature, variety and species, description, classification and identification of the more important fruit and nut groups and their interrelationship.

First term; 4 credits; 1 lecture; 1 recitation; 2 two-hour laboratory periods. Fee \$5.00. (g) Professor Duruz.

Pom 412. **Pruning.** Thorough training in the fundamental principles underlying pruning, including bud studies, tree building, maintaining vigor of the tree, rejuvenation and the like.

Prerequisites: Hrt 200, Bot 321. Second term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$1.00. Professor Brown.

Pom 413. **Spraying.** Principles underlying spraying practices; selection of spraying and dusting machinery, including stationary outfits; methods of spraying, dusting, fumigating, soil sterilization; studies of orchard spray programs.

Prerequisites: Hrt 200, Bot 312, Ent 404. Third term; 3 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$3.00. (g‡)

Professors Duruz and Gilmore.

Pom 415. **Small Fruits and Grapes.** Problems connected with the soils and slopes, pruning, training, harvesting, packing, and marketing of such small fruits as the strawberry, currant, gooseberry, raspberry, blackberry, loganberry, and cranberry; together with American and European grapes. Offered in alternate years. Offered 1931-32.

Second term; 3 credits; 2 lectures; 1 recitation. Professor Duruz.

Pom 417. **Orchard Practices and Management.** Trips are taken to fruit farms near Corvallis and other places in the state. Studies made of practices in pruning, spraying, cultivating, marketing, etc. The management of fruit farms is gone into carefully. Maps and plans for fruit farms are made. Students registered only by appointment with the head of the department. Schedule by arrangement in four-hour periods.

Prerequisites: Pom 313, 412. Third term; 3 credits; 1 lecture; 1 four-hour laboratory period. Fee according to cost of trips. (g‡)

Professor Brown.

Pom 481, 482, 483. **Seminar.** For senior and graduate students in Horticulture. Study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, as well as experiment station and Government publications, are reviewed.

Three terms; 1 credit each term; 1 recitation. Fee \$0.50 each term. (G) Professor Brown.

Pom 484, 485, 486. **Special Problems in Pomology.** Problems designed to give experience in the laboratory, greenhouse, field, library, and in research technique. Confer with instructor before registering.

Three terms; credits, hours, and fees to be arranged. (g‡)

Professors Brown and Duruz.

NOTE: For advanced work in Pomology see Graduate and Research Courses in Horticulture.

Vegetable Crops

DESCRIPTION OF COURSES

VC 321. Principles of Vegetable Production. The principles involved in growing vegetables, including such subjects as soils, fertilization, varieties, seeds, plant growing, distribution of crops, succession cropping, irrigation, pest control, planting and cultivating, etc.

Prerequisite: Hrt 200. First term; 3 credits; 1 lecture; 1 recitation; 1 two-hour laboratory period. Professor Bouquet.

VC 323. Vegetable Growing Practices. Field and greenhouse work with lectures to acquaint the student thoroughly with proper growing and management methods in the production of vegetables for market.

Prerequisite: Hrt 200. Third term; 3 credits; 1 lecture; 1 recitation; one two-hour laboratory period. Fee \$1.00. Professor Bouquet.

VC 421. Vegetable Forcing. Types and construction of commercial vegetable greenhouses, soils, cropping, soil sterilization, fertilization, irrigation, pest control, house management, etc., as well as methods of growing fall greenhouse crops. Open to juniors and seniors.

Prerequisite: Hrt 200. Second term; 2 credits; 1 lecture or recitation; 1 two-hour laboratory period. Fee \$1.00. (g $\frac{3}{4}$) Professor Bouquet.

VC 422. Vegetable Forcing. Commercial methods of producing spring and summer vegetables under glass, such as tomatoes, cucumbers, etc., as well as the growing and marketing of vegetable seedlings. Open to juniors and seniors.

Prerequisite: Hrt 200. Third term; 2 credits; 1 recitation or lecture; 1 two-hour laboratory period. Fee \$1.00. (g $\frac{3}{4}$) Professor Bouquet.

VC 423. Vegetable Varieties. Descriptions, nomenclature, and classifications of vegetables; a sufficient number of varieties of each vegetable studied so that the student may become acquainted with the more important groups of horticultural varieties; exercises in displaying and judging vegetables; assigned readings.

Prerequisite: Hrt 200. First term; 2 credits; 2 two-hour laboratory periods. Fee \$2.00. (g $\frac{3}{4}$) Professor Bouquet.

VC 424, 425. Vegetable Marketing. First term: principles and commercial practices of field harvesting, grading, and packing of vegetables; methods of marketing. Second term: car loading, mixed cars, transportation, and distribution of truck crops, such as onions, onion sets, cabbage, cauliflower, broccoli, melons, tomatoes. Lectures, farm and market visits, field work in loading and observation of car loads; assigned readings.

Prerequisite: Hrt 200. First and second terms; 3 credits each term; 1 lecture; 1 recitation; 1 two-hour laboratory period. Fee \$1.00 each term. (g $\frac{3}{4}$) Professor Bouquet.

VC 426. Truck Crop Products. Problems of commercial vegetable crop production, principally those related to methods of production for

general market and cannery. A general review of commercial vegetable gardening problems. Open to seniors or graduate students only.

Prerequisite: VC 321 or 323. Third term; 3 credits; 2 lectures; 1 two-hour laboratory period. (g§)
Professor Bouquet.

VC 427, 428, 429. **Special Problems in Vegetable Crops.** Laboratory, greenhouse, field and library problems, together with research technique. Confer with instructor before registering.

Three terms; credits, hours, and fees to be arranged.

Professor Bouquet.

NOTE: For advanced work in Vegetable Crops see Graduate and Research Courses in Horticulture.

Landscape Architecture

DESCRIPTION OF COURSES

LA 130. **Landscape Architecture (Descriptive.)** A lecture course planned to introduce the student to the subject as it is applied to home-ground layouts, city parks, National parks, the wilderness areas, city plans, and modern garden cities. Good taste and general information. No drawing.

First term; 2 credits; 2 lectures and periodical quiz hours. Fee \$0.50.

LA 131. **Landscape Architecture.** This course is designed to fit the needs of all students. Definite principles controlling layout and organization of different kinds of property are introduced. Enough drafting is done so that the student will learn to express himself in a satisfactory manner. Study is made of problems in improvement work on home grounds, rural and urban.

Any term; 3 credits; 2 two-hour drafting periods; 3 lectures. Fee \$0.75.

LA 133, 134, 135. **Landscape Design A, B, C.** This work is primarily a course in architectural drafting, drawings being assigned that will teach the principles of architectural arrangement as found on terraces, garden entrances, shelters, etc.; a study of the orders of architecture as they are found in monumental and domestic structures, overlooks, mausoleums, entrances, and other architectural features as they may influence the solution of landscape problems; exercises in proportion and relation to ground areas; design of small structures such as garden-houses, pergolas, gazebos, etc.

Three terms; 3 credits each term; 3 three-hour drafting periods. Fee \$1.00 each term.

LA 231, 232, 233. **Landscape Design I, II, III.** These elementary courses treat with the designing of small residence properties, the ordinary city lot, town house property, and suburban residence properties involving not more than three acres.

Prerequisites: LA 131; A 213, 214. Three terms; 3 credits each term; 3 three-hour drafting periods. Fee \$1.00 each term.

Assistant Professor Cuthbert.

LA 234, 235, 236. **Plant Materials.** This work is intended to familiarize the student with trees, shrubs, vines and perennials; their peculiar habits of growth, requirements, and care. Special attention is given to foliage, color, form, adaptation, hardiness, and effects when grouped. Students are advised to take LA 131 as a preliminary.

Three terms; 3 credits each term; 3 two-hour laboratory periods.

Professor Peck.

LA 237. **History and Literature of Landscape Architecture.** Designed to give the student a good idea of the development of the art, and to bring him in touch with the literature, past and current, that is related to the subject.

Prerequisite: LA 131. Third term; 3 credits; 3 recitations. (g $\frac{3}{4}$)

Professor Peck.

LA 238. **History of Landscape Architecture.** A study of styles in public and domestic buildings, bridges, aqueducts, viaducts, city entrances, and monuments developed throughout the ages, with reference to the influence on contemporaneous gardens, parks, and plazas. Assigned readings and sketches.

Second term; 3 credits; 2 lectures; 1 recitation.

Mr. Sinnard.

LA 239. **Garden Perspective, Shades and Shadows.** A course in the making of architectural perspective and bird's-eye drawings of gardens and garden features; also the casting of shadows on architectural objects.

Prerequisite: LA 133. First term; 3 credits; 3 three-hour drafting periods. Fee \$1.00.

Mr. Sinnard.

LA 331, 332, 333. **Landscape Design IV, V, VI.** These courses take up the designing of suburban and country estates, school grounds, and small parks. Trips are made so that the student may study actual examples of good planning.

Prerequisites: LA 233, A 251. Three terms; 3 credits each term; 3 three-hour drafting periods. Fee \$1.00.

Assistant Professor Cuthbert.

LA 334. **Garden Structures.** Making of working drawings and details for small garden structures.

Prerequisite: LA 239. First term; 3 credits; 3 three-hour drafting periods. Fee \$1.00.

Mr. Sinnard.

LA 335. **Plant Composition.** Involves the designing of plant masses, the making of planting plans, and estimates.

Prerequisite: LA 236. Second term; 3 credits; 3 three-hour drafting periods. Fee \$1.00.

Assistant Professor Cuthbert.

LA 336. **Flower Garden Design.** This is primarily a course in composition and color harmonies, and involves the making of planting plans for hardy herbaceous and bulb gardens, and for alpine and rock gardens. A general knowledge of herbaceous perennials will be valuable.

Third term; 3 credits; 3 three-hour drafting periods. Fee \$1.00.

Assistant Professor Cuthbert.

LA 337. Maintenance. General maintenance, questions in connection with ornamental planting, lawn areas, walks, drives, parks, cemeteries, street planting; pruning; simple tree surgery; greenhouses. Reference readings, field trips, and campus observations.

Second term; 3 credits; 3 lectures.

Professor Peck.

LA 344. Landscape Architecture. (For Foresters.) The arrangement of features and elements in ranger stations, recreation areas, state parks, overlooks, and summer-home sites; enough drafting to enable the student to express himself on paper by means of landscape plans. Assigned readings.

Third term; 3 credits; 2 lectures; 1 two-hour drafting period. Fee \$0.50.

Professor Peck.

LA 431, 432, 433. Landscape Design VII, VIII, IX. A study of the best work of prominent landscape architects, together with a wide range of collateral reading and the making of reports. These courses include the design of large parks, cemeteries, golf courses, and subdivisions.

Prerequisites: LA 236, 333. Three terms; 4 credits each term; 1 recitation; 3 three-hour drafting periods, first term; 12 laboratory periods second and third terms. Fee \$1.00 each term. (g $\frac{3}{2}$) Assistant Professor Cuthbert.

LA 434, 435. Field Practice. Courses in practical problems brought in from the field. The student makes surveys, does the engineering work incidental to the solving of the problem, makes general plans, planting plans, grading plans, details, etc. In the third term the field practice work is correlated with a major design problem which occupies the third term of Senior Design and develops the equivalent of a thesis as the final undergraduate problem.

Prerequisites: LA 333, 336. First and third terms; 4 credits each term; 12 periods laboratory work. Fee \$0.50. (g $\frac{3}{2}$)

Professor Peck.

LA 436. Office Practice and Specifications. Specifications writing; ethics and professional contacts; office management and principles of superintendence.

Prerequisite: Senior standing in Landscape Architecture. First term; 3 credits; 3 lectures.

Professor Peck, Assistant Professor Cuthbert, Mr. Sinnard.

LA 437. City Planning. History and importance of the city planning movement, beginning with a study of ancient plans and finishing with a study of the modern city. Idealistic and garden city projects; the conditions of living that are making replanning and planning for the future a necessity. Assigned readings and reports.

Prerequisite: Junior standing. Second term; 2 credits; 2 lectures. (g $\frac{3}{2}$)

Assistant Professor Cuthbert.

LA 437a. City Planning. This section is reserved for students majoring in Landscape Architecture and includes, in addition to the work covered in LA 437, problems in civic design requiring drafting. Assigned readings and reports.

Prerequisites: LA 239, 333; CE 223. Second term; 4 credits; 2 lectures; 2 three-hour drafting periods. Assistant Professor Cuthbert.

LA 438. **Simple Home-ground Design.** Plant materials such as trees, shrubs, vines, and perennials; their placing and maintenance. Lectures, field trips, simple drafting. Intended for senior students in Home Economics; open also to others.

Third term; 3 credits; 3 two-hour laboratory periods. Professor Peck.

LA 439. **Landscape Construction.** Construction of pools, garden walls, walks, drives, tennis courts, and similar features.

Prerequisite: LA 334. Second term; 4 credits; 4 three-hour drafting periods. Fee \$1.00.

Professor Peck, Assistant Professor Cuthbert, Mr. Sinnard.

Horticultural Products

The work in Horticultural Products is designed to fit the student to enter fields of commercial canning, dehydration, jam, jelly, and juice manufacture, commercial food manufacture, and, in addition, to prepare him for research work along all lines of home and commercial canning and commercial food manufacture. The laboratory work is conducted on a commercial scale, and the student is trained to operate and repair machinery used in all manufacturing work.

Instruction in canning embraces grading, blanching, siruping, exhausting, sealing, sterilizing, labeling and storage. In dehydration, instruction covers the drying of prunes, pears, apples, and other fruits, and vegetables. Students have an opportunity to operate all dehydration equipment, where conditions are kept under constant control. Special opportunity is afforded also those wishing work on problems of by-products manufacture.

A deposit of \$5.00 to cover breakage is charged in each course involving laboratory work.

DESCRIPTION OF COURSES

HP 251. **Principles of Canning Fruits.** Designed to teach by lectures, recitations, and laboratory exercises the fundamental principles of canning fruits. Varieties; buying; handling before canning; grading; methods of preparation; blanching; siruping; water and steam exhausting; sealing; cooking; cooling; storage; causes of spoilage; judging canned foods; types of containers; marketing practices; working knowledge of methods used in commercial, farm, and home canning.

First term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Professor Wiegand, Mr. Onsdorff.

HP 252. **Principles of Canning Vegetables.** Continuation of Hrt 251, with application to vegetable canning and vegetable products. Retort installation, operation, and control; handling methods; heat penetration;

time of cooking and thermal death points; vegetables canned by different methods and results compared. Commercial plants are visited for study.

Second term; 3 credits; 3 lectures; 2 two-hour laboratory periods.
 Fee \$5.00. Professor Wiegand, Mr. Onsdorff.

HP 353. The Canning Plant and Its Equipment. The purpose of this course is to study the canning plant, its location, general plan of construction, equipment, and operation. Students are given training in designing plants and estimating costs. Laboratory work covers the construction, installation, operation, and adjustment of canning machinery. Field trips to canneries to study their construction.

Third term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Mr. Onsdorff.

HP 363. Food Products. Commercial methods followed in the manufacture of such food stuffs as fruit and vegetable by-products, spices, condiments, flavoring extracts, sirups, leavening agents, animal foods; the use of sugars, vegetable cooking oils, flours, and cereals.

Third term; 2 credits; 2 lectures. Professor Wiegand, Mr. Onsdorff.

HP 371. Dehydration of Fruits and Vegetables. This course is especially for students majoring in Horticulture. Actual drying of fruits and vegetables is done, along with the study of the common types of driers and principles of dehydration. Methods of testing for moisture and adulteration are stressed.

First term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Professor Wiegand.

HP 381. Pickles, Relishes, and Condiments. Theory, principles, and practice in vinegar and salt pickling. Making and packing of sour, sweet, and dill cucumber pickles; pickling of other products such as onions, melon rinds, carrots, beets, crabapples, tomatoes; tomato products, salad dressings, relishes, and sauerkraut studied and manufactured. Causes of spoilage and testing methods are emphasized.

First term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Mr. Onsdorff.

HP 451. Fruit Juice and Vinegar Manufacture. Practical and scientific work in the handling of fruit juices; problems of filtration, sterilization, and bottling.

First term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Professor Wiegand, Mr. Onsdorff.

HP 452. Commercial Jam and Jelly Manufacture. Principles of making jams and jellies correlated with laboratory practice and quantity manufacture; testing for yields, moisture content, pectin requirements, acidity, sugar, etc., stressed.

Second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Mr. Onsdorff.

HP 453. Carbonated Beverages and Crushed Fruits. Designed to give instruction in the making of carbonated beverages by using pure and syn-

thetic flavors. The manufacture of crushed fruits for soda fountains and ice-cream making is emphasized. Designed especially for Dairy Manufacturing, Pharmacy, and other students interested.

Third term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$5.00. Professor Wiegand, Mr. Onsdorff.

HP 473. **Preserves, Glacéd Fruits, and Candied Fruits.** Manufacture of preserves, marmalades, conserves, maraschino cherries, glacéd fruits, and candied fruits.

Third term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00. Professor Wiegand, Mr. Onsdorff.

HP 487, 488, 489. **Special Problems.** Special study of some phase of fruit and vegetable preservation, as selected by the student, such as dehydration, pickle manufacture, canning and preserving certain products, etc. Confer with instructor before registering.

Three terms; credits, hours, and fees to be arranged. (G) Professor Wiegand.

NOTE: *For advanced work in Horticultural Products see Graduate and Research Courses in Horticulture.*

Graduate and Research Courses in Horticulture

Graduate and research work in Horticulture is under the general supervision of the Professor of Research in Horticulture. Other members of the faculty in Horticulture cooperate in outlining courses of study and in teaching subjects which fall in their respective fields.

In "Special Problems" courses for seniors (VC 427, 428, 429, Pom 484, 485, 486, HP 487, 488, 489), the Professor of Research may assist whenever the problem is closely connected with plant physiology as related to horticulture.

DESCRIPTION OF COURSES

Hrt 621, 622, 623. **Pomology.** Advanced study and experimentation with special library assignments in pomology for graduate students.

Three terms; 3 credits each term; hours to be arranged. Fee \$3.00 each term. (G) Professors Brown and Duruz.

Hrt 625. **Systematic Pomology.** (Advanced course.) A complete review of systematic pomology, including description, nomenclature, classification, and identification, together with review and abstracting of literature of the subject.

First term; credits and hours to be arranged. Fee \$3.00. (G) Professor Duruz.

Hrt 627, 628, 629. **Vegetable Crops.** Advanced work in Vegetable Crops for graduate students.

Three terms; 3 credits each term; hours to be arranged.

Professor Bouquet.

Hrt 651, 652, 653. **Horticultural Products.** Special library assignments and advanced study in the field of Horticultural Products for graduate students.

Three terms; 3 credits each term; hours to be arranged. (G)

Professor Wiegand.

Hrt 684, 685. **Methods of Research.** Conducted as a research round table, these courses give drill in making of briefs and outlines of research problems, methods of procedure in conducting investigative work, processes of reasoning, weighing of evidence, and the preparation of bulletins and reports. Research problems being studied by the department of Horticulture are taken up. Close study is made of research work presented in bulletins from other institutions. Seniors and graduate students.

First and second terms; 2 credits each term; 2 lectures. (G)

Professor Harvey.

Hrt 691, 692, 693. **Graduate Study and Research.** Investigational work for graduate students in Pomology, Vegetable Crops, Horticultural Products, Plant Breeding and Plant Physiology as related to horticulture.

Three terms; 2 to 8 credits each term. (G)

Professor Harvey and others.

Hrt 694, 695, 696. **Graduate Thesis.** Consists of work upon a specific problem and the completion of a graduate thesis dealing with that problem. The subject of the problem is chosen after conference with the Professor of Research in Horticulture and the student's major professor. (G)

Three terms; 2 to 6 credits each term. Professor Harvey and others.

Poultry Husbandry

POULTRY keeping as a specialized business has developed rapidly throughout the Northwest and especially in Western Oregon. Climatic conditions throughout the state are particularly adapted to successful breeding and raising of poultry.

With the development of the poultry industry in Oregon and throughout the country has come a demand for young men trained in the various lines of the industry. Besides the opportunities offered in the actual work of poultry farming there is an increasing demand for properly qualified men for positions as government and experiment station workers, as field men and poultry feed specialists with the larger feed companies, and for positions with packing houses and cooperative marketing associations.

Poultry courses and elective subjects are so arranged that the student may receive training that will fit him for any of the lines of work mentioned.

Equipment. The equipment includes two poultry plants, one of forty-five acres, the other a fifteen-acre tract. The instructional plant is operated on a strictly commercial basis, offering an opportunity to the student to learn at first hand practices, costs, and general management of a specialized poultry business. The new three-story Poultry Building, 53 by 140 feet, recently completed, has laboratories for incubation, judging, killing, egg candling, and carpentry, equipped with appliances necessary for practical poultry keeping. Twenty different makes of incubators, including two mammoth machines, are available for student practice in incubation. There are colony poultry houses, laying houses, and hatching and brood coops of various styles. Large flocks of Barred Plymouth Rocks and White Leg-horns are available for study, and there are pens of several others of the more common breeds and varieties which are used for student study and judging practice. There are also sets of charts, lantern slides, motion pictures, and photographs, illustrating breeds of fowls, types of poultry houses, and equipment.

DESCRIPTION OF COURSES

PH 201. Practical Poultry Keeping. A brief course dealing with practical application of the principles of poultry husbandry to general poultry farm conditions. An introductory course for those intending to specialize in this field, recommended also for those who plan to teach agriculture or wish a single, elementary course in the fundamentals of poultry husbandry.

Any term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$2.50. Professor Lunn, Associate Professor Fox.

PH 311. Poultry Breeding, Breeds, and Judging. A study of breeds of poultry, their history and classification; principles and methods of breeding for different purposes; laboratory work in identification and judging from fancy and utility standpoints.

Prerequisite: PH 201. First term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$1.00. Deposit \$1.00. Associate Professor Fox.

PH 312. Poultry Breeding, Breeds, and Judging. Similar to PH 311 but arranged for students who have not had or are not taking Genetics (Z 351).

Prerequisite: PH 201. First term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$1.00. Deposit \$1.00.

PH 321. Incubation and Brooding. A study of the principles and practices involved in natural and artificial incubation and brooding; study of the egg and its development; laboratory work in actual running of incubators and brooders; opportunity given when possible for students to work out some definite problem.

Prerequisite: PH 201. Third term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$1.50. Deposit \$1.00. Associate Professor Fox.

PH 331. Poultry-house Design and Construction. A study of the principles of poultry-house designing; estimating the cost of building; study-

ing building plans; practice in erecting, remodeling, and making appliances; excursions to neighboring farms.

Prerequisite: PH 201. Second term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00. Deposit \$1.00. Associate Professor Fox.

PH 351. **Turkey Management.** Practical details in the breeding, feeding, rearing, and marketing of turkeys.

Prerequisite: PH 201. Second term; 3 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$2.00.

PH 441. **Poultry Feeding.** A study of feeds suitable for poultry; principles and practice of feeding breeding stock, feeding for egg production, and fattening for market; feeding young and growing chicks; feeding appliances; the compounding of rations; actual practice in feeding a flock of hens.

Prerequisite: PH 201. First term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$1.00. Deposit \$1.00. (g $\frac{3}{4}$) Associate Professor Fox.

PH 451. **Marketing Poultry Products.** Preparation of poultry and eggs for market; methods of storage and preservation; methods of marketing; laboratory work in killing, picking, grading, packing, and shipping poultry; candling, grading, packing, and storing eggs.

Prerequisite: PH 201. Second term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00. Deposit \$1.00. (g $\frac{3}{4}$) Associate Professor Fox.

PH 463. **Poultry Plant Management.** Selection of the location, layout, and arrangement of buildings; study of records. Each student works out complete plans for the layout and management of a commercial poultry enterprise.

Prerequisites: PH 321, 331, 441, 451. Third term; 4 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$1.00. Deposit \$1.00. (g $\frac{3}{4}$)

Associate Professor Fox.

PH 481, 482, 483. **Seminar.** Discussion of poultry literature and current problems of interest to the advanced student, including critical examination of research methods relating to poultry work. Frequent written reports are required.

Three terms; 1 credit each term. (G)

Professor Lunn.

PH 484, 485, 486. **Departmental Management.** For seniors majoring in Poultry Husbandry. Practical work in and about the poultry department, so arranged as to give the student practice and experience in college poultry plant management. Hours to be arranged with head of department.

Three terms; 3 credits each term; 3 three-hour laboratory periods.

Professor Lunn.

PH 691, 692, 693. **Graduate Study and Research.** Students registering for graduate work in Poultry Husbandry may elect, with the approval of the head of the department, any branch of the subject upon which they desire to do their graduate work. With the great amount of data collected

during the past twenty years the department affords special opportunity for research work, particularly along the lines of breeding for egg production.

Three terms; credits to be arranged. (G) Professor Lunn.

Ph 694, 695, 696. **Graduate Thesis.** The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G) Professor Lunn.

Soils

COURSES in Soils include soil physics, soil drainage, irrigation farming, dry farming, soil fertility, soil surveying, soil biology and soil management and utilization. The purpose of the courses in Soils is to give the student thorough training in this important phase of agriculture, making him competent to manage a farm or preparing him for positions in State or Federal service. The wealth of Oregon rests in her soil and water resources, and their intelligent development, management, and preservation. With the further extension of Federal aid to reclamation, there will be a greater demand for men who have a knowledge of how most successfully and economically to use water which the engineer's canals and reservoirs provide. These men must know the best time, amount, and method of irrigation, and the effects of irrigation upon soils and crops. They should also know the relations between soils, soil waters, and drainage, and understand how to locate and construct drains and to treat or fertilize the soil so as to obtain the highest possible efficiency for each unit of tiling or fertilizer employed.

Equipment. The Soils laboratories are equipped with apparatus for complete study of physical and chemical properties of soils and problems of soil management. Ample desk room, supplied with running water, gas, compressed air, and electricity, is available. Electric centrifuges and shakers, electric bridge for alkali testing, electric air baths, analytic and torsion balances, microscopes, blast lamps, aspirators, percolators, capillary tubes, mulch cylinders, soil sieves, scales, solution balance, compression filters, soil sampling tubes, moisture equivalent centrifuge, furnace, hoods, soil solution displacement apparatus, hydrogen electrode, conductivity equipment, etc., form a part of the equipment for the work in Soils. Soil surveying and mapping outfits, soil survey charts of the United States, and a collection of samples of the chief soil types of Oregon and the United States, are available. The soil preparation room is equipped with benches, soil-grinding and sifting machinery, and ample space for drying, preparation, and storage of large quantities of the different soil types used in the laboratories. For field work in drainage and irrigation, surveying instruments, tiles, and ditching tools, weirs, flumes, hook gauges, water-stage register, electric pumping plant, etc., are available. Weather-recording instruments of different kinds supply equipment for the course in Climatology. Laboratories fitted with desks, ovens, etc., afford opportunities for studies of the movement and retention of irrigation water in soil, the effects of irri-

gation upon soils and crops, the effect of tile drainage upon soils of different types, their rate of drainage, etc. On the College farm the students build weirs, measure water, lay out distribution systems, make cement pipes for laterals, and test pumping machinery. On the drainage plots, the rate of discharge is measured and the effects of drains and soil conditions on water-table are studied. The Exhibit Room is equipped with cases and racks for display of soil sample collections, subsoils, hard-pans, soil analyses, soil colors, soil drainage and irrigation exhibits, etc. A well-stocked reference library is available. The Experiment Station farms at Corvallis and in other parts of the state, together with the cooperative trials in different counties, afford opportunity for field study of soil problems.

Research. The department of Soils is well equipped for offering research work. The experiment fields, soil tanks, laboratories, and library, and the plans and methods used in soil, irrigation, and drainage investigations afford valuable opportunities to graduate students. See courses SIs 611 to 696.

DESCRIPTION OF COURSES

SIs 111. **Farm Soils.** Origin, classification, and characteristics of soils; soil moisture and nutrients in relation to plants. (Two-year Curriculum.)

First term; 3 credits; 3 lectures; 2 laboratory periods. Fee \$2.00. Deposit \$1.00.

SIs 201, 202. **Soils.** Origin, formation, and classification of soils; study of the physical properties of soil moisture, heat, and air; effects of tillage, drainage, and irrigation; plant foods and soil fertility; fertilizers; crop rotations; manures; acid and alkali soils.

Prerequisites: Ch 101, 102, 103. First and second terms; 3 credits each term; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$3.00 each term. Deposit \$2.00 each term.

Professor Ruzek, Assistant Professor Torgerson.

SIs 203. **Soil Drainage and Irrigation.** Principles of drainage and of irrigation; use of chain and level as applied to location and installation of tile drains or irrigation laterals; design of tile systems; their effect upon soils and crops; costs and benefits.

Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$2.00. Deposit \$1.00. Professor Powers, Associate Professor Stephenson.

SIs 204. **Soil Improvement.** Soil fertility gains and losses, maintenance and improvement; effect of manures, fertilizers, and crop rotations on soil productiveness.

Second term; 3 credits; 2 lectures; 1 laboratory period. Fee \$2.00. Deposit \$3.00. Associate Professor Stephenson.

SIs 204a. **Soils.** Same as SIs 204, except no laboratory work. Required of students in Landscape Architecture.

Second term; 2 credits; 2 lectures. Associate Professor Stephenson.

Sls 311. **Irrigation Farming.** Methods of obtaining, distributing, and conserving irrigation waters; handling of different crops under irrigation; costs and profits; duty of water in various districts of Oregon; water rights and irrigation codes; field and laboratory studies of irrigation qualities of different soils; laying out of irrigation systems.

First term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$1.00. Deposit \$1.00. Professor Powers.

Sls 312. **Irrigation Farming Elective.** Special course for Irrigation Engineering students or other students who cannot take the laboratory course in Irrigation Farming.

First term; 2 credits; 2 recitations. Professor Powers.

Sls 314. **Western Land and Water Laws.** A brief history of the development of water laws. Homestead laws, water rights, and irrigation codes in the different states, particularly in the Northwest and Oregon; appropriation, adjudication, and administration of water; reclamation and other Government and State land acts affecting reclamation development; organization and administration of irrigation districts and projects; water users' associations, etc.; discussion of public questions relating to reclamation. Offered alternate years. Offered 1931-32.

Second term; 3 credits; 3 recitations. Professor Powers.

Sls 317. **Dry Farming.** Advanced study of the subject of moisture conservation, special tillage methods and machinery, soil and climate conditions, etc., in dry-farming regions, with particular reference to Oregon and northwestern states. Offered alternate years. Not offered 1931-32.

Prerequisite: Sls 201 or 202. Second term; 2 credits; 2 recitations. Professor Powers.

Sls 318. **Land Drainage.** Field study of road, soil, and sanitary drainage; actual surveying, laying out, drafting of plans, estimation of cost, and installation of drainage systems; preparation of a complete report on the organization of a drainage district.

Prerequisite: Sls 201. Third term; 3 credits; 1 recitation; 2 three-hour laboratory periods (week-end). Fee \$1.00. Deposit \$1.00. Professor Powers.

Sls 331. **Climatology.** Practical meteorology; observing and recording local weather and forecasting; a study of the climate of Oregon and the effect of climate upon agriculture.

Third term; 2 credits; 1 recitation; 1 two-hour laboratory period. Fee \$1.00. Deposit \$1.00. Assistant Professor Torgerson.

Sls 411. **Irrigation Field Practice.** This course aims to give practical knowledge of irrigation farming conditions. Careful records are kept of water used on different soils and crops and of the yield obtained from definite areas. This work may be done during the summer months in connection with duties as ditch rider or other field agent. Work is to be outlined in advance with the instructor. A report is required.

Prerequisite: Sls 311. Any term; 2 to 4 credits.

Sls 414. **Irrigation.** (Advanced course.) Irrigation literature and methods of irrigation investigation; field and laboratory studies of irrigation experiments; calculation of depth of water applied and of the most economical production thereby obtained; costs and profits connected with irrigation; analysis of data and preparation of a thesis. Field examinations are made, where possible, of some of the largest projects in the state.

First term; 3 credits. (G)

Professor Powers.

Sls 417. **Irrigation Management.** A study of the economic feasibility, development, operation and maintenance of irrigation systems; methods and records for water masters; control of agencies destructive to ditches; cost and durability of materials used in distribution of water on the farm; water rotations for different types of farming.

Second term; 2 credits.

Professor Powers.

Sls 421. **Soil Physics.** Origin, formation, physical composition, and classification of soils; soil moisture, surface tension, osmosis, capillarity, diffusion, aeration, temperature, and the resulting alteration in crop-producing power; influence of washing, drainage, and irrigation upon soils; laboratory determination and comparison of physical properties of various soil types; physical effect of mulches, rotations, and cropping; soil sampling and judging; mechanical analysis of soils.

Prerequisites: Sls 202, 203. First term; 5 credits; 3 recitations; 2 three-hour laboratory periods. Fee \$3.00. Deposit \$2.00.

Sls 422. **Soil Physics.** Similar to Sls 421, but without laboratory work, for Agriculture students unable to take the regular course in Soil Physics and for students in Irrigation Engineering.

First term; 3 credits; 3 recitations. Associate Professor Stephenson.

Sls 424. **Soil Fertility.** Advanced work in composition and values of fertilizers and barnyard and green manures; maintenance and improvement of fertility; effect of the various crops and different systems of farming upon the fertility of the soil; crop rotations and fertility in different sections of the state and the United States; field-plot and pot-culture investigations.

Prerequisite: Sls 421. Second term; 5 credits; 3 recitations; 2 three-hour laboratory periods. Fee \$3.00. Deposit \$2.00. Professor Ruzek.

Sls 425. **Soil Fertility Lectures.** Same as Sls 424, except no laboratory work.

Second term; 3 credits; 3 recitations. (g3)

Professor Ruzek.

Sls 427. **Soil Survey.** For the advanced student who desires preparation for service at state experiment stations or in the Government Bureau of Soils. Study of the classification of soils and soil areas of the United States, of Oregon, and of the Northwest; much work in making regular and completed soil surveys of assigned areas, including field trips of inspection, with a report thereon.

Prerequisite: Sls 421 or 424. Third term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$1.00. Deposit \$3.00.

Assistant Professor Torgerson.

Sls 428. **Soil Management.** Occurrence, composition, characteristics, productivity, plant-food requirements, comparative values, and management of different soil types of Oregon.

Prerequisite: Sls 424. Third term; 5 credits; 2 recitations; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$2.00. (G) Professor Powers.

Sls 441, 442, 443. **Soil Work.** (Advanced.) The advanced student may study the various soil types of Oregon through mechanical analysis, and other physical tests; may undertake field work in soil surveying and mapping; or, through wire-basket pot-culture and field-plot tests, may determine the effects of various systems of cropping, or fertilizing, or of soil bacteria, upon soil fertility.

Prerequisites: Sls 421, 424. Three terms; 3 credits each term. Fee \$1.00 each term. Deposit \$2.00 each term. (G)

Professors Powers and Ruzek.

Sls 451, 452, 453. **Drainage or Irrigation Work.** (Advanced.) Special problems in either subject, such as the drainage of alkali lands, drainage against seepage, study of water-table fluctuations, run-off, etc., or field studies of the duty of water for a certain district, conservation of irrigation waters, effect of irrigation on soil moisture conditions, etc., as selected by the student.

Prerequisite: Sls 311 or 318. Three terms; 2 to 5 credits each term. Fee \$0.50 each term. Deposit \$1.00 each term. (g) Professor Powers.

Sls 481, 482, 483. **Seminar.** Semi-weekly meetings, alternating with those of the Soils Improvement Club, at which papers on soils subjects are read and discussed. Papers are prepared under supervision of the department.

Three terms; 1 credit each term.

Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 611, 612, 613. **Graduate Seminar.** A thorough, critical study of advanced research in soils and reclamation, and their relation to plant nutrition.

Prerequisite: Graduate standing in Soils or related courses. Three terms; 1 credit each term; 1 two-hour recitation period. (G)

Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 621. **Pedology.** Advanced soil classification and management. Critical study of soil-forming processes; evolution of soil profiles; principles of soil classification and utilization. Problems of land classification; distribution of soils of the United States in relation to vegetation and crops, geology, physiology, and climate. Limited to advanced and graduate students. Offered in alternate years. Offered 1931-32.

First term; 2 credits; 2 recitations. (G)

Professor Powers.

Sls 622. **Soil Colloids.** Study of the physical chemistry of soils with special reference to the nature and function of soil colloids, soil acidity,

absorption, and base exchange. Limited to advanced and graduate students. Offered in alternate years. Not offered 1931-32.

Second term; 2 credits; 2 recitations. (G)

Associate Professor Stephenson.

SIs 623. **Plant Nutrition.** Advanced study of soil, water, and plant relationships and external factors that are controllable by agricultural practices. The character of the soil solution in relation to the nutrient requirements of plants. Limited to advanced and graduate students.

Third term; 2 credits; 2 recitations. (G)

Professor Powers.

SIs 691, 692, 693. **Graduate Study and Research.** Special laboratory investigation and library study of graduate character.

Three terms; credits to be arranged. (G)

Professors Powers and Ruzek, Associate Professor Stephenson.

SIs 694, 695, 696. **Graduate Thesis.** Courses for graduate students either as major or minor. Students may select problems in soil physics, analysis, surveying, fertility, irrigation, drainage, soil management, dry-farming, or related subjects. The work of the three terms is limited to a total of 12 credits.

Three terms; credits to be arranged. (G)

Professors Powers and Ruzek, Associate Professor Stephenson.

Veterinary Medicine

THE object of the courses in Veterinary Medicine is to help fit the student for the successful handling of livestock. Comparative anatomy and comparative physiology familiarize the student with the normal structures and functions of the animal body, thus laying a foundation for courses in judging, breeding, feeds and feeding, nutrition, and diseases of animals.

The work in diseases is taken up from the standpoint of the livestock owner. The students learn to recognize diseases, to care for sick animals, and to prevent disease through proper methods of sanitation and management. The importance of quarantine, the different methods of control and eradication of disease, and the role of the stock owners in maintaining this work are considered.

Equipment. This department has its offices, physiological laboratory, and lecture room in the Poultry Building. Dissections, autopsies, and clinics are conducted in a suitably equipped Veterinary Clinic Building.

DESCRIPTION OF COURSES

VM 301. Comparative Anatomy. A laboratory course in the anatomy of domesticated animals. Special attention is given to the digestive systems of the horse and the cow; to the foot, the teeth, and the muscles of loco-

motion of the horse. The work includes complete dissection of the digestive, urinary, genital, and respiratory systems, and partial dissection of the circulatory, muscular, and nervous systems.

Prerequisite: Z 130 or equivalent. First or second term; 3 credits; 3 two-hour laboratory periods. Fee \$1.00.

Assistant Professors Shaw and McCapes.

VM 302. Comparative Anatomy. Continuation of VM 301.

Prerequisite: VM 301. Second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$1.00.

Professor Simms, Assistant Professors Shaw and McCapes.

VM 309. Anatomy of the Fowl. A study of the structure of the body of the fowl.

Second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$1.00.

Professor Johnson.

VM 321. Comparative Physiology. Study of the functions of the body; the physiological processes of all domestic animals, with emphasis on the horse and the cow.

Prerequisites: VM 302, Ch 124 or their equivalent. Third term; 3 credits; 3 lectures; 1 two-hour laboratory period. Fee \$1.00.

Professor Simms, Assistant Professors Shaw and McCapes.

VM 341. Diseases of Livestock. A one-term course for students specializing in the Plant Group. The more common diseases, with methods of prevention and control, are considered.

First term; 4 credits; 2 lectures; 2 recitations.

Assistant Professor Shaw.

VM 351. Diseases of Poultry. The parasitic, infectious, and non-infectious diseases of poultry; emphasis upon methods of prevention and control of the parasitic and infectious diseases; observations of autopsies, method of diagnosis, and treatment of fowls.

Third term; 3 credits; 3 recitations; 1 two-hour laboratory period. Fee \$0.50. (g $\frac{3}{4}$)

Professor Johnson.

VM 441, 442, 443. Diseases of Livestock. The parasitic, infectious, and non-infectious diseases of domesticated animals.

Prerequisites: VM 302, 321, or equivalent. Three terms; 3 credits each term; 2 recitations; 1 two-hour laboratory period. Fee \$0.50 each term. (g)

Professor Simms, Assistant Professor Shaw.

VM 691, 692, 693. Graduate Study and Research. Problems in animal diseases.

Three terms. Problems and credits to be arranged. (G)

Professor Simms.

VM 694, 695, 696. Graduate Thesis. Problems in animal diseases.

Three terms. Problems and credits to be arranged. (G)

Professor Simms.

School of Basic Arts and Sciences

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

M. ELLWOOD SMITH, Ph.D., Dean of the School of Basic Arts and Sciences;
Director of the Summer Session.

GERTRUDE FULKERSON, Secretary to the Dean.

Art and Rural Architecture

*JOHN LEO FAIRBANKS, Professor of Art and Rural Architecture.

*MARGARET BELL LAWSING, B.S., Instructor in Art.

IDA MARTHA MATSEN, A.M., Instructor in Art.

DOROTHY MAY BOURKE, B.A., Instructor in Art.

ALMA SCHULMERICH, M.A., Instructor in Art.

CLARA FRANCES DODSON, B.A., Instructor in Art.

ETHEL ELIZABETH HEADRICK, M.A., Instructor in Art.

Bacteriology

GODFREY VERNON COPSON, M.S., Professor of Bacteriology.

JOSEPH ELLSWORTH SIMMONS, M.S., Associate Professor of Bacteriology.

WALTER BENO BOLLEN, Ph.D., Assistant Professor of Bacteriology.

DAVID BERRY CHARLTON, M.S., Instructor in Bacteriology.

Botany and Plant Pathology

HOWARD PHILLIPS BARSS, S.M., Professor of Botany and Plant Pathology.

WINFRED MCKENZIE ATWOOD, Ph.D., Professor of Plant Physiology.

CHARLES ELMER OWENS, A.M., Professor of Plant Pathology.

WILLIAM EVANS LAWRENCE, B.S., Associate Professor of Plant Ecology.

*HELEN MARGARET GILKEY, Ph.D., Associate Professor of Botany; Curator of
the Herbarium.

FRANK PERRY SIPE, M.S., Assistant Professor of Botany.

WILLIAM AARON KESSI, B.S., Instructor in Botany.

WALTER THOMAS LUND, B.S., Teaching Fellow in Botany.

Chemistry

JOHN FULTON, M.S., Professor of Chemistry; Director of Chemical Labora-
tories.

J. SHIRLEY JONES, M.S.A., Professor of Agricultural Chemistry.

*On leave of absence.

EARL C GILBERT, Ph.D., Professor of Physical Chemistry.
*FRANCIS HENRY THURBER, Ph.D., Associate Professor of Organic Chemistry.
JOSEPH PARKE MEHLIG, M.S., Assistant Professor of Analytical Chemistry.
ROBERT AMBROSE OSBORN, Ph.D., Assistant Professor of General Chemistry.
CHARLES S PEASE, Ph.D., Assistant Professor of Organic Chemistry.
WILLIAM ELMER CALDWELL, Ph.D., Assistant Professor of General Chemistry.
COWIN COOK ROBINSON, A.M., Instructor in General Chemistry.
GEORGE THEODORE PARKER, M.S., Instructor in Organic Chemistry.
GLEN CHASE WARE, M.S., Instructor in General Chemistry.
HENRY GEORGE RUPPEL, B.A., Instructor in General Chemistry.
EUGENE HARVEY HUFFMAN, M.S., Instructor in General Chemistry.
EDWARD CLEVELAND CALLAWAY, M.S., Instructor in Organic Chemistry.
HUBERT CAPPS, M.S., Instructor in General Chemistry.
BERT PILKINGTON, B.S., Stockkeeper, Chemical Laboratories.
REUBEN CHRISTIAN THIELKE, B.S., Teaching Fellow in General Chemistry.
KENNETH ROSS MACLEAN, B.S., Teaching Fellow in General Chemistry.
JOSEPH DEANE PATTERSON, B.S., Teaching Fellow in General Chemistry.

English Language and Literature

FREDERICK BERCHTOLD, A.M., Professor of English Language and Literature.
IDA BURNETT CALLAHAN, B.S., Associate Professor of English Language and Literature.
SIGURD HARLAN PETERSON, B.A., Associate Professor of English.
JOHN M KIERZEK, Ph.D., Associate Professor of English.
GERTRUDE ELIZABETH McELFRESH, A.M., Assistant Professor of English.
DANIEL THOMAS ORDEMAN, Ph.D., Assistant Professor of English.
RALPH COLBY, Ph.D., Assistant Professor of English.
LAURIN BURTON BALDWIN, A.M., Instructor in English.
ELEANOR CALDWELL INGALLS, M.A., Instructor in English.
HERBERT BENJAMIN NELSON, M.A., Instructor in English.
DONALD WILLIAM EMERY, M.A., Instructor in English.
*JOHN CAMPBELL MAJOR, M.A., Instructor in English.
HARRY GLENN BROWN, A.M., Instructor in English.
JOHN CLEMENT McCLOSKEY, M.A., Instructor in English.
FRANZ JACKSON MONTGOMERY, A.M., Instructor in English.
GRAHAM MCFARLAND DRESSLER, M.A., Instructor in English.
ROBERT RAY REICHART, B.S., Instructor in English.

Entomology

DON CARLOS MOTE, Ph.D., Professor of Entomology.
WILLARD JOSEPH CHAMBERLIN, Ph.D., Associate Professor of Entomology.

*On leave of absence.

HERMAN AUSTIN SCULLEN, M.A., Associate Professor of Entomology.
VELMA TRUE SHATTUCK, B.S., Entomological Technician.
ROLAND EUGENE DIMICK, B.S., Teaching Fellow in Entomology.

History

JOHN B HORNER, Litt.D., L.H.D., Professor of History; Director of Oregon Historical Research.
EARNEST VANCOURT VAUGHN, Ph.D., Associate Professor of History.
JOSEPH ELLISON, Ph.D., Assistant Professor of History.
PAUL HENRY GIDDENS, Ph.D., Assistant Professor of History.

Mathematics

CHARLES LESLIE JOHNSON, B.S., Professor of Mathematics.
EDWARD BENJAMIN BEATY, A.M., Professor of Mathematics.
NICHOLAS TARTAR, B.S., Associate Professor of Mathematics.
HARRY LYNDEN BEARD, M.A., Assistant Professor of Mathematics.
JOHN ALBERT VAN GROOS, M.S., Assistant Professor of Mathematics.
GEORGE ALFRED WILLIAMS, A.M., Assistant Professor of Mathematics.
BELVA PIERCE DIXON, B.S., Instructor in Mathematics.
WILLIAM JOHN KIRKHAM, M.A., Instructor in Mathematics.
RALPH STEVENS WEESE, A.B., Instructor in Mathematics.
KATHRYN LOUISE WIGHTMAN, B.S., Instructor in Mathematics.
PHILLIP W LLOYD, Pd.B., Instructor in Mathematics.

Modern Languages

LOUIS BACH, A.M., Professor of Modern Languages.
EDITH CARTER KUNEY, A.M., Associate Professor of Modern Languages.
MELISSA MARGARET MARTIN, A.M., Associate Professor of Modern Languages.
MARY EUNICE LEWIS, M.A., Assistant Professor of Modern Languages.

Physics

WILLIBALD WENIGER, Ph.D., Professor of Physics.
WILLIAM BALLANTYNE ANDERSON, Ph.D., Professor of Physics.
JACOB JORDAN, A.M., Associate Professor of Physics.
FRED BUCKNER MORGAN, M.S., Assistant Professor of Physics.
ALBERT WASHINGTON MARKER, M.A., Instructor in Physics.
HARRY T DRILL, A.B., Instructor in Physics.
JOHN CLIFTON GARMAN, B.S., Instructor in Physics.
EDWIN ARTHUR YUNKER, Ph.M., Instructor in Physics.
JAMES MADISON MORRIS, B.S., Instructor in Physics.
WILLIAM ROY VARNER, E.E., Instructor in Physics.

Public Speaking and Dramatics

- CHARLES BUREN MITCHELL, M.A., Professor of Public Speaking and Dramatics.
 ELIZABETH BARNES, B.L.I., Associate Professor of Public Speaking and Dramatics.
 EARL WILLIAM WELLS, J.D., Associate Professor of Public Speaking; in Charge of Speech Clinic.
 WOLFRED ANDREW DAHLBERG, B.A., Instructor in Public Speaking; in Charge of Men's Varsity Debate.
 DELOSS PALMER YOUNG, B.S., Instructor in Public Speaking and Dramatics; in Charge of the Theater Workshop.
 ALVIN EDWARD O'KONSKI, Ed.B., Instructor in Public Speaking; in Charge of Oratory and Freshman Debate.
 PAUL XENOPHON KNOLL, M.S., Instructor in Public Speaking; in Charge of Women's Varsity Debate.

Zoology

- NATHAN FASTEN, Ph.D., Professor of Zoology.
 KENNETH LLEWELLYN GORDON, M.A., Assistant Professor of Zoology.
 JOHN LYNN OSBORN, M.A., Instructor in Zoology.
 EDITH LIDA BENEDICT, M.A., Instructor in Zoology.
 WILLIAM BERT OWEN, A.M., Instructor in Zoology.
 SUE ANDERSON REED, B.S., Clerk and Technician in Zoology.

THE School of Basic Arts and Sciences, comprising the twelve departments of Art and Rural Architecture, Bacteriology, Botany and Plant Pathology, Chemistry, English Language and Literature, Entomology, History, Mathematics, Modern Languages, Physics, Public Speaking and Dramatics, and Zoology, is an administrative organization furnishing instruction in arts and sciences fundamental alike in preparation for the various occupations and industries distinctly the concern of Oregon State Agricultural College and in education for citizenship. The courses offered by these departments are service courses for students majoring in some other department or school. No majors are offered and no degrees granted, except that in the School of Agriculture the following majors in the sciences basic to Agriculture are offered: Bacteriology, Chemistry, Botany and Plant Pathology, Entomology, Soil Science, Zoology (see School of Agriculture). The scope and facilities of the several departments are discussed under the respective departmental headings.

Art and Rural Architecture

CCOURSES offered in Art and Rural Architecture are closely connected with the work of other departments of the College. The ideals to be developed are the practical application of form, color, design, and composition to the problems of every-day life in meeting the aesthetic

requirement of personal adornment, home decoration, city beautification, commercial activities, creative industrial development, self-expression, and house planning.

Art. Courses in drawing, design, color, and the crafts aim to develop appreciation as well as creative skill in the application of art principles to objects of utilitarian service. Abundant opportunities are afforded for developing skill and gaining information, as well as cultivating a discriminating choice, by means of illustrations and demonstrations in recitation periods, review of assignments, and analytic, constructive criticism during recitation periods, practice under guidance during laboratory periods, assigned references for library periods, and visits to various exhibitions.

Rural Architecture. The courses in Architecture are offered to meet the requirements of rural communities in planning farm structures, service-yards, homes, interior decoration, remodeling houses, community recreation centers, semi-public buildings, more beautiful towns. The courses are offered primarily to students in Agriculture, Home Economics, Engineering, and Industrial Arts, but are elective to any students interested in domestic or rural architecture.

Equipment. The commodious and well-lighted studios on the third floor of Agriculture Hall and the metal working laboratory and clay-modeling room in the Mines Building afford ample accommodations and facilities, while the College Library has a carefully selected and growing reserve in Art and Architecture in all the branches covered by the courses offered.

COURSES IN ART

NOTE: In addition to the regularly scheduled hours, every student in Art courses is required to devote sufficient time in study, preparation or other unscheduled studio periods, as the department may direct, to make up a total of 3 hours for every credit.

A 101. **Drawing and Composition.** Free-hand drawing of still life, leaves, birds, etc., for later decorative treatment; principles of perspective, simple mechanical drawings, free-hand lettering, and art appreciation. Note-book required.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 102. **Design.** Principles of design and their application to things of service in personal adornment, home decoration, and crafts problems. Development of historic ornament is studied. Note-book required.

Prerequisite: A 101 or equivalent. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 103. **Color Harmony.** Color is studied for application to design and craft work with special attention to household use, dress, and manufactured articles. The use and enjoyment of color is the basis of this course. Note-book required.

Prerequisites: A 101, 102, or their equivalent. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 152. **Composition.** Analytical study of the elements of design and pattern in landscape architecture, photography, and color rendering.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 213. **Drawing.** Study and graphic representation of cylindrical and rectangular objects in perspective; pencil shading; sketching; wash drawing; action and pose drawing; constructive drawing of trees, plants, leaves, flowers, and materials used in landscape architecture.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 214. **Cast and Still Life Drawing.** Charcoal and chalk preparatory for color technique with problems in wash drawing.

Prerequisite: A 213 or equivalent. Any term; 2 credits; 1 two-hour studio period. Fee \$0.50.

A 215. **Figure Drawing.** Drawing from birds, animals, life, and pose; emphasis on constructive drawing, representation of values and anatomy. Preparatory course for color rendering.

Prerequisites: A 213, 214, or their equivalent. Any term; 2 credits; 3 two-hour studio periods. Fee \$0.50.

A 231. **Industrial Arts Drawing.** Free-hand perspective and sketching, constructive drawing of furniture and other articles, machine parts, shading and drawing from written descriptions, blackboard sketching and introduction to color representation.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 232. **Industrial Arts Design.** Principles of design to suit needs of Industrial Arts students. Original designs for cabinet work, metal work, color problems and industrial arts products.

Prerequisite: A 231 or equivalent. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 233. **Metal Craft Design.** Theory and practice of design applied to art crafts, cement casting, pottery and metal work. Intended for Industrial Arts students.

Prerequisite: A 232 or equivalent. Any term; 2 credits; 1 lecture; 1 two-hour studio period. Fee \$0.50.

A 241, 242, 243. **Applied Design and Color.** Aims to give broader working knowledge of design principles which may serve as a guide to selection and adaptation for practical application in the home. Problems in design and use of enamels, reliefs and gesso; parchment, weaving, etc.

Prerequisite: A 102 or 232. Three terms; 2 credits each term; 1 lecture; 1 two-hour studio period. Fee \$0.50 each term.

A 251, 252, 253. **Pencil, Pen, and Ink Technique.** Drawing, cartooning, designing with pen and brush for titles, cover designs, illustrations for school publications, reproductions, etc. Training in such work as is needed by students engaged in directing the art work of student publications, including the college annual.

Prerequisite: A 213 or equivalent. Three terms; 2 credits each term; 1 two-hour studio period. Fee \$0.50 each term.

A 311, 312, 313. **Landscape Drawing.** Study of the representation of subjects used by landscape architects and gardeners.

Three terms; 3 credits each term; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50 each term.

A 321. **Art Appreciation.** Study of the principles and practice of art in architecture, painting, monumental design and minor arts. Note-book required.

Any term; 3 credits; 3 recitations. Fee \$0.50.

A 322. **History of Art.** Continuation of A 321. History of Art in practice. Note-book required.

Any term; 3 credits; 3 recitations. Fee \$0.50.

A 331, 332, 333. **Water-color.** Color drawings of still-life, flowers, landscape, and figure subjects, with special attention to values.

Three terms; 2 credits each term; 1 lecture; 1 two-hour studio period. Fee \$0.50 each term.

A 334. **Leather Tooling.** Methods of tooling leather portfolios, bags, book covers, etc.

Prerequisites: A 102, 232, or equivalent. Any term; 3 credits; 1 lecture; 3 two-hour studio periods. Fee \$0.50.

A 335. **Block Printing and Stenciling.** Application of design in printing with wood-blocks and stencils; various mediums, materials, and methods.

Prerequisite: A 102 or equivalent. Any term; three credits; 1 lecture; 3 two-hour studio periods. Fee \$0.50.

A 336. **China Painting.** Application of designs and colors to china; methods of applying colors, glazes, enamels, and the process of firing.

Prerequisite: A 102 or equivalent. Any term; 3 credits; 1 lecture; 3 two-hour studio periods. Fee \$0.50.

A 341, 342, 343. **Clay Modeling and Pottery.** Preparation of clay; designing, modeling and building pottery; application of original designs; glazing and firing.

Prerequisite: A 102 or equivalent. Any term; 2 credits each term; 3 two-hour studio periods. Fee \$2.00 each term.

A 345, 346, 347. **Modeling and Cement Casting.** Modeling in clay; plaster and cement casting of garden furniture; colored cement insert

decorations, etc. Intended primarily for Industrial Arts and Landscape Architecture students.

Prerequisites: A 102, 232, or equivalent. Three terms; 3 credits each term; 1 lecture; 3 two-hour studio periods. Fee \$1.00 each term.

A 351, 352, 353. **Color Rendering.** Color theory; brush technique; value and tone study in the expression of landscape architecture subjects; application of color theory; rendering of more complex landscape architecture subjects. Opportunity is given for out-of-doors sketching.

Prerequisite: A 213 or equivalent. Three terms; 3 credits each term; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50 each term.

A 361, 362. **Commercial Art I, II.** Commercial lettering, window trimming, bill-board display, advertising illustrations, drawing of objects in perspective, figures, etc., for advertising layout. Note-book required.

First and second terms; 3 credits each term; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50 each term.

A 363. **Display Advertising.** Posters and advanced advertising using original drawings from figures and pose, for display purposes. Note-book required.

Prerequisites: A 361, 362, or one year college Art. Third term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 371. **Design and Color Use.** Combining design and color in advanced problems of home furnishing and personal adornment. Note-book required covering lectures and two hours of assigned outside reading.

Prerequisites: A 101, 102, 103, or equivalent. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 391. **Community Drama Stage Design.** Planning and executing the setting for community drama; painting scenery; designing costumes; period settings, etc. Training for community service supplementary to that offered in Community Drama. To be taken with PSp 465, 466.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

A 441, 442, 443. **Jewelry Making.** Elementary processes involving sawing, soldering, and stone setting, using copper and silver; advanced problems in wire work and carving; problems carried out in gold.

Prerequisite: A 102 or equivalent. Any three terms; 2 credits each term; 3 two-hour periods. Fee \$1.50 each term.

COURSES IN RURAL ARCHITECTURE

Ar 212. **Perspective Drawing.** Study of the representation of building and grounds by means of mechanical perspective.

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

Ar 320. **Domestic Architecture.** Study of house planning (for students with little preparation in mechanical drawing).

Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

Ar 331, 332, 333. **House Planning.** Study of architecture by working drawings of houses, elevations, models, perspective.

Prerequisite: Mechanical drawing. Three terms; 3 credits each term; 1 lecture; 1 recitation; 6 laboratory periods. Fee \$0.50 each term.

Ar 341, 342. **Rural Architecture.** Planning and designing farm structures, play sheds, rural schoolhouses, community halls, grange halls, and recreational buildings for rural communities.

Prerequisites: Mechanical drawing and Ar 320 or 331. First and second terms; 3 credits; 1 lecture; 1 recitation; 2 two-hour studio periods. Fee \$0.50.

Ar 343. **Interior Decoration.** Planning, designing, and coloring sketches of proposed treatment. Original layouts are required of furniture arrangement, architectural design, color combinations, and use of historic accessories.

Prerequisites: A 101, 102, 331, or equivalent. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour periods. Fee \$0.50.

Ar 345. **Rural Architectural Design.** For students in Engineering and Industrial Arts, affording opportunities for application of the principles of design and knowledge of materials to utilitarian rural structures.

Prerequisite: Mechanical drawing. Third term; 3 credits; 1 lecture; 1 recitation; 1 library period. 2 two-hour studio periods. Fee \$0.50.

Bacteriology

BACTERIOLOGY has become fundamental to such sciences as agriculture, pharmacy, and home economics and is a necessary part of the training of every man or woman who is seeking a complete education. The courses in bacteriology are adapted to meet both technical and cultural needs of the students. In the beginning courses the work is general and fundamental in nature, and practically the same for all students; but in the later courses it becomes more specialized, following some definite branch of the science. So complex has the study of bacteriology become that the attempt is no longer made to master the whole field but only one or two of the main branches of the subject, such as soil bacteriology, dairy bacteriology, pathogenic bacteriology, and others.

During the junior and senior years, opportunity for advanced work is given to students who have had proper preliminary training and who show a natural aptitude toward the work. Students in Agriculture may elect bacteriology as a major or minor, and receive the necessary fundamental training for positions in agricultural bacteriology in colleges, experiment

stations, civil service, dairy and food inspection, etc.; while students in the Pharmacy curricula may elect advanced work in medical bacteriology, sanitation, and public health work. Graduate students in Dairy Husbandry, Soils, Horticultural Products, Pharmacy, or Home Economics, may elect bacteriology as a minor with the approval of their major professor and the head of the department of Bacteriology.

Proper understanding of bacteriology necessitates a fair knowledge of general chemistry. Before a student can progress very far in the work, a knowledge of qualitative, quantitative, organic, and agricultural chemistry is necessary, but students in the various curricula will have taken these subjects in advance of their work in bacteriology.

Equipment. The department of Bacteriology occupies the entire fourth floor of Agriculture Hall. The department is especially well equipped for resident instruction and research work, with excellent laboratory facilities and a departmental library containing the latest authoritative text-books on bacteriology. The general library has all the available American and foreign bacteriological periodicals of recognized merit. The department has highest grade microscopes, glassware, and other equipment for general and advanced work.

DESCRIPTION OF COURSES

Bac 201, 202. General Bacteriology. Elementary courses in the fundamental principles of bacteriology with application to every-day life. The bacteriology of food and water supplies; sanitation and hygiene; infectious disease; sewage disposal, etc. Designed to meet the needs of the students who have had no training in chemistry but who desire a general knowledge of bacteriology.

Any two terms; 3 credits each term; 2 lectures; 1 two-hour demonstration period. Fee \$2.00 each term.

Bac 204. General Bacteriology. A series of lectures, recitations, and laboratory experiments to familiarize students with the fundamental principles of bacteriology.

Prerequisite: One year of chemistry. First or second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

Bac 205. General Bacteriology. A continuation of Bac 204. A course adapted primarily to students in Home Economics. Bacteriology of food preservation, principles of sanitation, bacteriological studies of water, milk, and foods of all kinds; common infectious diseases; disinfection; germicides; and preservatives.

Prerequisite: Bac 204 or 210. Second or third term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

Bac 210. General Bacteriology (Agricultural). A series of lectures, recitations, and laboratory experiments to familiarize students with the fundamental principles of bacteriology as applied to agriculture.

Prerequisite: One year of chemistry. Any term; 4 credits; 2 lectures; 3 two-hour laboratory periods. Fee \$5.00.

Bac 212, 213. **Bacteriology of Foods.** Planned to train the student to meet the bacteriological problems in food preservation such as the isolation, identification, and control of micro-organisms causing spoilage of fruits, vegetables, and other food stuffs; the bacteriology of curing, ripening, and preserving food products. Actual problems in the microbiological phases of food preservation with special attention to the practical laboratory tests as carried out in the canneries.

Prerequisite: Bac 204 or 210. Third and first terms; 3 credits each term; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00 each term.

Bac 301, 302, 303. **Bacteriology.** (Advanced.) Beginning with the first term of the junior year, students in Agriculture and Pharmacy may elect bacteriology as a minor and continue it throughout junior and senior years.

Prerequisite: Bac 204 or 210. Three terms; 3 credits each term; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00 each term.

Bac 311. **Dairy Bacteriology.** Application of bacteriology to dairy practice; physiological activities of bacteria underlying bacterial analysis of dairy products; dairy sanitation; bacteriology of diseases of dairy cattle.

Prerequisite: Bac 204 or 210. First term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$5.00.

Bac 312. **Dairy Bacteriology.** A continuation of Bac 311. A more thorough study of specific problems in dairy bacteriology and practice in special technique, adapted to particular needs of individual students as far as possible, and planned to train students as bacteriologists for creameries and market milk plants.

Prerequisites: Bac 210, 311. Second term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$5.00. (g)

Bac 321. **Soil Bacteriology.** A study of micro-organisms of the soil and their relation to soil fertility; biochemistry of the decomposition of humus; nitrogen-fixation; ammonification, etc.; relation of bacteria to soil fertility and study of the soil as a medium for bacteriological growth.

Prerequisites: Bac 210, Ch 251. First term; 4 credits; 2 lectures; 3 two-hour laboratory periods. Fee \$5.00. (g)

Bac 322. **Soil Bacteriology.** A continuation of Bac 321. A more thorough study in soil of different farm practices. Review of literature on soil bacteriology.

Prerequisite: Bac 321. Second term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$4.00. (g)

Bac 332. **Pathogenic Bacteriology.** A course confined strictly to the study of the micro-organisms which cause disease in man.

Prerequisite: Bac 204 or 210. Second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

Bac 333. **Immunity and Serum Therapy.** A study of the theory of immunity and its application to serum therapy; preparation of toxins, anti-toxins, vaccines, etc.; study of normal and pathological blood.

Prerequisite: Bac 205 or 332. Third term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

Bac 341. **Sanitary Bacteriology.** Lectures, recitations, and laboratory experiments to familiarize the student with the principles of bacteriology as applied to problems of community and municipal sanitation, including the bacteriology of water supplies, milk inspection, sewage disposal, and garbage disposal; infectious diseases, etc.

Prerequisite: Bac 205. Second term; 3 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

Bac 342. **Microscopy of Waters.** Planned to give a thorough knowledge of the micro-organisms found in surface waters. Study of treatment of water by chemicals, aeration, etc.; methods of microscopical examination of water emphasized.

Prerequisite: Bac 341. Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$4.00.

Bac 401, 402, 403. **Bacteriology.** (Advanced.) A continuation of Bac 303 comprising further training in the principles and technique of bacteriology besides directing the study along one of the main lines of bacteriology.

Prerequisite: Bac 303. Three terms; 3 credits each term; 2 two-hour laboratory periods; 2 lectures. Fee \$4.00 each term. (g)

Bac 413. **Agricultural Bacteriology.** (Advanced course.) A final course in bacteriology for students in Agriculture. Application of bacterial activities to farm practices and to the farm home; rural sanitation, hygiene, control of infectious diseases, fermentations, food preservation, etc.

Prerequisites: Bac 210, Ch 251. Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$4.00.

Bac 481, 482, 483. **Seminar.** A discussion of the current literature on bacteriological topics.

Three terms; 1 credit each term; 1 period. (G)

Bac 691, 692, 693. **Graduate Study and Research.** Opportunity is given students to undertake, under the direction of one of the instructors in the department, the investigation of special problems in bacteriology related to various technical fields within the institution.

Three terms; credits, hours, and fees to be arranged with major professor. Fee \$2.00 a credit. (G)

Bac 694, 695, 696. **Graduate Thesis.**

Three terms; credits, hours, and fees to be arranged with major professor. (G)

Botany and Plant Pathology

THE courses offered in the department aim not only to give the student a knowledge of plants, their external and internal structure, their vital activities, their relations to their environment, and their natural classification; but also to impart such fundamentals and practical information in regard to plants as will form a strong foundation for the technical work in Agriculture, Forestry, Pharmacy, and Home Economics.

Exceptional opportunities are afforded students who desire to prepare for technical positions in botany and plant pathology as applied to agriculture or forestry and to obtain a general foundation for advanced study and research in horticulture, agronomy, forestry, grazing and other fields. Particular attention is given to those who wish to take up investigational work in agricultural experiment stations or in the United States Department of Agriculture under the civil service. Training in botany and plant pathology is a valuable asset to agricultural extension workers, horticultural inspectors, district agriculturists, grazing experts, seed analysts, and pure-food experts.

The School of Agriculture affords opportunity to major in Botany and Plant Pathology, as well as to take graduate work in this field leading to the master's degree.

Courses for Students Pursuing a Minor in Botany and Plant Pathology.

Students in the schools of Home Economics, Commerce, Vocational Education, etc., who desire to specialize to some extent in the field of plant science or to prepare for botanical teaching may take a minor in this department by completing courses totaling not less than 18 credits. The following schedule including two years' work is suggested for such students:

MINOR IN BOTANY AND PLANT PATHOLOGY

	Term credits		
	1st	2d	3d
<i>Elementary Courses</i>			
General Botany (Bot 101, 102, 103).....	3	3	3
<i>Advanced Courses</i>			
Nine or more credits from the following courses:			
Comparative Morphology and Evolution of Plants (Bot 441).....	4	....	....
Principles of Plant Pathology (Bot 311).....	4	....	....
Plant Anatomy (Bot 443).....	3	....	....
Plant Physiology (Bot 321).....	....	....	4
Plant Ecology (Bot 442).....	....	....	3
Systematic Botany (Bot 203).....	....	....	3

Grazing Assistant Positions. The United States Forest Service offers abundant opportunity for properly prepared college students to enter grazing assistant positions in the national forests. Students desiring to prepare for these positions should consult this department for complete information as to requirements. The following botany courses should be taken: Bot 101, 102, 103, 203, 321, 341, 442. In addition, work should be taken in Animal Husbandry, Chemistry, Forestry, and English.

Equipment. The department of Botany and Plant Pathology is quartered on the second floor of Agriculture Hall. The three general student laboratories are equipped with compound microscopes for each student

and with special artificial illumination for microscopic work. The laboratories for special studies in plant pathology, plant physiology, plant ecology, and plant histology are provided with all the equipment required for ordinary courses and in addition special instruments and technical apparatus are available for advanced work. The herbarium contains several thousand specimens of native and introduced plants including cultivated forms, weeds, poisonous plants, drug plants, grazing plants, forest trees, and other plants of economic importance. A battery of electrical driers is provided for collected material. Several thousand specimens of fungi, mostly parasitic forms, are comprised in the mycological collection. Physiological dark room, photographic dark room, and culture and sterilizing rooms for work with parasitic organisms are available. The College Library contains excellent sets of botanical reference works and bulletins, and receives the current issues of practically all of the more important botanical periodicals published in America and foreign countries.

DESCRIPTION OF COURSES

Bot 101, 102, 103. **General Botany.** Structure and physiology of higher plants; relation of environmental influence to plant life; the basic facts of plant heredity; principles of plant classification; lower forms of plant life with special reference to plant parasites.

Any three terms; 3 credits each term; 3 two-hour periods. Fee \$1.50 each term.

Bot 104. **Plant Protection.** Brief course for students in two-year curriculum in Pomology and Vegetable Crops.

Third term; 3 credits; 3 two-hour laboratory periods. Fee \$1.50.

Bot 202. **Pharmaceutical Anatomy and Histology of Plants.** A study of the origin, structure, and identification of plant tissues. Analysis of powdered plant materials; a study of drug powders and some of the common microchemical tests.

Second term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.50.

Bot 203. **Systematic Botany.** A study of the families of higher plants and the identification of wild flowers, trees, shrubs, weeds, medicinal plants, ornamentals, crop plants, etc., as students may elect; field trips for collecting; practice in drying and mounting plant specimens.

Prerequisite: A year of general botany. Third term; 3 or more credits; 1 recitation; 3 two-hour laboratory periods or field trips. (Additional periods for additional credit.) Fee \$0.50 each credit. Associate Professor Gilkey.

Bot 311. **Principles of Plant Pathology.** Causes, symptoms, effects, and means of dissemination of disease in plants; principles of plant disease control; laboratory work with various types of plant diseases and the different groups of plant parasites.

Prerequisite: A year of general botany. First term; 4 credits; 2 recitations; 3 two-hour laboratory periods. Fee \$2.50. (g $\frac{3}{4}$) Professor Owens.

Bot 314. **Forest Pathology.** The parasitic and saprophytic fungi which attack forest trees and destroy structural timber; their effects upon the wood; preventive measures.

Prerequisite: At least two terms of general botany. Second term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$1.50.

Professor Owens.

Bot 321. **Plant Physiology.** A study of the life processes and vital requirements of the plant as a basis for intelligent agricultural and horticultural practice; physiology of the living plant; response made by the plant to the influences surrounding it; laboratory experiments.

Prerequisites: A year of general botany and at least one year of chemistry. Third term; 4 credits; 1 lecture; 1 recitation; 3 two-hour laboratory periods. Fee \$4.00. Deposit \$2.00. (g $\frac{3}{2}$)

Professor Atwood.

Bot 341. **Range and Pasture Botany.** A study of the edible, non-edible, and poisonous plants of the range and pasture; relation of grazing to the maintenance of ranges and pastures; methods of preventing stock poisoning or of eradicating poisonous plants. Of interest to students in Animal Husbandry and Dairy Production, and to students in Forestry.

Prerequisites: A year of general botany. Second term; 3 credits; 1 lecture; 1 recitation; 2 two-hour laboratory periods. Fee \$1.50.

Associate Professor Lawrence.

Bot 412. **Fruit Diseases.** Diseases of orchard trees and small fruits and their control, with emphasis on those of importance in the Pacific Northwest. Offered in alternate years. Not offered 1931-32.

Prerequisite: Bot 311. Third term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00. (G)

Professor Owens.

Bot 413. **Diseases of Field Crops and Vegetables.** Similar to Bot 412, but dealing with diseases of field crops and truck and garden vegetables. Offered in alternate years. Offered 1931-32.

Prerequisite: Bot 311. Third term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00. (G)

Professor Owens.

Bot 414. **Study of Fungi (Mycology).** A study of the different groups of fungi with special attention to parasitic forms, dealing with structure, life-history and classification. An advanced course. Offered in alternate years. Offered 1931-32.

Prerequisites: A year of general botany. Second term; 5 credits; 2 recitations; 3 three-hour laboratory periods. Fee \$2.50. (G)

Professor Bars.

Bot 415. **Plant Pathological Technique.** A training course in the technical methods employed in plant pathological investigations; isolation, cultivation, and inoculation of parasitic organisms; record keeping; care of collections; photographic methods, etc. For advanced students. Offered in alternate years. Offered 1931-32.

Prerequisite: Bot 311. Second term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00. (G)

Bot 441. Comparative Morphology and Evolution of Plants. An advanced course dealing with the comparative morphology, phylogeny and classification of the Thallophyta, Bryophyta, Pteridophyta and Spermatophyta. Offered in alternate years. Offered 1931-32.

Prerequisite: A year of general botany. First term; 4 credits (extra credit may be allowed for extra laboratory work); 1 lecture; 1 recitation; 3 two-hour laboratory periods. Fee \$3.00. (G)

Associate Professor Lawrence.

Bot 442. Plant Ecology. A study of the effects of external influences and associations on living plants under natural conditions or under conditions modified by agriculture and forestry. For students in Agriculture, Forestry, Grazing, Agricultural Economics, Irrigation and Drainage, Plant Introduction, Geology, or Botany, and any expecting to enter State or Federal field service.

Prerequisite: A year of general botany and junior standing. Third term; 3 credits; 1 lecture; 1 recitation; 1 three-hour laboratory period. (Extra credits up to total of 5 for extra work.) Fee \$2.00. (g $\frac{3}{4}$)

Associate Professor Lawrence.

Bot 443. Plant Anatomy. An advanced course dealing with the structure and methods of division of the plant cell; structure of the various tissues and organs of higher plants. Offered in alternate years. Not offered 1931-32.

Prerequisites: A year of general botany. First term; 3 credits; 3 two-hour laboratory periods. Fee \$1.50. (G)

Professor Owens.

Bot 444. Botanical Technique. An advanced course. Practice in fixing, embedding, sectioning, staining and mounting of plant tissues for microscopic, histological and cytological study. Offered in alternate years. Offered 1931-32.

Prerequisite: A year of general botany. First term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00. (G)

Professor Owens.

Bot 451, 452, 453. Study and Thesis. (Advanced.) For students specializing in botany and plant pathology. Investigation of special problems or advanced studies not included in regular courses.

Any term; credit, hours of work, fees, etc., to be arranged with major professor.

Bot 481, 482, 483. Seminar. Current literature and special subjects for advanced students and instructional staff. Students prepare papers on assigned topics.

Three terms; 1 credit each term; 1 period. (G)

Bot 621. Plant Physiology. (Advanced course.) A course dealing with the present status of scientific knowledge in regard to the various phases

of plant physiology. Fundamental to investigational work with plants, soils, etc. Offered in alternate years. Not offered 1931-32.

Prerequisite: Bot 321 or equivalent. Second term; 3 credits; 2 lectures; 1 recitation. Fee \$1.00. (G) Professor Atwood.

Bot 691, 692, 693. **Graduate Study and Research.**

Any term; credits, hours, and fees to be arranged by the major professor. (G)

Bot 694, 695, 696. **Graduate Thesis.**

Three terms; credits, hours, and fees to be arranged by the major professor. (G)

Chemistry

THE department of Chemistry is a distinct and separate department, within the School of Basic Arts and Sciences. Foundation courses in chemistry consist in familiarizing the student with the more important underlying principles of the science and the fundamentals of laboratory technique. For students pursuing advanced work the following lines of specialization are suggested:

I. *Inorganic Chemistry.* Study of the advanced theories in chemistry, particularly in the investigation of the structure of matter; study of the rare elements and their technical application.

II. *Analytical Chemistry.* Study and analysis of minerals, ores, alloys, waters, lubricants and fuels; products of metallurgical and other chemical industries.

III. *Organic Chemistry.* Study of historical development; the later theories of structural chemistry, molecular rearrangements, and organic analysis and synthesis.

IV. *Physical Chemistry.* The study of the application of physical methods to organic and inorganic chemistry, the phase rule, colloids, X-ray, and crystal structure, etc.

V. *Agricultural Chemistry,* in which fundamental training is acquired for later work in soil chemistry, fertilizer chemistry, feeding stuffs and cereal chemistry, dairy chemistry, the utilization of agricultural by-products, animal nutrition, and in such phases of agricultural research as may require the application of chemical principles. For curriculum see the School of Agriculture section of the catalogue.

VI. *Cellulose Chemistry.* Study of the colloid chemistry of cellulose; of the structure, chemical reaction, and analysis of the commonly occurring woods, with especial reference to their use in pulp and paper making.

VII. *Chemical Engineering.* See Chemical Engineering curriculum.

DESCRIPTION OF COURSES

Ch 100. **Descriptive General Chemistry.** Designed for students desiring a general knowledge of chemistry as an aid to better understanding of the numerous developments in the commercial and industrial world today. Elective to all students who have had no college chemistry. Not accepted as a substitute for any of the regular courses.

Third term; 3 credits; 3 lectures or recitations.

Ch 101, 102, 103. **General Chemistry.** (1) Fundamental principles and their application; the non-metallic elements and their compounds. (2) Metallic elements and their compounds.

Three terms; 3 credits each term; 1 lecture; 1 recitation; 2 two-hour laboratory periods. Fee \$3.00 each term. Deposit \$3.00 each term.

Ch 104, 105, 106. **General Chemistry.**

Three terms; 5 credits each term; 2 lectures; 1 recitation; 2 three-hour laboratory periods. Fee \$6.25 each term. Deposit \$3.00 each term.

Ch 124. **General Organic Chemistry.** Primarily for students enrolled in production departments of the School of Agriculture; not required of students taking Ch 104, 105, 106. Covers systematically the customary grouping of carbon compounds and emphasizes the agricultural and biological significance of the acids, alcohols, carbohydrates, fats, and proteins.

Prerequisite: Two terms (10 credits) general chemistry. Third term; 5 credits; 2 lectures; 1 recitation; 2 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00.

Ch 212. **Elementary Physical Chemistry.** A non-mathematical course designed for those who desire a knowledge of the elements of physical chemistry. Discussion of such topics as kinetic theory, atomic structure, molecular weights, classification of elements, solubility, ionization, colloids, hydrogen-ion measurements, and electro-chemistry.

Prerequisite: Ch 103 or equivalent. Second term; 3 credits; 3 lectures.

Ch 221. **Organic Chemistry.** Study of occurrence, methods of preparation, characteristic reactions, and properties of the more common organic compounds.

Prerequisite: Ch 103. First term; 5 credits; 2 lectures; 1 recitation; 3 two-hour laboratory periods. Fee \$6.25. Deposit \$3.00.

Ch 222. **Biochemistry.** A study of proteins, carbohydrates, and fats; qualitative and quantitative analysis of these food products, and chemical changes which they undergo in the process of digestion and metabolism.

Prerequisite: Ch 221 or 226. Second or third term; 5 credits; 2 lectures; 1 recitation; 3 two-hour laboratory periods. Fee \$6.25. Deposit \$3.00.

Ch 226, 227. **Organic Chemistry.** A two-term sequence in the chemistry of the carbon compounds; the aliphatics, aromatics, and derivatives.

Prerequisite: Ch 106. First and second terms; 5 credits each term; 2 lectures; 1 recitation; 2 three-hour laboratory periods. Fee \$6.25 each term. Deposit \$4.00.

Ch 231. Qualitative Analysis. Classification, separation, identification of the common ions and cations.

Prerequisite: Ch 106 or equivalent. First term; 5 credits; 1 lecture; 1 recitation; 3 three-hour laboratory periods. Fee \$6.25. Deposit \$3.00.

Ch 241. Quantitative Analysis. Elementary gravimetric and volumetric analysis.

Second term; 3 credits; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$4.00.

Ch 242. Quantitative Analysis. Continuation of Ch 241.

Prerequisites: Ch 231, 241. Third term; 3 credits; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$4.00.

Ch 243. Elementary Chemical Microscopy. Use of the microscope in analysis.

Prerequisites: Ch 106 and physics. Third term; 2 credits; 2 three-hour laboratory periods. Fee \$2.00. Deposit \$1.50.

Ch 244. Quantitative Analysis. Elementary quantitative analysis.

Second or third term; 5 credits; 1 lecture; 1 recitation; 3 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00.

Ch 245. Quantitative Analysis. Continuation of Ch 244.

Third term; 5 credits; 1 lecture; 1 recitation; 3 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00.

Ch 247. Quantitative Analysis. Principles of gravimetric and volumetric analysis developed through the use of agricultural material.

Prerequisites: Ch 104, 105, 124. Second term; 5 credits; 2 recitations; 3 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00.

Ch 251. Agricultural Biochemistry. Undertakes to lead the student to an understanding and appreciation of chemistry at work in the field of agriculture. An insight is gained of the chemical principles involved in crop growth and of the chemical nature and economic importance of crop compounds. The laboratory work is partly quantitative but not fundamentally so.

Prerequisite: Two terms (10 credits) general chemistry and one term organic chemistry (Ch 124) or equivalent. First term; 5 credits; 3 lectures; 2 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00.

Ch 321. Textile Identification. Identification of the different materials used in the textile industries.

Prerequisites: Ch 103, 221. Third term; 2 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$2.00. Deposit \$3.00. (g $\frac{3}{2}$)

Ch 322, 323. **Organic Chemistry.** A two-term sequence in organic chemistry planned for students specializing in science courses. A general survey of both the aliphatic and aromatic series.

Prerequisites: Ch 106, 231, 245. First and second terms; 5 credits each term; 2 lectures; 1 recitation; 2 three-hour laboratory periods. Fee \$6.25 each term. Deposit \$4.00 each term. (Ch 323, g)

Ch 324. **Cellulose.** A study of the chemistry of cellulose; the structure, chemical reactions, and analysis of the commonly occurring wood fibers.

Prerequisite: Ch 323. Third term; 5 credits; 3 lectures; 6 periods laboratory work. Fee \$6.25. Deposit \$4.00.

Ch 328. **Organic Analysis.** Tests and analysis of organic compounds and mixtures.

Prerequisites: Ch 227, 244, 323. Third term; 5 credits; 2 lectures; 3 three-hour laboratory periods. Fee \$6.25. Deposit \$4.00. (g)

Ch 341, 342, 343. **Pulp and Paper Technology.** The fundamental processes of pulp and paper making, including a brief history of paper making and a study of pulp and paper making machinery. Technical study of such processes as beating, bleaching, sizing, loading, and coloring.

Prerequisite: Ch 245. Three terms; 4 credits each term; 2 lectures; 6 periods laboratory work. Fee \$5.00. Deposit \$4.00.

Ch 351, 352, 353. **Agricultural Analysis.** Ch 351, first term, analysis of soil and nutrient solutions. Ch 352, second term, analysis of creamery products. Ch 353, third term, analysis of fruit and vegetable products.

Prerequisite: Ch 247. Three terms; 3 credits each term; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$3.00.

Ch 377. **Food and Water Analysis.** Designed to fit students for positions in food laboratories.

Prerequisites: Ch 221 or 227, Bot 109. Second term; 3 credits; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$3.00. (g)

Ch 378. **Food and Water Analysis.** Continuation of Ch 377.

Prerequisite: Ch 377. Second term; 3 credits; 3 three-hour laboratory periods. Fee \$3.00. Deposit \$3.00. (G)

Ch 381, 382, 383. **Physical Chemistry.** A study of the more important principles of physical and electro-chemistry. The laboratory work includes molecular weight determinations, properties of liquids, conductance of solutions, velocity of reactions, and electrochemical measurements.

Prerequisites: Ch 106, 231, 245; Mth 131. Three terms; 3 credits each term; 2 lectures; 2 three-hour laboratory periods. Fee \$3.00 each term. Deposit \$3.00 each term. (g)

Ch 421, 422. **Organic Chemistry.** A continuation of Ch 322, 323. Emphasis placed upon the methods of synthesis, interpretation of reactions, and structure of organic compounds.

Prerequisite: Ch 323. First and second terms; 2 credits each term; 2 lectures. (G)

Ch 423. **Organic Preparations.** The more important methods of synthesis, such as Grignard's, Friedel-Craft's, Perkins' reaction, and others are studied.

Prerequisite: Ch 227 or 323. Third term; 4 credits; 1 lecture; 10 periods laboratory work. Fee \$6.25. Deposit \$5.00. (G)

Ch 424, 425. **Pulp and Paper Testing.** Official methods of testing pulp and paper discussed and demonstrated in the laboratory.

Prerequisite: Ch 343. First and second terms; 3 credits each term; 1 lecture; 6 periods laboratory work. Fee \$3.00. Deposit \$3.00.

Ch 426. **Paper Coloring.** Dye-stuffs used in paper coloring; technology of dyeing paper and matching color shades on paper stock.

Prerequisite: Ch 425. Third term; 3 credits; 1 lecture; 6 periods laboratory work. Fee \$3.00. Deposit \$3.00.

Ch 427. **Pulp and Paper Problems.** A problem relating to pulp and paper manufacture is chosen by each student. A systematic review of all available literature is made and a report is written covering the review of the literature. Laboratory work relating to the problem selected is then begun.

First term; 3 credits; 3 three-hour laboratory periods.

Ch 428. **Pulp and Paper Problems.** Laboratory work on problems selected in Ch 427.

Prerequisite: Ch 427. Second term; 2 credits; 2 three-hour laboratory periods. Fee \$2.00. Deposit \$4.00.

Ch 429. **Pulp and Paper Problems.** Continuation of Ch 428. A written report is required covering the laboratory work of the year on the problem selected.

Prerequisite: Ch 428. Third term; 4 credits; 4 three-hour laboratory periods. Fee \$5.00. Deposit \$4.00.

Ch 455, 456. **Biochemical Methods.** For those whose major work in Agriculture and related industries calls for a rather intimate acquaintance with the chemical makeup of plant and animal substance and with the enzymes which bring about its chemical transformations. Special attention to applications in agricultural research. Text: Morrow's Biochemical Laboratory Methods. Collateral reading is required.

Prerequisites: Suitable preparation in quantitative analysis and organic chemistry. Second and third terms; 3 credits each term; 3 three-hour laboratory periods. Fee \$3.00 each term. Deposit \$3.00 each term. (G)

Ch 461, 462. **Physiological Chemistry.** General properties and chemistry of the carbohydrates, fats, and proteins, with brief reference to the digestion of these food products. Laboratory work may be arranged to fit special needs of students.

Prerequisites: Ch 221, 222, or their equivalent. Second and third terms; 3 credits each term; 1 lecture; 1 recitation; 2 two-hour laboratory periods. Fee \$3.75 each term. Deposit \$3.00 each term. (G)

Ch 484. **Chemical Thermodynamics.** A study of chemical equilibrium and electro-chemistry from the standpoint of free energy.

Third term; 3 credits; 3 lectures.

Ch 487, 488, 489. **Physical Chemistry (Seminar).** An advanced course adapted primarily to the needs of senior or graduate students in Chemical Engineering or Agricultural Chemistry. Topics such as applications of physical methods to organic chemistry, the phase rule, radioactivity, and atomic structure, X-rays and crystal structure, electronic conception of valence, etc., may be chosen.

Prerequisite: the consent of the instructor. Three terms; 2 credits each term; 2 periods. (G)

Ch 494. **History of Chemistry.** Rise and development of chemical theories and laws.

Prerequisite: Ch 106 or equivalent. Second term; 2 credits; 2 lectures or recitations.

*Ch 621, 622, 623. **Organic Chemistry.** (Advanced.) Lectures and assigned readings on special topics in organic chemistry; class reactions; the mechanism of important reactions; organic nitrogen derivatives; proteins, carbohydrates; geometric isomerism; optical isomerism; trivalent carbon; benzene, naphthalene; pyridines; and electronic structure of some organic compounds.

Prerequisite: Ch 323. Three terms; 2 credits each term; 2 lectures. (G)

*Ch 691, 692, 693. **Graduate Study and Research.** Opportunity is given students to undertake, under the direction of one of the instructors in the department, the investigation of problems in applied chemistry as related to various technical fields within the institution, such as Agriculture, Chemical Engineering, Mines, or Pharmacy. Letters a, b, c, d, and e, following the course numbers above (e.g., Ch 691a, 691b, 691c, etc.) indicate registration for research in inorganic, analytical, physical, organic, and agricultural chemistry respectively.

Three terms; fees and deposits according to course, number of laboratory periods, and credits. (G)

*Ch 694, 695, 696. **Graduate Thesis.** Special problems in applied chemistry.

Three terms; hours and credits to be arranged. (G)

*For all advanced courses, from Ch 621 inclusive, a fee of \$1.50 per credit is charged; cost of chemicals and breakage is additional.

English Language and Literature

It is the aim of this department to teach the student that the essential part of any effective composition, whether oral or written, is thought well organized and well expressed; that to comprehend clearly and to feel strongly what he has to say, are the indispensable conditions of making others comprehend and feel. Thought so organized and expressed is found in good literature; this he is taught to appreciate. In all the courses in English the work is correlated with that offered in the other departments, to bring it into harmony with the spirit of the institution.

Equipment. The College Library, with its excellent resources in general and technical literature, including all the leading periodicals, affords abundant opportunity for the student in English. In addition, the opportunities for expression and appreciation afforded by the student activities and organizations—forensic, dramatic, literary, and journalistic—are exceptionally attractive. (See also courses in Public Speaking and Dramatics.)

DESCRIPTION OF COURSES

NOTE: A year of college work in composition (9 credits) is required for admission to all courses in literature.

Eng 101, 102, 103. **English Composition.** Review of principles of rhetoric: first, correct and effective sentences; next, logical thought development in paragraphs and short papers; finally, forceful ordering of material in long compositions. Regularly scheduled conferences between the student and his instructor; collateral reading with discussions and special papers. Eng 101, 102 required of freshmen in all curricula; Eng 103 required in all curricula except Commerce (see Eng 105). *Note: All students registering in Eng 101 are required to have passed the placement examination given the first of the term. Students failing to make an average of C or better in 9 credits of freshman English composition, with no grade below C, are required to pass a further examination in ability to write English before becoming eligible for the Junior Certificate (see page 57).*

Prerequisites: Three units of English earned in standard high schools. Three terms; 3 credits each term; 3 recitations. Fee \$0.50 each term.

Eng 105. **Business English.** The business letter in detail, special attention being given to form and make-up, to letters of application, inquiry, information, complaints, and collections.

Prerequisites: Eng 101, 102. Third term; 3 credits; 3 recitations. Fee \$0.50.

Eng 201. **English Composition.** (Advanced course.) The object of this course is to develop facility and clarity of expression. Intensive study of the popular essay; of the biography and the criticism as special forms of exposition; exercises in analysis and in the application of the mechanics of expository outlines; long and short themes.

First or third term; 3 credits; 3 recitations. Fee \$0.50.

Associate Professor Kierzek, Assistant Professor Colby, Mrs. Ingalls.

Eng 202. **Narrative Writing.** This course, with its main accessory, description, affords opportunity for (1) study and practice in narrative writing, and (2) through this study and practice, a preliminary training for a more expeditious and thorough achievement of the course in short story.

Prerequisites: Eng 101, 102, 103, or equivalent. Second term; 3 credits; 3 lectures and recitations. Associate Professor Peterson.

Eng 203, 204. **The Short Story I, II.** I. The development of the American short story. Analysis of recognized masterpieces as well as the best present-day magazine stories with the idea of developing critical taste in reading. II. The study and composition of the short story. Further analysis of selected short stories as a basis for training in writing. Short Story I is recommended to precede Short Story II.

Second and third terms; 3 credits each term; 3 discussion periods. Fee \$0.50 third term. Associate Professor Peterson.

Eng 207. **Business English I.** (Advanced course.) A complement to Eng 105. Conducted as a modified seminar, emphasizing English in its relation to business writing other than correspondence. Class assignments, special problems for research, weekly essays.

Prerequisites: Eng 101, 102, and 103 or 105. First term; 3 credits; 3 recitations. Fee \$0.50. Mr. Nelson.

Eng 208. **Business English II.** (Advanced course.) Specialized study and writing of sales and promotion letters, form paragraphs, and business reports; correspondence supervision; postal regulations. Circular sales letters; advertising circulars (descriptive, narrative, explanatory, argumentative); house-organ articles; trade agreements; specifications; timely articles on business subjects.

Prerequisites: Eng 101, 102, and 103 or 105. Second term; 3 credits; 3 recitations. Fee \$0.50. Mr. Nelson.

Eng 211, 212. **The Essay I, II.** I. Study of structure of essay; the essay as an expression of national life and thought; the growth of economic, critical, historical, and personal essay. II. American opinion and belief as reflected in the contemporary critical essay. Class and individual assignments; lectures and reports.

Eng 211 first term, 212 third term; 3 credits each term; 3 lectures or discussion periods. Professor Berchtold, Assistant Professor Ordeman.

Eng 214. **The Novel.** Study of the structure and content of the realistic as well as the romantic novel; growth of the novel of manners, of character, of the problem novel; study of the modification, variation and persistence of the larger categories of fiction. Class and individual assignments, lectures, and reports.

Second term; 3 credits; 3 recitations. Professor Berchtold.

Eng 221, 222, 223. **English Literature I, II, III.** A general outline course in the history of English literature. First term treats English literature from its beginning to the eighteenth century. Second term deals with

the master minds of the eighteenth and early nineteenth centuries. Third term deals with English literature of the late nineteenth and the twentieth centuries. Lectures, readings and discussion; critical reports on assigned topics.

Three terms; 3 credits each term; 3 recitations.

Professor Berchtold, Associate Professors Peterson and Kierzek, Assistant Professors Ordeman and Colby.

Eng 331, 332, 333. **American Literature I, II, III.** Growth and development of literature in our country from the earliest times to the present. Lectures; class discussion; assigned readings; reports.

Three terms; 3 credits each term; 3 recitations. (g $\frac{3}{4}$)

Professor Berchtold, Associate Professors Peterson and Kierzek, Assistant Professors Ordeman and Colby.

Eng 344. **Great Books.** Survey of some of the world's great books, including the Bible, the Odyssey, Arabian Nights, the Divine Comedy, the Autobiography of Benvenuto Cellini, Don Quixote, Pilgrim's Progress, Gulliver's Travels, Faust, and the Golden Treasury, together with a consideration of the types represented.

First term; 3 credits; 3 lectures or discussion periods. Dean Smith.

Eng 411. **The Contemporary American Novel.** A study of the work of the more important recent American novelists, including Edith Wharton, Theodore Dreiser, James Branch Cabell, Sinclair Lewis, Joseph Hergesheimer, Willa Cather, and others. A survey of the significant tendencies in American fiction since 1890.

First term; 3 credits; 3 lectures or discussion periods.

Associate Professor Kierzek.

Eng 441. **Tennyson.** A study of the man as representative poet of the nineteenth century and of his outlook upon life, together with an introduction to the study of poetry through a careful reading of his more significant poems. Offered alternate years. Offered 1931-32.

Second term; 3 credits; 2 lectures; 1 recitation. (g) Dean Smith.

Eng 442. **Browning.** The most noteworthy of the shorter poems are read and carefully studied. The purpose of the course is to remove difficulties and to bring the student into touch with the robust, optimistic personality of the poet. Offered alternate years. Not offered 1931-32.

Second term; 3 credits; 2 lectures; 1 recitation. (g) Dean Smith.

Eng 443. **Shakespeare.** A careful reading of plays of various types with a view to the forming of some estimate of the poet's genius and outlook. Attention is paid to the relation between the Elizabethan drama and the modern play.

Second term; 3 credits; 2 lectures; 1 recitation. (g) Dean Smith.

Eng 444. **Present-day American Poetry.** A survey of the most vital of the more recent work of present-day American poets, including Robert

Frost, E. A. Robinson, Vachel Lindsay, E. L. Masters, Amy Lowell, and a number of others. For comparison, brief notice is given to such British poets as Hardy, Masefield, and Noyes.

Second term; 3 credits; 3 lectures. (g) Associate Professor Kierzek.

Eng 445. **The English Drama.** A rapid survey of the development of the English drama (exclusive of Shakespeare), with reading of plays illustrating the pre-Shakespearean period, the drama of Shakespeare's contemporaries, the Restoration, Goldsmith, Sheridan, and others, to the revival of the late nineteenth century.

First term; 3 credits; 2 lectures; 1 recitation. (g) Dean Smith.

Eng 446. **Contemporary English Drama.** A survey of dramatic activities from the revival in the last decade of the nineteenth century to the present time.

Third term; 3 credits; 2 lectures; 1 recitation. (g)
Associate Professor Kierzek.

Eng 481, 482, 483. **Continental European Literature.** Reading, analysis, and discussion of the recognized masterpieces of continental European literature in approved translations: first term—French, Italian, Spanish; second term—Scandinavian, Teutonic; third term—Russian, Polish, Balkan.

Three terms; 3 credits each term; 2 lectures; 1 recitation. (g)
Professor Berchtold.

Entomology

THE courses in entomology are planned to acquaint the student with the proper relationship of entomology to general agriculture; to train students for commercial honey production; to prepare students for State and Federal service in economic entomology; and to meet the needs of students from other departments who desire work in entomology. Three fields of advanced work are offered: Applied Entomology, Bee Culture, and Forest Entomology.

The general courses in Economic Entomology are designed to provide the student with a practical grasp of the principles of applied entomology, including a knowledge of the commoner pests, their general habits and life-history, and the application of the most approved principles in insect-pest control.

The work in Bee Keeping consists of a two-year major in Bee Culture available to Agriculture students who desire this as a specialty and a minor in Bee Culture available for students specializing in Poultry Husbandry, Horticulture, or Dairy Husbandry. The arrangement of the courses is so planned that the student may profitably take the first year's work or greater or lesser units. Other courses of shorter duration than a full year are planned to meet the special needs.

Forest Entomology includes a general consideration of the main insect groups and their relationships. An intensive study of the main groups of forest insects is made and practical investigation of forest areas is assigned in order to teach the type and extent of insect infestation, methods in forest surveys and in report writing, and the principles underlying forest insect control.

Advanced courses are planned to equip students specializing in entomology with a fundamental groundwork in the science sufficient to prepare them for effective service in applied entomology and to fit them for advanced research study.

Equipment. This department occupies rooms on the third floor of Agriculture Hall. The laboratories are equipped for teaching general entomology and fairly well equipped for advanced research work. The entomology collections include a reference series of some 5,000 determined species of insects, including a representative collection of Oregon material. A display of Ricker mounts and St. Louis boxes containing life-history studies of injurious forms and their typical injury is available. The College apiary consists of twenty full colonies of bees with sufficient supers and additional equipment to care for an average surplus crop. The entomological library comprises old volumes, complete sets of entomological periodicals, reports, and memoirs. Through the courtesy of the librarian of the United States Department of Agriculture, students may borrow entomological literature from the library of the Department of Agriculture and the Congressional library.

DESCRIPTION OF COURSES

Ent 101. Insects of the Farm, Garden, and Orchard. Condensed course. The important pests of farm, garden, and orchard; methods of control.

Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$2.00.

Ent 131, 132, 133. Commercial Bee Culture. Designed primarily for the student who contemplates taking up commercial honey production. The course includes a study of the selection and preparation of equipment; the biology and life-history of the honey-bee; honey flora; fall, winter, spring, and summer management; marketing; disease control.

Three terms; 3 credits each term; 2 recitations; 1 three-hour laboratory period. Fee \$2.00 each term.

Ent 201. Principles of Economic Entomology. Designed primarily for Agriculture students. A consideration of typical economic forms of insects in the principal orders and more important families, and of the principles of insect-pest control.

Prerequisite: Z 130. Any term; 3 credits; 3 recitations; 1 two-hour laboratory period. Fee \$2.00.

Associate Professors Chamberlin and Scullen.

Ent 231, 232, 233. Commercial Bee Culture. (Advanced.) Designed for students preparing for educational work in bee culture, inspection work, or

extensive honey production. The course includes a study of apiary management, queen rearing, apiary inspection and disease control. Offered alternate years. Not offered 1931-32.

Prerequisites: Ent 131, 132, 133; or Ent 333. Three terms; 3 credits each term; 2 recitations; 1 three-hour laboratory period. Fee \$3.00 each term. Associate Professor Scullen.

Ent 301. Entomological Field Work. Field work, performed between sophomore and junior years or between junior and senior years, in connection with some State or Federal service; a written report based on an approved outline. Spring, summer, or fall; for summer work registration should be made and fee paid before close of third term.

Prerequisite: Permission of instructor. Credits and fees to be arranged. Professor Mote.

Ent 303. General Entomology. Collection, preservation, and elementary classification of insects. In field collecting, the economic aspects are emphasized. Life-history studies in the field and laboratory receive attention.

Third term; 3 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$3.00. Associate Professor Scullen.

Ent 321. Principles of Forest Entomology. A general introduction to entomology for Forestry students. A survey of the forest losses due to insects, the groups responsible and a consideration of typical examples of the various groups and methods of prevention and control. Required of Forestry and Logging Engineering students.

First term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$2.00. Associate Professor Chamberlin.

Ent 322. Forest Entomology. An intensive study of insects injurious to forests and forest products, forest insect surveys, and the principles of forest insect control.

Prerequisite: Ent 321. Second term; 4 credits; 3 lectures or recitations; 1 two-hour laboratory period. Fee \$2.00. Associate Professor Chamberlin.

Ent 323. Forest Entomology. Continuation of Ent 322.

Prerequisite: Ent 322. Third term; 3 credits; 2 recitations or lectures; 1 three-hour laboratory period. Fee \$2.00. Associate Professor Chamberlin.

Ent 324. Entomology for Engineers. Designed to acquaint Engineering students, who will deal with timbers, lumber, and wood products, with the defects in wood caused by insects and how to combat them.

First or third term; 2 credits; 2 lectures or recitations. Fee \$1.00. Associate Professor Chamberlin.

Ent 333. Bee Culture. A practical course in actual apiary manipulations designed primarily for students interested in horticulture. The College has a small apiary where the simpler manipulations may be mastered.

Third term; 3 credits; 2 recitations; 1 three-hour laboratory period.
Fee \$3.00. Associate Professor Scullen.

Ent 351. Insect Morphology. A study of the fundamentals of external, internal, and comparative morphology of insects including adaptive structures and their utility, and wing venation. Especial attention is given to structures used in classification.

Prerequisite: Ent 201. Second term; 3 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$2.00. (g3) Professor Mote.

Ent 404. Economic Entomology. An intensive consideration of specific insect pests of farm, garden, and orchard particularly of the Pacific Coast, and their control; latest developments in insecticides and their uses.

Prerequisite: Ent 201. First term; 3 credits; 2 recitations or lectures; 1 two-hour laboratory period. Fee \$2.00. (g) Professor Mote.

Ent 405. Principles of Insect Control. Pests of special groups, such as fruit insects, truck crop insects, insects affecting man and animals, greenhouse and field crop insects; control measures and principles.

Any term; credits and hours to be arranged. Fee \$2.00. (G) Professor Mote.

Ent 423. Forest Entomology. (Advanced course.) An intensive study of the bark beetles injurious to forest trees.

Prerequisites: Ent 323 or equivalent. Any term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$3.00. (G) Associate Professor Chamberlin.

Ent 424. Forest Insect Problems. Research work on special problems relating to forest insect control; life-history problems; preparation of bibliographies, etc.

Prerequisite: Ent 323. Any term; credits and hours to be arranged. Fee \$3.00. (G) Associate Professor Chamberlin.

Ent 451. Insect Morphology. Anatomy, histology, embryology, and postembryological development of insects, with technique in histological methods as applied to insects.

Prerequisite: Ent 351. Any term; credits and hours to be arranged. Fee \$2.00. (G) Professor Mote, Associate Professor Scullen.

Ent 452. Insect Taxonomy. The collection, preservation, and classification of insects of the several orders; intensive study of insects of selected groups; attention to phylogenetic relationships and distribution.

Prerequisite: Ent 351. Second term; 5 credits; 2 recitations; 3 two-hour laboratory periods. Fee \$3.00. (G) Associate Professors Chamberlin and Scullen.

Ent 453. Insect Ecology. A study of insects in relation to their surroundings, considering the interrelations of insects with each other and with other animals and plants; influence of climate and other natural

phenomena upon the distribution and activities of insects and application of these factors to economic entomology.

Prerequisite: Ent 303 or 201. *Second term; 5 credits; 2 recitations; 2 three-hour laboratory periods. Fee \$3.00. (g) Associate Professor Scullen.

Ent 454. **Insect Taxonomy.** Identification and classification of special groups of insects with practice in collection, preparation, and technique involved.

Prerequisite: Ent 452. Any term; credits and hours to be arranged. Fee \$3.00. (G)

Ent 461, 462, 463. **Special Studies.** For students specializing in entomology. Investigation of special problems or advanced studies not included in regular courses.

Three terms; credits, hours, and fees to be arranged.

Professor Mote, Associate Professor Chamberlin,
Assistant Professor Scullen.

Ent 481, 482, 483. **Seminar.** Reading, discussing, and abstracting of the leading articles on entomological topics as they appear in current scientific literature. May be repeated for additional credit without duplication.

Three terms; 1 credit each term. (G)

Ent 691, 692, 693. **Graduate Study and Research.** For graduate students. Students select problems in applied entomology; problems in insect ecology, taxonomy, or morphology; emphasis on methods in research.

Three terms; credits to be arranged. (G)

Ent 694, 695, 696. **Graduate Thesis.** Prosecution of special studies by graduate students and preparation of thesis for advanced degree.

Three terms; credit to be arranged. (G)

History

A KNOWLEDGE of history is fundamental to intelligent citizenship. Courses in History are required in Commerce, Home Economics, Industrial Arts, and Vocational Education and are elective in other curricula of the College. The instruction is given largely by lectures and discussions supplemented by the reference facilities of the College Library.

NOTE: The courses in History are arranged in numerical order within the following groups: American History, European and World History.

COURSES IN AMERICAN HISTORY

Hst 224. **North American Colonization.** A course dealing with the colonization of North America by the various European nations, with

emphasis on the economic, social, and cultural life of the colonies to the close of the Revolution.

First term; 3 credits; 3 recitations. Assistant Professor Ellison.

Hst 225. U. S. History: Early National Period (1789-1865). Political, constitutional, and economic history of the United States from the Revolution to the close of the Civil War.

First term; 3 credits; 3 recitations. Professor Horner.

Hst 226. Recent History of the United States (1865-1931). History of the United States of America from the Civil War to the present time. Various contemporary movements are discussed.

Second or third term; 3 credits; 3 recitations.

Professor Horner, Assistant Professor Ellison.

Hst 240. History of Oregon. Includes history of Old Oregon now known as the Northwest States. Five epochs: early exploration; fur trade and colonization; provisional government; territorial government; state government. Indian folk-lore; history of Oregon literature.

Any term; 3 credits; 3 recitations.

Professor Horner.

Hst 351. Representative Americans. A study of American leaders of thought and action, as revealed in critical periods of the nation's history.

Prerequisite: Hst 225 or 226. Second term; 3 credits; 3 recitations.

Assistant Professor Ellison.

Hst 421. American Diplomatic History. History of the chief events and developments in American foreign affairs.

Prerequisite: Hst 225 or 226. Third term; 3 credits; 3 recitations. (g&)

Assistant Professor Ellison.

COURSES IN EUROPEAN AND WORLD HISTORY

Hst 211. History of Western Civilization I. A survey of the beginnings and development of Western civilization from the later Roman Empire to the close of the Middle Ages, designed to meet the needs of students desiring a course in early European history.

Any term; 3 credits; 3 recitations.

Hst 212, 213. History of Western Civilization II, III. European development and expansion from 1500 to the present, emphasizing the more fundamental movements of the period. Political, social, and economic Europe with special reference to present-day conditions and problems.

Any two terms; 3 credits each term; 3 recitations. Fee \$0.25 each term.

Associate Professor Vaughn, Assistant Professors Ellison and Giddens.

Hst 213a. Contemporary World Civilization. Similar to Hst 213 but designed for students who do not take Hst 212 or 213 in their regular course.

First term; 3 credits; 3 recitations.

Hst 320. Historical Background of the Bible. A study of Hebrew history and civilization with particular reference to its Oriental and Graeco-Roman background.

First term; 3 credits; 3 lectures or recitations.

Associate Professor Vaughn.

Hst 323. History of Greece and Rome. Survey of ancient Greek and Roman institutions and culture as a basis for the interpretation of the modern world.

Third term; 3 credits; 3 recitations or lectures.

Hst 331. History of Latin America. A study of the rise and progress of the Latin American nations.

Third term; 3 credits; 3 recitations.

Assistant Professor Ellison.

Hst 361. Pacific Ocean Area: China and Japan. The activities of European peoples and of the United States in the Pacific Ocean and in the Far East, together with a consideration of the history, civilization, and problems of China and Japan.

Third term; 3 credits; 3 recitations. (g§) Assistant Professor Ellison.

Hst 371. Constitutional History of England. Survey of English political, constitutional, and legal development as a basis for the understanding of modern government and law.

Prerequisites: Hst 212, 213. Second term; 3 credits; 3 recitations.

Assistant Professor Giddens.

Hst 411. History of the British Empire. A study of the historical development and present-day problems of England and the British Empire, with special reference to the Europeanization of the world.

Prerequisite: Hst 212 or 213. Third term; 3 credits; 3 recitations. (g§)

Assistant Professor Giddens.

Hst 431. World War and Reconstruction. The War and the problems of reconstruction in the light of their historical antecedents and causes, studied with reference to the evaluation of current events and sources. Readings, reports, conferences.

Prerequisites: Hst 212, 213. Third term; 3 credits; 3 recitations.

Associate Professor Vaughn.

Mathematics

MATHEMATICS constitutes an important part of the basic instruction in all Engineering curricula, including Civil, Electrical, Mechanical, Chemical, Mining, and Military Engineering, as well as Industrial Arts; it is also a required subject in Agriculture, Commerce, and Forestry, and elective in other schools.

DESCRIPTION OF COURSES

Mth 101a. Mathematical Theory of Interest. Simple and compound interest, relation between nominal and effective rates, present worth and discount, logarithms, series and annuities.

Prerequisite: two units of high school mathematics, one of which must be algebra. Any term; 2 credits; 3 recitations. Fee \$0.50.

Mth 101b. Mathematical Theory of Interest. Laboratory instruction on calculating machines. To be taken in conjunction with Mth 101a.

Any term; 1 credit; 1 two-hour laboratory period.

Mth 102. Mathematics of Investment. Applications of the mathematical theory of interest and annuities to the amortization of interest-bearing debts, the valuations of bonds and other securities, sinking funds, depreciation, the operations of building and loan associations, and the Federal Land Bank System.

Prerequisite: Mth 101. Any term; 3 credits; 3 recitations. Fee \$0.50.

Mth 103. Mathematics of Statistics. An elementary mathematical treatment of graphic representation of data, frequency distributions and curves, averages, index numbers, measures of dispersion and correlation.

Prerequisites: Same as for Mth 101a. Any term; 3 credits; 3 recitations. Fee \$0.50.

Mth 104. Calculating Machine Course. Instruction given on standard types of calculating machines with a view to practical office work.

Prerequisite: Mth 101. Third term; 3 credits; 6 one-hour laboratory periods.

Mth 113. College Algebra. For Forestry freshmen.

First term; 4 credits; 4 recitations. Fee \$0.25.

Mth 121. Trigonometry. For Forestry freshmen.

Second term; 4 credits; 4 recitations.

Mth 122. Trigonometry. This course includes functions of an acute angle, right triangle, functions of any angle, relations between the functions; trigonometric equations, and oblique triangles.

Any term; 5 credits; 5 recitations. Fee \$0.25.

Mth 133. Mathematics of Statistics. Similar to Mth 103. For Forestry students only.

Prerequisite: Mth 113. Third term; 4 credits; 4 recitations. Fee \$0.50.

Mth 134, 135. College Algebra and Analytic Geometry I, II. For Engineering freshmen who enter without trigonometry. With Mth 122 these two terms constitute a three-term series.

Second and third terms; 5 credits each term; 5 recitations.

Mth 137, 138, 139. **Unified Mathematics.** For Engineering students who enter college with a satisfactory knowledge of trigonometry. After a brief review of trigonometry the essential features of the work commonly covered in separate courses in college algebra and analytic geometry are covered, with the addition of certain parts of differential calculus.

Three terms; 5 credits each term; 5 recitations. Fee \$0.25 first term.

Mth 201, 202, 203. **College Mathematics I, II, III.** These courses include portions of plane trigonometry, selected topics in advanced algebra, and a considerable amount of the elementary portions of the calculus, comprising a coherent year-course in college mathematics. Primarily, the aim is preparation for advanced work in applied mathematics, statistics, insurance, biology, and economics. But in both subject-matter and methods of presentation the cultural value of mathematics is by no means neglected.

Prerequisite: $2\frac{1}{2}$ units of high school mathematics or 2 units of high school and one term of college mathematics. Three terms; 3 credits each term; 3 recitations.

Mth 251. **Differential Calculus.** Differentiation; simple applications of the derivative; successive differentiation; maxima and minima; points of inflection; curve tracing; differentials; rates.

Any term; 4 credits; 4 recitations. Fee \$0.25.

Mth 252, 253. **Integral Calculus I, II.** Standard forms of integrations; integration of trigonometric differentials; constant of integration; the definite integral; integration of rational fractions. Integration by rationalization; integration as a process of summation with applications; successive integration.

Any two terms; 4 credits each term; 4 recitations.

Mth 254, 255, 256. **Differential and Integral Calculus I, II, III.** For Engineering students who entered with a satisfactory knowledge of trigonometry.

Three terms; 4 credits each term; 4 recitations. Fee \$0.25 first term.

Mth 301, 302. **Mathematics of Statistics I, II.** The collection and tabulation of data; graphic representation of data, frequency distributions, averages, standard deviation, correlation, curves of regression and probable error of mean. For students taking Economics, Biology, Vocational Education, or Farm Management.

Prerequisite: Mth 203 or equivalent. First and second terms; 3 credits each term; 3 recitations. (g)

Mth 303. **Mathematics of Insurance.** (Advanced Course.) This course deals with the mathematical calculations involved in actuarial theory and investment problems from an insurance standpoint.

Prerequisite: Mth 203. Third term; 3 credits; 3 recitations. (G)

Mth 361. **Differential Equations.** Study of the solution of ordinary and partial differential equations which the Engineering student is likely to encounter.

Prerequisite: Mth 253. First or third term; 4 credits; 4 recitations. (g)

Mth 381. **Hyperbolic Functions.**

Prerequisite: Mth 361. Third term; 3 credits; 3 recitations. (g)

Modern Languages

THE department of Modern Languages offers instruction in French, German, and Spanish. A certain amount of specified work in a language is definitely required in some curricula. In other curricula German, French, and Spanish may be taken as electives, and when so taken the student receives full credit for any term's work. Students who have had one year's work in high schools should register for the third term of Elementary classes. Students who have had two years' work in high schools register for the first term of Intermediate classes. All students who have had more than two years' work should confer with the head of the department before registering.

COURSES IN FRENCH

ML 111, 112, 113. **Elementary French.** Drill in the rudiments of the language; oral and written exercises; idiomatic translations; reading of easy selections.

Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 211, 212, 213. **Intermediate French.** Reading, oral and written exercises on texts read; grammar.

Prerequisites: ML 111, 112, 113, or equivalent. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 311, 312, 313. **French.** (Advanced.) Reading of appropriate miscellaneous texts with corresponding composition and conversational exercises.

Prerequisites: ML 211, 212, 213, or equivalent. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term. (g $\frac{3}{2}$)

COURSES IN SPANISH

ML 121, 122, 123. **Elementary Spanish.** Essentials of grammar; auxiliaries, regular and radical changing verbs, and some of the more common irregular forms; reading of easy prose selections; idiomatic translations; much oral drill.

Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 221, 222, 223. **Intermediate Spanish.** Grammar continued; irregular verbs; subjunctive mode in all its uses; idiomatic phrases; social and epistolary forms; reading of suitable texts; oral and written exercises.

Prerequisites: ML 121, 122, 123, or equivalent. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 321, 322, 323. **Spanish.** (Advanced.) Reading of literary and commercial texts; commercial correspondence; descriptive and technical prose; much oral practice.

Prerequisites: ML 221, 222, 223, or equivalent. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term. (g§)

COURSES IN GERMAN

ML 131, 132, 133. **Elementary German.** Rudiments of the language; oral and written exercises; reading of easy connected texts.

Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 231, 232, 233. **Intermediate German.** The harder part of grammar. Reading of connected intermediate texts.

Prerequisites: ML 131, 132, 133, or equivalent. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term.

ML 334, 335, 336. **Rapid Reading in German.** Rapid reading of advanced literary and scientific texts.

Prerequisites: ML 231, 232, 233. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 first term. (g§)

Physics

SPECIAL effort is made in the department of Physics to adapt each course to the needs of those enrolled in it. To attain this end the work in general physics has been subdivided into several courses that suit the needs of the various technical schools of the College. These courses all cover the customary range of subjects: mechanics, sound, heat, light, electricity and magnetism, and all naturally emphasize the same fundamental principles; they differ in the relative amounts of time devoted to the several subjects and in the practical applications that are studied.

The advanced courses are built up on the same general scheme as the general courses; each emphasizes the fundamental principles in its field and puts stress upon practical applications both in lecture and in laboratory.

Equipment. The department has modern, specially designed laboratories, classrooms, and offices in the Physics Building. A good supply of lecture demonstration apparatus and of general laboratory apparatus enables students to verify quantitatively the most important laws, to determine accurately some of the physical properties of substances, and also to obtain practice in the use and care of the common measuring instruments. For advanced work, the department is well equipped in electrical, thermal and optical measurements, photography, and radio communication.

In the general library are many recent physics texts and allied works, as well as a number of physics periodicals, which are available to all.

DESCRIPTION OF COURSES

Ph 101, 102, 103. **Engineering Physics.** A course in general physics adapted to students in Engineering.

Three terms; 3 credits each term; 1 lecture; 2 recitations; 2 one-hour laboratory periods. Fee \$3.00 each term.

Ph 111, 112, 113. **General Physics.** A course in general physics adapted to students who present college-entrance credit in algebra and geometry.

Three terms; 3 credits each term; 2 lectures; 2 recitations; 1 two-hour laboratory period. Fee \$3.00 each term.

Ph 163. **Rudiments of Photography.** A manipulation course intended for students in Landscape Architecture and others not having the science prerequisites for Introductory Photography (Ph 361).

First or third term; 2 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$4.00.

Ph 200. **General Physics.** A brief descriptive course with such applications as are of greatest interest to students in Home Economics.

Third term; 5 credits; 3 lectures; 2 recitations; 2 two-hour laboratory periods. Fee \$6.00. Mr. Yunker.

Ph 243. **Descriptive Astronomy.** A brief elementary course covering the most important points relating to the heavenly bodies. Descriptive rather than mathematical in character.

Third term; 3 credits; 3 recitations or their equivalent in lectures and observational work, depending upon weather conditions. Fee \$2.00. Professor Anderson.

Ph 311, 312, 313. **Engineering Physics.** (Advanced.) A second-year course emphasizing measurements in electricity, light, and heat.

Prerequisite: Ph 103 or equivalent. Three terms; 3 credits each term; 1 lecture, 2 two-hour laboratory periods. Fee \$4.00 each term. Mr. Drill.

Ph 314. **General Physics.** Continuation of Ph 111, 112, 113.

Prerequisites: Ph 111, 112, 113. First term; 3 credits; 2 lectures; 2 recitations; 1 two-hour laboratory period. Fee \$3.00.

Ph 353. **Radio Communication.** Theory of radio transmission and reception. Radio-frequency and audio-frequency measurements.

Prerequisite: Ph 103 or equivalent. First or third term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$3.00. Associate Professor Jordan.

Ph 361. **Introductory Photography.** A course designed to acquaint the student with photographic processes. Emphasis is placed upon the theoretical as well as the practical side of the subject. Students are taught the proper use of the hand camera in negative making, certain positive process-

es, enlarging, lantern-slide making, the preparation of different stock solutions, etc.

Prerequisites: College physics and chemistry. Any term; 3 credits; 1 lecture; 1 recitation; 2 two-hour laboratory periods. Fee \$5.00.

Mr. Garman.

Ph 362. **Commercial Photography.** A continuation of Ph 361 with emphasis on commercial work. The work includes such topics as copying, flashlights, interiors, photo-microscopy, the air-brush, blocking negatives, the uses of contrast filters, making of multiple-plate panoramas, photographing furniture and various other commercial articles, coloring, etc.

Prerequisite: Ph 361. Second term; 3 credits; 1 lecture; 1 class discussion; 2 two-hour laboratory periods. Fee \$5.00.

Mr. Garman.

Ph 363. **Pictorial Photography.** A continuation of Ph 361 with emphasis on pictorial work, soft-focus landscape work, and special work in enlarging. A study is made of the various pictorial mediums such as carbon, platinum, bromoil, etc.

Prerequisite: Ph 361. Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$5.00.

Mr. Garman.

Ph 431. **Acoustics.** A study of the acoustics of buildings.

Prerequisite: Ph 103 or equivalent and calculus. Third term; 2 credits; 2 periods. (g)

Assistant Professor Morgan.

Ph 452. **Radio.** (Advanced course.) An intensive study of the thermionic vacuum tube and phenomena related thereto.

Prerequisites: Ph 353 and calculus. Second term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$3.00. (g)

Associate Professor Jordan.

Ph 461. **Color Photography.** A study of the chief processes of color photography; intended to be of assistance in special phases of botany, horticulture, entomology, photomicrography, clinical photography, etc.

Prerequisites: Ph 361. First term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$5.00. (g)

Mr. Yunker.

Ph 462. **Photography.** (Advanced course.) Special work in photography for students who have taken all the other courses in this subject and desire additional training and assistance. Suggested topics include retouching, use of the air-brush, large prints, home portraiture, illumination, photomicrography.

Prerequisite: Ph 361. Second term; three credits; 1 lecture; 1 class discussion; 2 two-hour laboratory periods. Fee \$6.00. (g)

Mr. Garman.

Ph 472. **The Physics of Light Production.** A course on radiation and the development of modern illuminants.

Prerequisite: Ph 103 or equivalent and calculus. Third term; 3 credits; 2 recitations; 2 two-hour laboratory periods. Fee \$3.00. (g)

Professor Weniger.

Ph 481, 482. **Recent Developments in Electricity.** A course embodying some of the recent electrical discoveries that are of interest to the engineer, but that are not discussed in any of the courses in Electrical Engineering.

Two terms; 3 credits each term; 2 lectures; 1 two-hour laboratory period. Fee \$3.00 each term. (g)

Professor Weniger.

Ph 611, 612, 613. **Seminar.** A discussion of current literature and special topics.

Three terms; 1 credit each term; 1 period. (G)

Ph 614. **Physical Measurements.** A course in those physical measurements that are of special value to graduate students in the various technical schools. The particular field covered will depend upon the class.

Any term; 3 credits. Fee \$3.00. (g)

Ph 691, 692, 693. **Graduate Study and Research.** Special problems in applied physics.

Three terms; credits to be arranged. (G)

Ph 694, 695, 696. **Graduate Thesis.** Special problems in applied physics.

Three terms; credits to be arranged. (G)

Public Speaking and Dramatics

THE purpose of this department is to aid students in the development of clear, original thinking and to give training in the correlation, organization, and public presentation of knowledge gained through study and experience. Much drill and criticism are given on organization of material, on platform work, and on the principles that underlie effective reading and speaking. The training goes far in helping to overcome self-consciousness and in aiding to build up a strong personal address.

The department offers not only courses that are designed to develop an appreciation of the best in reading and speaking, but also courses that are planned to suit the practical needs of the student. While the work is adapted to the student who must get a maximum of platform experience in a few months, the courses are so correlated that one may obtain progressive training covering a period of four years if he so desires.

Many plays, intramural and intercollegiate debates, extempore speaking, and oratorical contests take place on the campus each year, and the department offers courses and much individual attention to students who wish to prepare for such work.

Courses in this department are required in a number of technical curricula. Such training is regarded as of great value to all students preparing

for leadership in any field, including prospective teachers of vocational subjects, agricultural agents, home demonstration agents, club leaders, homemakers, and others.

Speech Correction. The department maintains a clinic for those who are handicapped with the various speech impediments, such as stammering, lispng, nasality, and the like. Advice and treatment are given for both organic and functional difficulties. An attempt is made to understand the factors in the life of the individual which have caused his emotional difficulties, and when they are located an attempt is made to eradicate them. For each student wishing to take this work individual conferences are given during which his speech difficulties receive special consideration.

DESCRIPTION OF COURSES

PSp 254, 255, 256. **Extempore Speaking.** First term: practice in the development and presentation of speeches on topics of special interest to the students; voice training; vocabulary building and pronunciation; some study of gesture, bearing, and elements of effectiveness in presentation; criticism on organization of material; organization is stressed. Second term includes practice in the construction and presentation of original speeches; voice training, and study of gesture and elements of effectiveness in delivery, criticism on organization and presentation; delivery is stressed. Third term: intensive drill in the technique of delivery, with a consideration of occasional speeches.

Any three terms; 3 credits each term; 3 recitations. Fee \$0.25 each term. Professor Mitchell, Associate Professor Wells, Messrs. O'Konski, Dahlberg, Young, and Knoll.

PSp 257. **Speech Composition.** Text-book work, study of models, lectures, composition exercises, the writing of a term speech. This course is maintained as an aid to a mastery of effective style in speaking. It is recommended that students take PSp 255 before electing this course.

Prerequisite: PSp 254. Any term; 3 credits; 3 recitations. Fee \$0.25.
Mr. O'Konski.

PSp 264, 265, 266. **Interpretation.** Practice in the interpretation of different types of literature; literary analysis; pantomime; diction; correct breathing; voice training; correction of erroneous habits of speech; overcoming artificiality, affectation and self-consciousness. In the first term interpretation of narrative literature and outline analysis of material are stressed; in the second term, monologue and other types of impersonation including the dramatized story; in the third term the interpretation of poetry, psychology of the audience, expressive voice.

PSp 264, 265 any two terms, PSp 266 third term only; 3 credits each term; 3 recitations. Fee \$0.25 each term.

Associate Professor Barnes, Mr. Young.

PSp 267. **Story Telling.** Study of children's literature; analysis and retelling of short stories suitable for nursery, kindergarten, and primary

grades, intermediate grades, and playground; dramatization of stories. It is recommended that students take as prerequisites PSp 264, 265. Offered alternate years. Not offered 1931-32.

Third term; 2 credits; 2 recitations. Fee \$0.25.

Associate Professor Barnes.

PSp 268. Story Telling. Continuation of PSp 267. Offered 1931-32.

One term; 2 credits; 2 recitations. Fee \$0.25.

Associate Professor Barnes.

PSp 350. Parliamentary Drill. This course covers the history and principles of parliamentary usage and gives each student an opportunity to serve as chairman and secretary of several meetings during the term. Much practice is afforded in the presentation of motions and in impromptu speaking under the supervision of a critic. Assigned readings.

Any term; 3 credits; 3 recitations. Fee \$0.25.

Associate Professor Wells.

PSp 454. Argumentation. Consideration of the theory of argumentation; practical work in brief-drawing, collection and handling of evidence, and construction of the argumentative speech. Each student constructs several briefs and delivers several speeches. Criticism on presentation and construction.

Prerequisite: PSp 254. Any term; 3 credits; 3 recitations. Fee \$0.25. (g)

Professor Mitchell, Associate Professor Wells,
Messrs. Dahlberg and Knoll.

PSp 455, 456, 457. Debating. Application of the principles of argumentation to debating; analysis and brief-drawing. Each student participates in several debates. Criticism on delivery and on the selection and handling of evidence in both constructive argument and refutation. Assigned readings.

Prerequisites: PSp 254, 454. Three terms; 3 credits each term; 3 recitations. Fee \$0.25 each term.

Professor Mitchell, Messrs. O'Konski, Dahlberg, and Knoll.

PSp 458. Public Speaking. (Advanced Course.) Construction and presentation of the extended address. Each student prepares and presents several long speeches. The psychology of public speaking is considered. Criticism on delivery and organization of material. Assigned readings. Students should confer with the instructor before electing this course. Limited to ten students.

Prerequisites: PSp 254, 255. Third term; 3 credits; 3 recitations. Fee \$0.25. (g)

Professor Mitchell.

PSp 461. Dramatic Interpretation. Interpretation, cutting, arranging, and preparing plays for platform interpretation; work in voice, expressive body; platform art.

Prerequisites: PSp 264, 265, 266. Third term; 3 credits; 3 recitations. Fee \$0.25.

Associate Professor Barnes.

PSp 465, 466.* **Community Drama.** Designed to meet the needs of community leaders. The community drama idea; plays suitable for use in school or community; the staff; make-up; stage setting and costumes; modern tendencies in stage setting, costuming; directing and play production. Groups of one-act plays are produced at the end of the first term and a long play during the second term. Laboratory work in conducting rehearsals and producing plays. Students are given actual experience in producing plays effectively at little expense.

Prerequisites: PSp 264, 265, 266. PSp 465 first or second term, PSp 466 second or third term; 3 credits each term; 3 recitations; 3 periods laboratory work. Fee \$1.00 each term. (g) Associate Professor Barnes.

PSp 468. **Stagecraft and Lighting.*** In this course consideration is given to the problems involved in the construction of scenery and stage properties. A study is made of lighting and lighting equipment. Practical experience is gained in lighting, stage management, and the construction of different types of settings, including suggestive, and impressionistic.

Any term; 3 credits. Fee \$1.00. (g)

Mr. Young.

Zoology

COURSES in the department are adapted to the particular needs of students in Agriculture, Pharmacy, Home Economics, Vocational Education, and other schools. Opportunity is afforded for advanced study or research in the branches of zoology (see curriculum in School of Agriculture).

Equipment. The laboratories, museum, and offices of the department are situated on the third floor of Agriculture Hall. These are equipped with microscopes, charts, specimens, and other necessary materials for the efficient conduct of the work in zoology.

DESCRIPTION OF COURSES

Z 101, 102, 103. **General Zoology.** The fundamental problems of animal biology. During the third term, particular attention is paid to vertebrate organization.

Three terms; 3 credits each term; 2 lectures; 1 three-hour laboratory period. Fee \$2.00 each term.

Z 130. **Principles of Zoology.** The distribution, habits, and functions of animals with reference to their economic importance.

Second term; 5 credits; 3 lectures; 2 two-hour laboratory periods. Fee \$3.50.

Z 211, 212, 213. **Mammalian Anatomy.** Study of mammalian organization as a basis for the understanding of the human body. The laboratory

*For the course in Community Drama Stage Design, see department of Art.

work consists of some anatomy, histology, and embryology of a typical mammal.

Prerequisites: Z 101, 102, 103, or equivalent. Three terms; 3 credits each term; 2 lectures; 1 three-hour laboratory period. Fee \$2.50 each term.
Mr. Osborn.

Z 223. Economic Ornithology. A study of the birds of Oregon with emphasis on their importance as destroyers of organisms which are injurious to grains and fruits.

Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$1.50.
Assistant Professor Gordon.

Z 300. Histology. A study of the various tissues of animals with emphasis on mammalian structures. Training in micro-technique, killing, fixing, imbedding, sectioning, and mounting of tissues. Offered in alternate years, alternating with Z 310. Offered 1931-32.

Prerequisite: Z 103 or equivalent. First term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$2.50. (g)
Miss Benedict.

Z 310. Embryology. The development of animals, with special reference to the frog, chick, and pig. Offered in alternate years, alternating with Z 300. Not offered 1931-32.

Prerequisite: Z 103 or equivalent. First term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$2.50. (g)
Miss Benedict.

Z 321, 322. Elements of Human Physiology. The object of this course is to give the student a knowledge of the processes and anatomical relationships which are necessary in maintaining the highest efficiency of the human body.

Second and third terms; 3 credits each term; 2 lectures; 1 three-hour laboratory period. Fee \$2.50 each term.
Assistant Professor Gordon.

Z 351. Genetics. A lecture course dealing with the fundamental principles of variation and heredity as applied to animal and plant breeding.

Prerequisite: One term of botany or zoology, or equivalent. First term; 3 credits; 3 lectures. Fee \$0.50.
Professor Fasten.

Z 353. Evolution and Eugenics. A lecture course dealing with the various ideas concerning the origin, development, and relation of organisms, with emphasis on human welfare.

Second or third term; 3 credits; 3 lectures. Fee \$0.50. Professor Fasten.

Z 362. Animal Parasites. A study of the role played by the lower animals in the production of disease.

Prerequisite: Z 102 or 130, or equivalent. Third term; 3 credits; hours to be arranged. Fee \$2.00.
Mr. Owen.

Z 681, 682, 683. Zoological Seminar. Current problems in zoology. The instructional staff and advanced students in the department attend and

contribute original articles or abstracts of papers published in the current biological journals.

Three terms; 1 credit each term; 1 period. (G)

Z 691, 692, 693. **Graduate Study and Research.** Opportunity is given students to undertake, under the direction of one of the instructors in the department, advanced reading and special study in zoology related to various technical fields within the institution. Prerequisites, credits, etc., to be arranged by the instructor in charge, subject to the approval of the head of the department.

Three terms; credits to be arranged. (G)

Z 694, 695, 696. **Graduate Thesis.** Opportunity is given students to undertake, under the direction of one of the instructors in the department, the investigation of special problems in zoology related to various technical fields within the institution. Prerequisites, credits, etc., to be arranged by the instructor in charge, subject to the approval of the head of the department.

Three terms; credits to be arranged. (G)

Department of Chemical Engineering

CHARLES SAMUEL KEEVIL, Sc.D., Professor of Chemical Engineering.
ELZIE REED, M.S., Instructor in Chemical Engineering.

THE curricula offered by this department are designed to give a broad fundamental training to students who wish to prepare for a career in the field of chemical industry. Throughout the first two years all students in this department follow a common program of study, in which attention is given chiefly to the basic subjects of chemistry, mathematics, and physics. The student may then choose either Chemical Engineering or Industrial Chemistry.

The curriculum in Chemical Engineering includes mechanical and electrical engineering subjects, as well as courses dealing with the unit operations of chemical engineering. Upon the completion of this work, the student receives the degree of Bachelor of Science in Chemical Engineering.

The curriculum in Industrial Chemistry is intended for those students who wish to emphasize the chemical, rather than the engineering aspects of their training, and opportunity for this is provided through professional electives. Students who complete this curriculum receive the degree of Bachelor of Science in Industrial Chemistry.

The field covered by chemical industry is so broad that an undergraduate course can include only the fundamental principles. Students who wish to obtain a thorough preparation for work in this field are urged to extend their knowledge of chemistry and chemical engineering subjects by graduate work.

The study of German and French is recommended to all students, and it should be noted that a reading knowledge of at least one of these is commonly required for an advanced degree.

Graduate Study. A number of graduate courses are offered in which fundamental principles are applied to the solution of advanced problems on important phases of chemical engineering. The degree of Master of Science is conferred upon students registered in this department who satisfactorily complete a minimum of 48 credits, including the preparation of a suitable thesis, and who satisfy the other requirements specified by the Committee on Graduate Study.

Equipment. The laboratories devoted to the courses given by this department are well supplied with water, steam, gas, electricity, and com-

pressed air. An adequate supply of the usual reagents and chemical apparatus is on hand for laboratory courses and research in industrial chemistry. Additional laboratory space for work in chemical engineering proper has recently been provided, and considerable equipment is available, including many of the instruments commonly employed to obtain engineering data. In addition, a good supply of tools and materials is carried in stock for the construction of experimental apparatus, and full use of all facilities is encouraged.

Curricula in Chemical Engineering and Industrial Chemistry

B.S. Degree

	Term credits		
	1st	2d	3d
Freshman Year			
Chemical Engineering Survey (ChE 101, 102).....	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5
General Chemistry (Ch 104, 105, 106).....	5	5	5
Trigonometry (Mth 122), College Algebra and Analytic Geometry (Mth 134, 135).....	2	2	2
Linear Drawing and Lettering (GE 111), Mechanical Drawing (GE 112, 113).....	3	3	3
English Composition (Eng 101, 102, 103).....	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Physical Education, General Hygiene, Military Science.....	18	18	17 $\frac{1}{2}$

Sophomore Year

Engineering Physics (Ph 101, 102, 103).....	3	3	3
Qualitative Analysis (Ch 231), Quantitative Analysis (Ch 244, 245).....	5	5	5
Differential, Integral Calculus (Mth 251, 252, 253).....	4	4	4
Introduction to Economics (ES 391).....	3	3	3
National Government (PS 301).....	2	2	2
Industrial Organization and Management (BO 381).....	2	2	2
Physical Education.....	2	2	2
Military Science and Tactics.....	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

CHEMICAL ENGINEERING

Junior Year

Chemical Engineering (ChE 301, 302, 303).....	3	3	3
Organic Chemistry (Ch 322, 323).....	5	5	5
Physical Chemistry (Ch 381, 382, 383).....	3	3	3
Mechanics (MM 351, 352).....	3	3	3
Strength of Materials (MM 353).....	3	3	3
Industrial Chemistry (ChE 411).....	3	3	3
Electives.....	17	17	16

Senior Year

Chemical Engineering (ChE 401, 402, 403).....	5	5	5
Materials of Engineering (MM 311).....	3	3	3
Direct Currents (EE 251), Alternating Currents (EE 252).....	3	3	3
Undergraduate Research (ChE 491, 492, 493).....	1	1	1
Seminar (ChE 461, 462, 463).....	4	4	4
Industrial Chemistry (ChE 412, 413).....	3	3	3
Electives.....	19	17	15

INDUSTRIAL CHEMISTRY

	Term credits		
	1st	2d	3d
Junior Year			
Chemical Engineering (ChE 301, 302, 303).....	3	3	3
Organic Chemistry (Ch 322, 323), Organic Analysis (Ch 328).....	5	5	5
Industrial Chemistry (ChE 411).....	3	3	3
Physical Chemistry (Ch 381, 382, 383).....	3	3	3
¹ Professional Electives	3	3	3
Electives	3	3	3
	17	17	18
Senior Year			
Industrial Chemistry (ChE 412, 413).....	4	2	....
Seminar (ChE 461, 462, 463).....	1	1	1
Undergraduate Research (ChE 491, 492, 493).....	3	3	3
Chemical Thermodynamics (Ch 484).....	5	6	8
¹ Professional Electives	3	3	3
Electives	3	3	3
	16	15	18

Courses in Chemical Engineering and Industrial Chemistry

ChE 101, 102. **Chemical Engineering Survey.** A course of lectures for freshmen discussing the field of chemical engineering with reference to the training required and the opportunities presented.

First and second terms; $\frac{1}{2}$ credit each term; 1 lecture.

ChE 301, 302, 303. **Chemical Engineering.** An introductory course including a general treatment of the unit operations of chemical engineering; a study of apparatus and equipment, with particular reference to the chemical and physical properties of materials; the thermal properties of matter; energy relationships; and other topics leading up to the work of ChE 401, 402, 403.

Three terms; 3 credits each term; 2 lectures; 1 three-hour laboratory period. Fee \$5.00 each term. Deposit \$2.50 each term.

ChE 401, 402, 403. **Chemical Engineering.** A quantitative treatment of the unit operations of chemical engineering, involving the solution of numerous problems. The principles developed in the classroom are further illustrated by concurrent laboratory work.

Three terms; 5 credits each term; 2 lectures; 1 recitation; 2 three-hour laboratory periods. Fee \$5.00 each term. Deposit \$2.50 each term.

ChE 411, 412, 413. **Industrial Chemistry.** A three-term sequence, as follows: (1) A problem course in industrial stoichiometry, with lectures describing the industries and operations under consideration. (2) Continuation of lectures on industrial chemistry; laboratory work on the small-scale development of a chemical process, followed by plant layout and calculations showing the probable economic return. (3) Continuation of lectures on industrial chemistry.

¹Subject to approval of department head.

Three terms; ChE 411, 412, 4 credits each term; ChE 413, 2 credits; 2 lectures; 2 two-hour recitations for ChE 411, 1 recitation and 1 three-hour laboratory period for ChE 412. Fee \$5.00 second term. Deposit \$2.50 second term.

ChE 451. **Sanitary Chemistry.** Designed for Sanitary Engineering students. The treatment and disposal of waste products are studied.

First term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$3.00. Deposit \$2.00.

ChE 461, 462, 463. **Seminar.** Reports on current topics and reviews of the literature. Effective oral presentation of material is emphasized.

Three terms; 1 credit each term; 1 period.

ChE 491, 492, 493. **Undergraduate Research.** Consultation, library, and laboratory work. Training in the methods of conducting a scientific investigation.

Three terms; credits and hours to be arranged. Fee \$1.50 each credit. Deposit \$2.50 each term.

ChE 601. **Chemical Engineering.** A review of the principles covered in undergraduate courses, followed by advanced work. A problem course intended for graduate students who have already had a descriptive course in which the solution of problems was not emphasized.

First term; 4 credits. (G)

ChE 621. **Economic Balance.** The solution of typical chemical engineering problems in which emphasis is placed on economic considerations, including a determination of the optimum design from the point of view of cost and economic return.

Prerequisites: ChE 401, 402, 403. First term; 4 credits. (G)

ChE 632. **Diffusional Processes.** Development of the theory underlying such processes as absorption, distillation, drying, humidification, etc. Solution of problems including application of the theory to the design of equipment.

Prerequisites: Ch 401, 402, 403. Second term; 4 credits. (G)

ChE 642. **Chemical Engineering Design.** Calculations are made covering the design of a complete plant from the point of view of the chemical engineer. Economic factors and the properties of materials are taken into account.

Prerequisites: ChE 401, 402, 403. Second term; 4 credits. (G)

ChE 653. **Heat Transmission.** Development of the theory underlying the transmission of heat, with numerous problems including applications of fundamental principles to the design of typical heat-transfer equipment.

Prerequisites: ChE 401, 402, 403. Third term; 4 credits. (G)

ChE 663. **Applied Thermodynamics.** Applications of thermodynamics to the solution of typical chemical engineering problems.

Prerequisites: ChE 401, 402, 403. Third term; 3 credits. (G)

ChE 691, 692, 693. **Graduate Study and Research.** The investigation of problems in chemical engineering or industrial chemistry for an advanced degree.

Three terms; credits, hours, and fees to be arranged. (G)

ChE 694, 695, 696. **Graduate Thesis.** Research and preparation of a thesis for an advanced degree.

Three terms; credits and hours to be arranged.

School of Commerce

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

JOHN ANDREW BEXELL, M.A., Dean of the School of Commerce.

LEILA HAY, Secretary of the School of Commerce.

Business Organization and Operation

HERBERT TOWNSEND VANCE, M.S., Professor of Advertising and Selling.

ERNEST EVERTON BOSWORTH, A.B., C.P.A., Professor of Accounting.

LEE CLEVELAND BALL, M.B.A., Associate Professor of Accounting.

FRANK LESLIE ROBINSON, M.Acct., Associate Professor of Accounting. Sophomore Adviser for Men.

JAMES HAROLD IRVINE, M.B.A., Assistant Professor of Accounting.

CURTIS KELLEY, M.B.A., Assistant Professor of Accounting. Freshman Adviser for Men.

Commercial Education

LEE CLEVELAND BALL, M.B.A., Associate Professor of Commercial Education.

BERTHA WHILLOCK STUTZ, M.S., Associate Professor of Commercial Education.

MIRIAM EGAN SIMONS, M.A., Critic Teacher in Commercial Education.

Economics and Sociology

MILTON NELS NELSON, Ph.D., Professor of Economics.

NEWEL HOWLAND COMISH, Ph.D., Professor of Economics.

ALFRED SCHMIDT, Ph.D., Professor of Economics.

ELON HOWARD MOORE, Ph.D., Professor of Sociology.

WILLIAM HENRY DREESEN, Ph.D., Professor of Economics.

EDWARD BECKER MITTELMAN, Ph.D., Associate Professor of Economics.

ROBERT HORNIMAN DANN, M.A., Assistant Professor of Economics and Sociology.

EDWIN EVERETT WILSON, A.M., Assistant Professor of Economics and Sociology.

DELBERT RANSOM FRENCH, Ph.D., Assistant Professor of Economics.

MERCY JANE WHALEY, M.S., Instructor in Economics.

CHARLES SUMNER HOFFMAN, B.S., Teaching Fellow in Economics and Sociology.

Political Science

ULYSSES GRANT DUBACH, Ph.D., Professor of Political Science.

FRANK ABBOTT MAGRUDER, Ph.D., Professor of Political Science.

JEROME LLOYD LEMASTER, LL.B., M.A., Associate Professor of Political Science.
 *MERRITT MADISON CHAMBERS, M.A., Assistant Professor of Political Science.
 WILBUR POWELSON RIDDLESBARGER, A.M., Assistant Professor of Political Science.
 GUY SHIRK CLAIRE, Ph.D., Assistant Professor of Political Science.

Secretarial Training

HERBERT TOWNSEND VANCE, M.S., Head, Department of Secretarial Training;
 Professor of Advertising and Selling.
 BERTHA WHILLOCK STUTZ, M.S., Associate Professor of Secretarial Training.
 Freshman Adviser for Women.
 *MINNIE DEMOTTE FRICK, B.S., Assistant Professor of Secretarial Training.
 Sophomore Adviser for Women.
 LUCY MOORE WEESE, M.A., Instructor in Secretarial Training.
 LILLY MAGNHILD NORDGREN, B.S., Instructor in Secretarial Training.
 MAYBELLE RARDIN, A.B., Instructor in Secretarial Training.
 BERNICE PALMER HUTTON, B.S., Instructor in Secretarial Training.
 MADGE BERNICE COPPOCK, B.S., Instructor in Secretarial Training.

Special Lecturers

About twenty special lecturers, chiefly prominent business and professional men throughout the state, deliver addresses during the year. The lectures, which are usually held under the auspices of the College Chamber of Commerce, or one of the honor societies, are open to all students of the institution.

INSTRUCTION in Commerce at the College dates back even before 1868 when the State Legislature designated Corvallis College as the recipient of Oregon's land-grant funds as provided under the Morrill Act of 1862. In the catalogue of the College for 1867-68, courses in political economy, political science, and accounting were announced. When the College became a State institution in conformity with the requirements of the Morrill Act, the courses in commercial training were continued and developed. In 1898 a regular two-year course was established. In 1900 the courses were extended to regular degree work. In 1908 the School of Commerce was established.

Departments. For administrative purposes the School of Commerce has been organized into five distinct departments. Two of these are departments primarily for foundational instruction: (1) Economics and Sociology and (2) Political Science. In the department of Economics and Sociology, in addition to the basic courses, advanced technical and professional training, including graduate work, is offered in agricultural economics and rural sociology. The other three departments are for technical and professional training: (3) Business Organization and Operation,

*On leave of absence.

(4) Secretarial Training, and (5) Commercial Education. The department of Commercial Education is administered jointly by the schools of Commerce and Vocational Education.

Objectives. The needs of the industries of the community, state and nation are an essential part of the motive for a wider education in commerce. The relations of business and industry are vital and complex. The Oregon State School of Commerce, as one of a group of technical schools, is especially well situated to give training for a business career. Students pursuing such training at the College are associated with other students preparing for professional service in agriculture, engineering, forestry, home economics, industrial chemistry, mines, and pharmacy. In view of the close interdependence of business with all these vocations, the curricula of the College have been so constructed as to insure effective correlation of the work of the School of Commerce with that of the other technical schools. Since prospective business men will have contacts with industry, it is deemed important for the Commerce student to develop an understanding of industrial problems. Consequently, provision is made that students majoring in Commerce may take a minor in one of the other schools of the College.

Similarly, since there is a business side to every vocation, provision is made for students majoring in other schools to choose from a liberal range of electives in the several departments of the School of Commerce.

The School of Commerce provides instruction for five distinct groups of students:

(1) Candidates for the bachelor's degree in Commerce preparing for leadership in business, industry and finance. Such students require thorough technical training correlated with cultural and basic subjects, especially in the social sciences.

(2) Undergraduate and graduate students pursuing specialized training in agricultural economics and rural sociology.

(3) Prospective teachers of commercial subjects in colleges and secondary schools.

(4) Students in all schools of the College pursuing various required or elective subjects in Commerce departments, including students pursuing a minor in Commerce.

(5) Students who cannot take a full four-year college course but desire combined business and cultural training such as can be obtained in a collegiate school of business. The courses in the freshman and sophomore years are so arranged as to afford a complete two-year training in the vocational aspects of business with due emphasis on the basic arts and sciences.

The Bachelor's Degree. For a bachelor's degree in the School of Commerce, a total of 207 college credits must be completed by men and 192 by women. Every candidate for a degree must meet the requirements for the major in Commerce, including 36 credits in Business Organization and Operation and Secretarial Training, 32 credits in Economics and Sociology, and 28 credits in Political Science. Recognizing the complexity and diversi-

ty of modern business and industrial life, as well as the wide range of interests and needs of students, the curriculum has been made as flexible as possible. It is important that students be so guided that they will be prepared for definite rather than general service in the business world; they are therefore urged to make early selection of some definite occupational objective. Lower classmen may emphasize accounting, salesmanship, or secretarial studies, the last including stenography and office practice. In the junior year, the student may begin specialization in one of the following: (1) Accounting and Management, (2) Advertising and Selling, (3) Agricultural Economics, (4) Banking and Finance, (5) Commercial Education, (6) Economics and Sociology, (7) General Business, (8) Government and Business Law, (9) Markets and Marketing, (10) Real Estate, (11) Secretarial Training. Certain of these programs allow a number of electives in order to complete the minimum requirements in the several departments. These electives are to be chosen in the respective fields. Except those specializing in Agricultural Economics or Commercial Education (see the several curricula which follow), students must complete before graduation credits as follows:

	Term Credits	
	Men	Women
Business Organization and Operation and Secretarial Training.....	36	36
Economics and Sociology.....	32	32
Political Science.....	28	28
English Composition.....	9	9
General English or Modern Language.....	9	9
Mathematics (except in Secretarial Training).....	9	9
Biologic or Physical Science.....	9	9
History.....	0	9
Home Economics (see footnote ³ on page 225).....	0	9
Physical Education.....	2½	9
Military Science and Tactics.....	11	0
Principles of Dietetics.....	0	1
Social Ethics.....	0	½
General Hygiene.....	1½	1½
Electives.....	51	30
Total.....	207	192

In the junior and senior years the work of the student is directed by his respective group adviser. For Science Combinations, see pages 234-235.

The requirements for the Junior Certificate in Commerce at the end of the sophomore year are:

For Men.....	102 credits
For Women.....	90 credits

Such credits must be applicable toward graduation and of such quality that grade points shall at least equal the number of credits.

Graduate Curriculum in Agricultural Economics and Rural Sociology. Course sequences leading to the degree of Master of Science in Agricultural Economics and Rural Sociology are outlined especially for graduate students. The aim is to make the graduate work in this field fit students for positions as county agriculturists, positions in the United States Department of Agriculture, especially in the Bureau of Markets, teachers in colleges and rural high schools, and for rural leadership in general. Students are also prepared for civil service examinations in this general field.

Preparation for Teaching. Exceptional facilities are offered for prospective teachers of commercial education. A state certificate to teach in

Oregon high schools is awarded to graduates who complete not less than 23 credits in Education. Students majoring in Commerce may take a minor in Education to the extent of not less than 23 credits, or students majoring in the School of Vocational Education may minor in Commerce to the extent of not less than 18 credits.

Facilities. Commerce Hall, described elsewhere, is a modern commodious structure especially designed for executive offices and for departments related to administration and commerce, affording superior facilities for instruction and administration. The most approved methods of heating, lighting, ventilation and sanitation are employed. The building is equipped with a variety of the most modern office appliances.

Fees. A fee of \$5.00 a term, or \$15.00 a year, is required of all students in Commerce, this fee covering all course and laboratory fees in Commerce subjects. Students registered in other schools who pursue courses in the School of Commerce pay fees as indicated in connection with the various courses.

Curricula in Commerce

B.S. Degree

PROGRAMS FOR FRESHMEN AND SOPHOMORES

PROGRAM 1

Freshmen expecting to emphasize Accounting and Management, Agricultural Economics, Banking and Finance, Economics and Sociology, General Business, Government and Business Law, Markets and Marketing, or Real Estate, take either Program 1 or Program 2.

Freshman Year	Term credits—		
	1st	2d	3d
¹ Principles of Accounting (BO 101, 102, 103).....	3	3	3
Mathematical Theory of Interest (Mth 101a, 101b).....	3	---	---
Mathematics of Investment (Mth 102).....	---	3	---
Mathematics of Statistics (Mth 103).....	---	---	3
English Composition (Eng 101, 102), Business English (Eng 105).....	3	3	3
² Commercial Geography (ES 101).....	4	---	---
² Economic Development of the United States (ES 105).....	---	4	---
² The History of Western Civilization II (Hst 212).....	---	---	3
Typing (ST 111, 112, 113) (Optional).....	2	2	2
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
Physical Education (Women).....	(1)	(1)	(1)
Social Ethics (PE 121), General Hygiene (H 110), Principles of Dietetics (FN 200) (Women).....	(½)	(1½)	(2)
	17½	17½	16½

¹Students who have had at least one year of Accounting may register for BO 102 the first term and BO 103 the second term.

²Options in Home Economics may be substituted. Women are required to take before graduation 9 credits in Home Economics. These credits must be 3 each in Household Administration, Clothing and Textiles, and Foods and Nutrition. The following courses are suggested: FN 201, 3 credits; CT 218, 3 credits; HAd 225, 3 credits.

	Term credits—		
	1st	2d	3d
Sophomore Year			
Corporation Accounting (BO 201, 202).....	3	3	3
Analysis of Financial Statements (BO 203).....	.....	.....	3
Business Law (PS 201, 202).....	4	4	4
Principles of Economics (ES 205, 206).....	.....	4	4
History of Western Civilization III (Hst 213).....	3	.....	.....
Recent History of United States (Hst 226).....	.....	.....	3
English or American Literature, or Modern Language.....	3	3	.....
Public Speaking or Modern Language.....	.....	.....	3
Office Methods and Appliances (ST 251, 252, 253) (Optional).....	2	2	2
Physical Education (Men).....	$\frac{3}{2}$	$\frac{3}{2}$	$\frac{3}{2}$
Physical Education (Women).....	(1)	(1)	(1)
Military Science and Tactics.....	2	2	2
	17 $\frac{1}{2}$	18 $\frac{1}{2}$	17 $\frac{1}{2}$

PROGRAM 2**Freshman and Sophomore Years**

Students who desire to pursue a more general course in their freshman and sophomore years should follow Program 1, but substitute Eng 103 for Eng 105; also substitute Mth 201, 202, 203 for Mth 101a, 101b, 102, 103. Programs should be arranged in consultation with the respective advisers. Students should not register in this program without 2 $\frac{1}{2}$ units of high school mathematics to pursue Mth 201.

PROGRAM 3**Freshman and Sophomore Years**

Students who intend, in their junior and senior years, to specialize in Advertising and Selling, follow Program 1, but take BO 141, 142, 143 instead of Mth 101 a, b, Mth 102, 103 in their freshman year; and in their sophomore year take Mth 101 a, b, Mth 102, 103 instead of BO 201, 202, 203.

PROGRAM 4

This program is arranged for those who intend to emphasize Secretarial Training and related subjects from the start.

	Term credits—		
	1st	2d	3d
Freshman Year			
Stenography (ST 101, 102, 103).....	3	3	3
Typing (ST 111, 112, 113).....	2	2	2
English Composition (Eng 101, 102), Business English (Eng 105).....	3	3	3
¹ Economic Development of the United States (ES 105).....	4	.....	.....
¹ History of Western Civilization II, III (Hst 212, 213).....	3	3	.....
² Commercial Geography (ES 101).....	.....	.....	4
Clothing Selection and Construction (CT 218) (Women); or elective (Men).....	.....	3	.....
Recent History of the United States (Hst 226).....	.....	.....	3
Physical Education, General Hygiene, Military Science (Men).....	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Physical Education (Women).....	(1)	(1)	(1)
Social Ethics (PE 121), General Hygiene (H 110), Principles of Dietetics (FN 200) (Women).....	($\frac{1}{2}$)	(1 $\frac{1}{2}$)	(2)
	17 $\frac{1}{2}$	16 $\frac{1}{2}$	17 $\frac{1}{2}$
Sophomore Year			
Applied Stenography (ST 201, 202).....	5	5	.....
Office Procedure (ST 203).....	.....	.....	5
Business Law (PS 201, 202).....	4	4	.....
Principles of Economics (ES 205, 206).....	4	.....	4
³ Principles of Accounting (BO 101, 102, 103).....	3	3	3
³ Public Speaking or Modern Language.....	.....	3	3
Physical Education (Men).....	$\frac{3}{2}$	$\frac{3}{2}$	$\frac{3}{2}$
Physical Education (Women).....	(1)	(1)	(1)
Military Science and Tactics.....	2	2	2
	18 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

¹See footnote² on page 225.

²Optional with Science but 9 credits in History are required for graduation.

³Students who elect a modern language will take Accounting BO 103 the first term of the junior year.

PROGRAMS FOR JUNIORS AND SENIORS*

ACCOUNTING AND MANAGEMENT

PROFESSOR BOSWORTH, Adviser

Freshman and Sophomore Years

During the freshman and sophomore years students follow either Program 1 (pages 225-226) or Program 4 (page 226).

	Junior Year			Term credits—		
	1st	2d	3d	1st	2d	3d
Accounting (BO 301, 302).....	3	3	3			
Income Tax Procedure (BO 303).....						3
Business Organization and Management (BO 331, 332).....	3	3				
Purchasing (BO 343).....						3
Modern Economic Theories (ES 424).....						3
National Government (PS 301).....	3					
State and Local Government (PS 302).....		3				
Municipal Government (PS 303).....						3
Biologic or Physical Science.....	3	3				3
General Electives or Military Science and Tactics.....	3	3				3
	15	15				18

Senior Year

Auditing (BO 401, 402).....	3	3				
C. P. A. Problems (BO 403).....						3
Cost Accounting (BO 407).....						3
Business Cycles and Forecasting (ES 411).....	3					
Money and Banking (ES 311).....		4				
Corporation Law (PS 413).....						4
Corporation Finance (ES 429).....	4					
Public Finance (ES 401).....	4					
Markets and Marketing (ES 402) or General Sociology (ES 305).....		4				
Comparative Governments (PS 402).....					3	
International Relations (PS 401).....						4
Seminar in Business Organization and Operation (BO 404, 405, 406).....	1	1				1
General Electives or Military Science and Tactics.....	3	3				3
	18	18				18

ADVERTISING AND SELLING

PROFESSOR VANCE, Adviser

Freshman and Sophomore Years

During the freshman and sophomore years students follow either Program 1 (pages 225-226) or Program 3 (page 226). They must take BO 141, 142, 143 before the close of the sophomore year.

	Junior Year			Term credits—		
	1st	2d	3d	1st	2d	3d
Commercial Art I, II (A 361, 362).....	3	3				
General Psychology (Psy 201).....						5
Extempore Speaking (PSP 254).....		3				
Purchasing (BO 343).....						3
Business Organization and Management (BO 331, 332).....	3	3				
National Government (PS 301).....	3					
State and Local Government (PS 302).....		3				
Municipal Government (PS 303).....						3
Biologic or Physical Science.....	3	3				3
General Electives or Military Science and Tactics.....	4	3				3
	16	18				17

*Freshman courses in any department of the School of Commerce can be taken by Commerce seniors at only two-thirds of the regular credit.

	Senior Year		
	Term credits		
	1st	2d	3d
Business English I (Eng 207).....	3	---	---
Principles of Advertising (BO 441).....	---	3	---
Psychology of Advertising and Selling (Psy 313).....	---	---	3
Elementary Industrial Journalism (IJ 200).....	3	---	---
Advertisements (IJ 322, 323).....	---	3	3
General Sociology (ES 305).....	---	---	4
Marketing Manufactured Goods (ES 425).....	---	4	---
Markets and Marketing (ES 402).....	4	---	---
Business Cycles and Forecasting (ES 411).....	3	---	---
Comparative Governments (PS 402).....	---	3	---
Principles of Salesmanship (BO 443).....	---	---	3
General Electives or Military Science and Tactics.....	4	4	4
	17	17	17

AGRICULTURAL ECONOMICS

PROFESSOR NELSON, Adviser

The curriculum in Agricultural Economics is open to students who have completed the freshman and sophomore years in Commerce. A similar curriculum for students who have completed two years in Agriculture is outlined under the School of Agriculture.

	Junior Year		
	Term credits		
	1st	2d	3d
Business Organization and Management (BO 331).....	3	---	---
Agricultural Economics (ES 362).....	---	3	---
Rural Sociology (ES 464).....	---	---	3
Land Economics (ES 315).....	3	---	---
Biologic or Physical Science.....	3	3	3
¹ Courses in Agriculture.....	5	5	5
General Electives or Military Science and Tactics.....	3	6	6
	17	17	17

Recommended Electives

Economic Development of Agriculture (ES 467).....	---	3	---
Principles of Farm Management (FMg 302).....	---	---	4
Land Taxation (ES 433).....	---	3	---
Analysis of Financial Statements (BO 203).....	---	---	3

Senior Year

Markets and Marketing (ES 402).....	4	---	---
Money and Banking (ES 311).....	---	4	---
Markets and Marketing (ES 603).....	---	---	4
Cooperation and Farmers' Movements (ES 364).....	---	---	3
Cooperative Marketing Organization (ES 606).....	3	---	---
Rural Finance (ES 468).....	---	3	---
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
¹ Courses in Agriculture.....	3	3	3
General Electives or Military Science and Tactics.....	4	4	4
	17	17	17

Recommended Electives

Business Cycles and Forecasting (ES 411).....	3	---	---
Principles of Advertising (BO 441).....	---	3	---
Transportation (ES 403).....	---	---	4
Business and Agricultural Statistics (ES 466).....	---	---	3

BANKING AND FINANCE

PROFESSOR SCHMITT, Adviser

Freshman and Sophomore Years

During the freshman and sophomore years students follow Program 1 (pages 225-226).

¹Courses in Agriculture must be selected upon the approval of the adviser for the curriculum in Agricultural Economics.

	Term credits		
	1st	2d	3d
Junior Year			
Business Organization and Management (BO 331, 332).....	3	3	---
Money and Banking (ES 311).....	---	4	---
National Government (PS 301).....	---	---	3
State and Local Government (PS 302).....	---	3	---
Modern Economic Theories (ES 424).....	---	---	3
Biologic or Physical Science.....	3	3	3
Business Cycles and Forecasting (ES 411).....	3	---	---
Introduction to Foreign Trade (ES 306).....	---	---	4
Risk Bearing (ES 419).....	4	---	---
General Electives or Military Science and Tactics.....	4	4	4
	17	17	17

Senior Year			
Public Finance (ES 401).....	---	4	---
Real Estate Finance (ES 453).....	---	---	3
Comparative Governments (PS 402).....	---	3	---
Corporation Law (PS 413).....	---	---	4
Principles of Real Estate (ES 451).....	3	---	---
Bank Management (ES 430).....	4	---	---
Credits and Collections (ES 321).....	---	3	---
Corporation Finance (ES 429).....	4	---	---
Investments (ES 432).....	---	4	---
Seminars in Business Organization and Operation (BO 404, 405, 406).....	1	1	1
General Electives or Military Science and Tactics.....	5	3	8
	17	18	16

COMMERCIAL EDUCATION

ASSOCIATE PROFESSORS BALL and STUTZ, Advisers

Freshman and Sophomore Years

This curriculum is open to students who have completed any freshman and sophomore curriculum in Commerce or in Vocational Education with proper prerequisites.

	Term credits		
	1st	2d	3d
Junior Year			
General Psychology (Psy 201).....	5	---	---
Educational Psychology (Psy 222).....	---	3	---
Special Methods in Commerce (CEd 451 or 452).....	---	---	3
Principles of Teaching (Ed 311).....	---	3	---
Business Organization and Management (BO 331).....	---	3	---
Secondary Education (Ed 212).....	3	---	---
General Sociology (ES 305).....	---	---	4
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
Biologic or Physical Science.....	3	3	3
¹ General Electives or Military Science and Tactics.....	3	3	3
	17	18	16

Senior Year			
Money and Banking (ES 311).....	4	---	---
Supervised Teaching (Ed 401).....	---	5	---
Organization and Administration of Commercial Education (CEd 470).....	---	---	3
Measurement in Education (Ed 433).....	---	---	3
The Family (ES 415).....	---	3	---
Applied Sociology (ES 413).....	---	---	3
International Relations (PS 401).....	4	---	---
Comparative Governments (PS 402).....	---	3	---
American Literature I, II, III (Eng 331, 332, 333).....	3	3	3
General Electives or Military Science and Tactics.....	6	3	5
	17	17	17

¹Women should take FN 201, CT 218, HAd 225, 3 credits each term, unless already taken.

ECONOMICS AND SOCIOLOGY

PROFESSOR DREESEN, Adviser

Freshman and Sophomore Years

Students follow Program 4 (page 226) or Program 1 (pages 225-226).

	Term credits—		
	1st	2d	3d
Junior Year			
Money and Banking (ES 311).....	4	---	---
General Sociology (ES 305).....	---	4	---
Business Organization and Management (BO 331, 332).....	3	3	---
Labor Problems (ES 301).....	---	---	4
Mathematics of Statistics (Mth 301) (Optional).....	3	---	---
Markets and Marketing (ES 402).....	---	4	3
Biologic or Physical Science.....	3	3	10
General Electives or Military Science and Tactics.....	4	3	---
	17	17	17
Senior Year			
Public Finance (ES 401).....	4	---	---
Business Cycles and Forecasting (ES 411).....	3	---	---
Transportation (ES 403).....	---	---	4
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
Business Combinations (ES 409).....	---	3	---
History of Economic Thought (ES 422, 423).....	3	3	---
Seminar in Economics and Sociology (ES 404, 405, 406).....	1	1	1
Modern Economic Theories (ES 424).....	---	---	3
General Electives.....	3	7	6
	17	17	17

GENERAL BUSINESS

ASSISTANT PROFESSOR IRVINE, Adviser

Freshman and Sophomore Years

Students follow Program 1 (pages 225-226).

Junior Year			
Business Organization and Management (BO 331, 332).....	3	3	---
Purchasing (BO 343).....	---	---	3
Money and Banking (ES 311).....	4	---	---
General Sociology (ES 305).....	---	4	---
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
Biologic or Physical Science.....	3	3	3
¹ General Electives or Military Science and Tactics.....	4	4	8
	17	17	17
Senior Year			
Public Finance (ES 401).....	4	---	---
Markets and Marketing (ES 402).....	---	4	---
Transportation (ES 403).....	---	---	4
Corporation Finance (ES 429).....	---	4	---
Comparative Governments (PS 402).....	---	3	---
International Relations (PS 401).....	4	---	---
Corporation Law (PS 413).....	---	---	4
General Electives or Military Science and Tactics.....	9	6	9
	17	17	17

¹At least 27 credits must be elected outside of the department of Economics and Sociology, of which at least 18 must be in basic arts and sciences.

GOVERNMENT AND BUSINESS LAW

PROFESSOR DUBACH, Adviser

Freshman and Sophomore Years

Students follow Program 4 (page 226) or Program 1 (pages 225-226).

	Junior Year		
	1st	2d	3d
English Composition (Eng 201).....	3	.....	.....
Constitutional History of England (Hst 371).....	.....	3	.....
English Literature III (Eng 223).....	.....	.....	3
National Government (PS 301).....	3	.....	.....
State and Local Government (PS 302).....	.....	3	.....
Municipal Government (PS 303).....	.....	.....	3
Business Organization and Management (BO 331).....	3	.....	.....
Money and Banking (ES 311).....	4	.....	.....
Insurance (ES 303).....	.....	.....	4
General Psychology (Psy 201).....	.....	5	.....
Biologic or Physical Science.....	3	3	3
General Electives or Military Science and Tactics.....	3	3	3
	19	17	16
	Senior Year		
International Relations (PS 401).....	4	.....	.....
Comparative Governments (PS 402, 403).....	.....	3	3
American Government (PS 411).....	4	.....	.....
Practical Legislation (PS 412).....	.....	4	.....
Corporation Law (PS 413).....	.....	.....	4
¹ Public Finance (ES 401).....	4	.....	.....
Transportation (ES 403).....	.....	.....	4
Seminar in Political Science (PS 404, 405, 406).....	1	1	1
Investments (ES 432).....	.....	4	.....
General Electives or Military Science and Tactics.....	3	5	5
	16	17	17

MARKETS AND MARKETING

PROFESSOR COMISH, Adviser

Freshman and Sophomore Years

Students follow Program 4 (page 226) or Program 1 (pages 225-226).

	Junior Year		
	1st	2d	3d
Mathematics of Statistics (Mth 301) (Optional).....	3	.....	.....
Markets and Marketing (ES 402).....	.....	4	.....
Purchasing (BO 343).....	.....	.....	3
Economics of Consumption (ES 395).....	4	.....	.....
Business Organization and Management (BO 331).....	3	.....	.....
Money and Banking (ES 311).....	.....	4	.....
Introduction to Foreign Trade (ES 306).....	.....	.....	4
National Government (PS 301).....	.....	3	.....
Municipal Government (PS 303).....	.....	.....	3
Biologic or Physical Science.....	3	3	3
General Electives or Military Science and Tactics.....	3	3	3
	16	17	16
	Senior Year		
Marketing Manufactured Goods (ES 425).....	.....	4	.....
Markets and Marketing (ES 603).....	.....	.....	4
Cooperative Marketing Organization (ES 606).....	3	.....	.....
Principles of Advertising (BO 441).....	.....	3	.....
Principles of Real Estate (ES 451).....	3	.....	.....
Business Cycles and Forecasting (ES 411).....	3	.....	.....
Business Combinations (ES 409).....	.....	3	.....
International Relations (PS 401).....	.....	.....	4
State and Local Government (PS 302).....	.....	3	.....
Comparative Governments (PS 403).....	.....	.....	3
Corporation Finance (ES 429).....	4	.....	.....
Transportation (ES 403).....	.....	.....	4
Seminar in Economics and Sociology (ES 404, 405, 406).....	1	1	1
General Electives or Military Science and Tactics.....	3	3	3
	17	17	19

¹Optional with Labor Problems (ES 301).

REAL ESTATE

PROFESSOR SCHMITT, Adviser

Freshman and Sophomore Years

Students follow Program 4 (page 226) or Program 1 (pages 225-226).

	Term credits		
	1st	2d	3d
Principles of Real Estate (ES 451).....	3	---	---
Land Economics (ES 315).....	3	---	---
Risk Bearing (ES 419) or Insurance (ES 303).....	---	---	4
Business Organization and Management (BO 331, 332).....	3	3	---
Money and Banking (ES 311).....	4	---	---
Principles of Advertising (BO 441).....	---	3	---
General Sociology (ES 305).....	---	---	4
Biologic or Physical Science.....	3	3	3
General Electives or Military Science and Tactics.....	3	7	5
	19	16	16

Recommended Electives

General Psychology (Psy 201).....	5	---	---
Soils (Sls 201, 202).....	3	3	---
Transportation (ES 403).....	---	---	4
Principles of Salesmanship (BO 443).....	---	---	3

Senior Year

Property Management (BO 411).....	3	---	---
Real Estate Finance (ES 453).....	---	---	3
Corporation Finance (ES 429).....	4	---	---
Markets and Marketing (ES 402).....	---	4	---
Real Estate Law (PS 423).....	---	---	3
Land Taxation (ES 433).....	---	3	---
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
Seminar in Economics and Sociology (ES 404, 405, 406).....	1	1	1
General Electives or Military Science and Tactics.....	6	6	7
	17	17	17

Recommended Electives

Corporation Law (PS 413).....	---	---	4
Investments (ES 432).....	---	4	---
Vocational Psychology (Psy 312).....	3	---	---
or Psychology of Advertising and Selling (Psy 313).....	---	---	3

SECRETARIAL TRAINING

ASSOCIATE PROFESSOR STUTZ, Adviser

Freshman and Sophomore Years

Students follow Program 2 (page 226).

Junior Year

Business Organization and Management (BO 331, 332).....	3	3	---
Purchasing (BO 343).....	---	---	3
General Sociology (ES 305).....	---	4	---
National Government (PS 301).....	3	---	---
State and Local Government (PS 302).....	---	3	---
Municipal Government (PS 303).....	---	---	3
General Psychology (Psy 201).....	---	---	5
Biologic or Physical Science.....	3	3	3
*General Electives or Military Science and Tactics.....	8	4	3
	17	17	17

*Women should take FN 201, CT 218, HAd 225, 3 credits each term, unless already taken.

	Senior Year		
	Term credits		
	1st	2d	3d
Secretarial Training (ST 411, 412).....	3	3	---
Money and Banking (ES 311).....	4	---	---
Comparative Governments (PS 402).....	---	3	---
International Relations (PS 401).....	4	---	---
Insurance (ES 303).....	---	---	4
The Family (ES 415).....	---	3	---
English or Public Speaking.....	3	3	3
¹ General Electives or Military Science and Tactics.....	3	5	10
	17	17	17

SUGGESTED COMBINATIONS FOR MINORS

The several curricula outlined on pages 225-233 provide for a number of electives. While the student may choose other subjects than those enumerated below, he is strongly urged to adopt one of the suggested combinations. A minor shall include not less than 18 credits in the group selected. Men are urged to elect Military Science and Tactics. The nine required credits in Biologic or Physical Science must be completed in the junior year.

1. MINOR IN AGRICULTURE

	Junior Year		
	Term credits		
	1st	2d	3d
Electives in Agriculture.....	3	3	3
	Senior Year		
Stock Judging I (AH 111).....	3	---	---
Principles of Farm Management (FMg 302).....	---	---	4
Soil Drainage and Irrigation (SIs 203).....	---	---	3
Electives in Agriculture.....	3	6	---

2. MINOR IN HOME ECONOMICS

	Junior Year		
	Term credits		
	1st	2d	3d
² Textiles (CT 200), Clothing (CT 211, 212).....	3	3	3
Introduction to Home Economics (HAd 100).....	1	---	---
Costume Design (CT 300).....	---	3	---
	Senior Year		
Foods (FN 203, 204, 205).....	3	3	3
Home Nursing (HAd 230).....	2	---	---
Textile Design (CT 235).....	3	---	---
House Furnishing (CT 231).....	3	---	---
Household Management (HAd 340).....	---	4	---
Home Management House (HAd 450).....	---	---	4

3. MINOR IN ENGINEERING³

	Junior Year		
	Term credits		
	1st	2d	3d
Engineering Problems (GE 101).....	2	---	---
Trigonometry (Mth 121).....	---	4	---
Differential Calculus (Mth 251).....	---	---	4
Carpentry (IA 223).....	3	---	---
	Senior Year		
⁴ Linear Drawing and Lettering (GE 111).....	2	---	---
Approved electives in Engineering.....	6	6	6

4. MINOR IN PHYSICAL EDUCATION (Men)⁵

	Junior Year		
	Term credits		
	1st	2d	3d
Electives in Physical Education.....	3	3	3
	Senior Year		
Electives in Physical Education.....	6	6	6

¹Women should take FN 201, CT 218, HAd 225, 3 credits each term, unless already taken.

²Students who have taken these subjects as options in the freshman and sophomore years will select advanced courses, subject to approval of the head of the department.

³Students should not register for this minor without the necessary prerequisites in mathematics to pursue Mth 251.

⁴Optional with other selected Engineering course, subject to approval of the head of the department.

⁵In the case of students minoring in Physical Education the required science work (9 credits) in their general curriculum should be taken in zoology.

5. MINOR IN PHYSICAL EDUCATION (Women)

Students electing a minor in Physical Education should advise with the department in selecting their required courses during the freshman and sophomore years. *Required sciences:* Z 101, 102, 103 unless student has had a year of zoology in high school; Ch 101, 102, 103 unless student has had a year of chemistry in high school; Z 321, 322.

	Term credits		
	1st	2d	3d
Junior Year			
Applied Anatomy (PE 253).....	3	---	2
Applied Physiology (PE 451).....	---	---	3
Play and Playgrounds (PE 271).....	---	---	3
Principles and Methods of Physical Education (PE 363).....	---	---	3
Senior Year			
Individual Activities (PE 373).....	3	---	---
Physical Education Laboratory (PE 464).....	---	3	---
Electives in Physical Education.....	3	3	3

6. MINOR IN INDUSTRIAL JOURNALISM

Junior Year			
Elementary Industrial Journalism (IJ 200).....	3	---	---
Industrial Journalism (IJ 310).....	---	3	---
Technical Journalism (IJ 330).....	---	---	3
Senior Year			
Editing (IJ 320).....	3	---	---
Journalism Practice I (IJ 204).....	---	2	---
Electives in Industrial Journalism.....	---	3	3

7. MINOR IN BASIC ARTS AND SCIENCES

A student may elect not less than 18 credits from any of the departments in the School of Basic Arts and Sciences as his minor. Before registering, consult the Dean and the head of the department concerned.

8. MINOR IN FORESTRY

Junior Year			
General Forestry (F 111, 112).....	3	3	---
Identification of Woods (F 331).....	---	4	---
Wood Utilization (F 332).....	---	4	---
Senior Year			
Forest Finance (F 411).....	5	---	---
Economics of Lumber Industry (F 413).....	---	---	5
Lumber Merchandising (LM 498).....	---	---	4

9. MINOR IN MINES*

Junior Year			
General Geology (G 301), Historical Geology (G 302, 303).....	3	3	3
Senior Year			
Mineral Resources of U. S. (G 304, 305).....	3	3	---
Brief Survey of the Natural Sciences (G 306).....	---	---	3

SCIENCE COMBINATIONS FOR COMMERCE STUDENTS

Nine credits in Biologic or Physical Science must be completed by the end of the junior year. Not less than six of these credits must be taken in basic sciences requiring laboratory work.

BACTERIOLOGY

General Chemistry (Ch 101), General Bacteriology (Bac 204, 205).....	3	3	3
--	---	---	---

*Recommended prerequisite for seniors: A year of biological science or of chemistry.

	Term credits		
	1st	2d	3d
BOTANY			
General Botany (Bot 101, 102, 103).....	3	3	3
CHEMISTRY			
General Chemistry (Ch 101, 102, 103).....	3	3	3
GEOLOGY ¹			
General Geology (G 301), Historical Geology (G 302, 303).....	3	3	3
PHYSICS			
General Physics (Ph 111, 112, 113).....	3	3	3
ZOOLOGY			
General Zoology (Z 101, 102, 103); or General Zoology (Z 101, 102), Genetics (Z 351); or General Zoology (101, 102), Evolution and Eugenics (Z 353).....	3	3	3

Business Organization and Operation

THE distinctive work of the department of Business Organization and Operation is to train men and women for efficiency in business and administration. The courses provide for thorough training in the various phases of accounting, auditing, business organization, scientific management, salesmanship, and advertising.

The School of Commerce has also taken a leading part in developing courses in business methods, especially adapted to the farm and other industrial enterprises, the home, and cooperative institutions.

When it is remembered that every vocation has its business side, and that this phase of all pursuits is receiving increasing attention, it is apparent that the avenues of employment and the chances for promotion for the really competent business expert are almost unlimited. The man or woman with such training in organization and business management is increasingly in demand. As a preparation for a business career, for law, or public accounting, the work of this department, combined with economics and political science, is especially attractive. A large portion of the graduates in Commerce find employment as teachers of commercial subjects in state and private schools. To them the courses in business organization and operation are very important.

Requirements for C. P. A. Certificate in Oregon. No other business activity has made greater progress in late years than that of professional accountancy. Nearly every state in the Union now has a law providing for the certification of public accountants. Oregon adopted such a law in 1913, imposing the following requirements: Applicants must be citizens of the United States or they must have declared their intention to become citizens. They must be at least twenty-one years of age, must have good moral character, must have a high school education or the equivalent thereof, must have had one year of public accounting experience (either before or after examination), and must pass a satisfactory examination in accounting theory and practice, auditing and commercial law. Examinations are held twice a year, in May and November. Thirty-six other states give a uniform examination at the same time. The fee for the examination is \$25. The State Board of Accountancy, Portland, Oregon, will furnish blanks

¹G 100, The Nature of the World, is not applicable in meeting the nine credits in science for Commerce students.

upon application. For unauthorized use of the C. P. A. title the law imposes a penalty of not more than \$200 or imprisonment in the county jail for a term not exceeding six months.

NOTE: The courses in Business Organization and Operation are arranged in numerical order within the following groups: Accounting, Advertising and Selling, Organization and Management.

COURSES IN ACCOUNTING

BO 101, 102, 103. Principles of Accounting. The aim of these courses is to teach the fundamental principles of accounting as practiced in the best business establishments; the use of special columns, controlling accounts and their adaptations; depreciations and good-will; opening and closing accounts, partnership accounts and divisions of profits. In BO 103 stress is laid on the cost aspects in departmentalized merchandising. Students who have had at least one year of bookkeeping are not permitted to take BO 101 for credit.

Three terms; 3 credits each term; 3 recitations. Fee \$1.00 each term.

BO 201, 202. Corporation Accounting. Theory of corporation accounting; preparation of accounts and records illustrating the principles involved. Depreciation, surplus, reserves, dividends, advanced forms of financial statements, consideration of cost accounting principles involved in the determination of manufacturing costs.

Prerequisite: BO 103. First and second terms; 3 credits each term; 3 recitations. Fee \$1.00.

BO 203. Analysis of Financial Statements. Preparation, analysis, and interpretation of financial and operating reports by the application of ratios and turnover; the use of such reports by the manager for the purpose of effective control.

Prerequisite: BO 202. Third term; 3 credits; 3 recitations. Fee \$1.00.
Associate Professor Robinson.

BO 301, 302. Accounting. (Advanced.) Advanced partnership and corporation accounting; valuation of balance sheet accounts; preparation of balance sheets and income statements; nature of profits; branch office accounting; installment sales, consignments, consolidations, liquidations; government and institutional accounting, supplemented with practical problems.

Prerequisite: BO 203. First and second terms; 3 credits each term; 3 recitations. Fee \$1.00 each term. (g) Professor Bosworth.

BO 303. Income Tax Procedure. A thorough study of income, excess profits, and other Federal taxes as they affect business, with particular reference to the accounting department. The aim is to train the student in the fundamentals of the income tax law and preparation of returns and reports. The preparation of regular return forms is required in connection with the solution of practical problems.

Prerequisite: BO 203. Third term; 3 credits; 3 recitations. (g)
Professor Bosworth.

BO 304. **Accounting Control.** Accounting and statistical reports, records, and procedures as used by the business manager; building of accounting systems for departments, branches, and subsidiaries, including the design of financial and operating reports, the accounting records underlying them, and accounting manuals; executive control of performance of men and departments by establishing and enforcing standards in the form of departmental budgets; coordination of departmental activities obtained through use of uniform procedures, executive reports, and the centralized budget.

Prerequisite: BO 203 or equivalent. First term; 3 credits; 3 lectures.
(g) Professor Bosworth.

BO 361. **Farm Accounting.** While this course is a thorough discussion of systems of accounts suited to the farm, the fundamental principles of accounting are not ignored. Cost accounting is especially emphasized, with a view to determining the results of different enterprises. A thorough study is made of the income tax law as related to farm accounting. Not open to Commerce students.

First or second term; 3 credits; 1 lecture; 2 recitations.
Associate Professor Robinson.

BO 385. **Principles of Accounting for Engineers.** An abbreviated course covering the general principles of accounting, designed especially for Engineering students. Emphasis is placed on accounting principles, rather than technique. The ultimate aim is to prepare the student to read and interpret accounting facts, rather than to construct accounts. Not open to Commerce students.

Any term; 3 credits; 3 lectures. Fee \$1.00.
Associate Professor Robinson.

BO 401, 402. **Auditing.** The duties and responsibilities of the auditor; his function in the executive staff; his relation to the accounting department; different classes of audits; investigation into the conduct of manufacturing, trading and utility corporations, municipalities and public institutions. Typical audits studied and compared. Selected exercises and problems.

Prerequisite: BO 302. First and second terms; 3 credits each term; 3 recitations. (g) Professor Bosworth.

BO 403. **C. P. A. Problems.** This course covers a large variety of practical problems viewed from the standpoint of the manager rather than the accountant. The material is drawn from certified public accountancy examinations and other sources. The student does not follow any prescribed form of treatment.

Prerequisite: BO 402. Third term; 3 credits; 3 recitations. (g) Professor Bosworth.

BO 407. **Cost Accounting.** The aim of this course is to teach the fundamental principles underlying the ascertainment of costs both in trading and in industrial organizations. Stress is laid on the relationship of cost accounts to administrative control and economy of production and

distribution. The solution of a practical problem in the determination of costs is required in addition to text and recitation work.

Prerequisite: BO 302. Third term; 3 credits; 3 recitations. Fee \$1.00.
(g) Professor Bosworth.

COURSES IN ADVERTISING AND SELLING

BO 141, 142, 143. **Merchandising.** The first term deals with retail salesmanship; development and expansion; different aspects of management; mark-up, mark-down, and mark-out; buying; stock arrangement. The second term is an introductory course in advertising, including a study of possible fields of advertising mediums; advertising campaigns and budgets; window trimming. The third term is intended to cover the financial aspects of merchandising; methods of banking; borrowing; paymental collections; credits and discounts; organization and use of commercial agencies.

Three terms; 3 credits each term; 3 recitations. Professor Vance.

BO 343. **Purchasing.** Principles of purchasing; relations of buying to successful merchandising and manufacturing; ethics of buying; the purchasing organization; records of purchasing; stores, their function and operation; selected problems in purchasing.

Third term; 3 credits; 2 lectures; 1 recitation. Professor Vance.

BO 441. **Principles of Advertising.** Survey of territory and analysis of data; planning of national advertising campaigns; classification of advertising mediums; functions of advertising agencies; advertising appropriations; advertising ethics.

Prerequisites: BO 142, Psy 201. Second term; 3 credits; 2 lectures; 1 recitation. (g) Professor Vance.

BO 443. **Principles of Salesmanship.** Marketing functions of sales management; principles, policies, and methods of sales departments employed in distribution of manufactured goods; study of functions of sales managers in coordinating sales and production; problems in sales management in domestic and foreign markets.

Prerequisite: BO 141. Third term; 3 credits; 2 lectures; 1 recitation. Professor Vance.

COURSES IN ORGANIZATION AND MANAGEMENT

BO 331, 332. **Business Organization and Management.** A study of the fundamentals of the organization and management of business and industry; origin, evolution, and forms of business units; the tasks of the business manager; the operation of the personnel department; correlation of the productive functions; scientific management; basic features of business administration.

BO 331 first or second term, BO 332 second or third term; 3 credits each term; 2 lectures; 1 recitation. Assistant Professor Irvine.

BO 363. Market Business Practice. This course covers the business management of cooperative societies. It includes bookkeeping and cost accounting especially adapted to different types of cooperative associations in the United States, such as creamery associations and cow-testing associations; auditing; banking and finance; depreciation of assets; conduct of membership meetings; annual reports and audits. Not open to Commerce students. Not offered 1931-32.

Prerequisite: BO 101 or equivalent. Third term; 3 credits; 1 lecture; 2 recitations.
Associate Professor Robinson.

BO 371. Business Fundamentals. The aim of this course is to treat in a practical way the ordinary rules and methods of conducting business affairs. Two distinct phases are emphasized as follows: (a) Finance. Value of money, how savings grow, banking and credit, general principles of investment, loan associations, bonds, stocks, and insurance. (b) Fundamentals of business law. The principles of the law of contracts, of negotiable paper, mortgages, real property, and wills. Not open to Commerce students. Open to women students only.

First or third term; 3 credits; 1 lecture; 2 recitations.

Associate Professor Robinson.

BO 381. Industrial Organization and Management. A condensed course for students other than Commerce. Principles of business organization; types, including partnerships, corporations, and other business units; locating an industry; plant and equipment, buying, receiving, storing, and recording material; financing an enterprise; budgets and reports; banking practice; determination of costs; standardization; wage systems; welfare and employment problems. Not open to Commerce students.

Third term; 3 credits; 3 lectures or recitations.

Assistant Professor Irvine.

BO 404, 405, 406. Seminars in Business Organization and Operation. Research work in any field within the department in which the student is especially interested and prepared.

Three terms; 1 credit each term; 1 period. (g)

BO 411. Property Management. A study of the renting and leasing of real estate of all types, long and short term leases, drawing the lease, rental basis, management and care of rented properties.

Prerequisite: ES 315. First term; 3 credits; 3 periods.

Professor Schmitt.

Commercial Education

THE department of Commercial Education has been organized to meet the steadily growing demand for well-prepared teachers of commercial branches in secondary schools. Such teachers are prepared in cooperation with the School of Commerce. The curriculum in the School of Com-

merce leading to the degree of Bachelor of Science makes possible satisfactory preparation for commercial teaching. In the selection of their collegiate courses in both Commerce and Education, students should advise with the head of the department of Commercial Education. This department provides an equipment for teachers of commercial science in secondary schools that will place them and their work on a parity with those of other longer established and more fully developed departments of the high school.

This department is a joint department within both the School of Commerce and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

The 23 credits in Education required for a certificate to teach in four-year high schools, issued without examination, may be earned during the college course, preferably in the junior and senior years. Educational Psychology, Secondary Education, and Principles of Teaching should be taken before any methods course. The required Education courses must include Psy 222, Ed 212, Ed 311, one course in Secondary Education in Commerce, and one course in Supervised Teaching in Commerce, the last in the senior year. Supervised teaching is done in a public high school where conditions are normal and the experience real. For the curriculum in Commercial Education, see page 229.

DESCRIPTION OF COURSES

Ced 451. Special Methods in Commerce. Principles of education as applied to the teaching of shorthand, typewriting, business English, and bookkeeping in high schools; rapid review of subject-matter with model lessons in each subject; lectures covering aims, materials, methods of presentation, organization of courses, and arrangement of curriculum. Required of students preparing to teach stenographic subjects.

Prerequisites: ST 203; BO 103; Psy 222; Ed 212, 311. First or third term; 3 credits; 3 lectures. Associate Professors Ball and Stutz.

Ced 452. Special Methods in Commerce. Same as Ced 451, with special methods in teaching accounting, business law, economics, and commercial geography. Required of students preparing to teach accounting subjects.

Prerequisites: BO 203, PS 202, ES 203, Psy 201 or 312, Ed 311. First or third term; 3 credits; 3 lectures. Associate Professor Ball.

Ced 470. Organization and Administration of Commercial Education. This course is planned for individuals who aspire to attain administrative positions in the field of commercial education. Elective to seniors only. In 1931-32 given in connection with Ed 452.

Prerequisite: Ced 451 or 452. Third term; 3 credits; 3 lectures. Associate Professor Clinton.

Ced 691, 692, 693. Graduate Study and Research. Designed for students who do graduate work in vocational education. Advanced and specialized problems in commercial education, selected by the student

subject to approval of head of department, investigation being carried on under direction of professor in charge. A thesis is required covering entire field of investigation (see CEEd 694, 695, 696). Open to qualified senior or graduate students.

Prerequisites: Ed 401, 402, or their equivalent. Three terms; credits and hours to be arranged. (G)

CEd 694, 695, 696. **Graduate Thesis.**

Prerequisites: Ed 401, 402, or their equivalent. Three terms; credits and hours to be arranged. (G)

Economics and Sociology

Including Agricultural Economics and Rural Sociology

FOUR principal functions are performed by the department of Economics and Sociology. (1) *Training both men and women for citizenship.* Every citizen has business relations requiring a knowledge of the fundamental principles of economics. The necessity of such knowledge is especially felt in a democracy where every man and woman has the right to vote and is called upon to mold legislation directly. The basis for intelligently exercising this paramount duty of citizenship can be supplied only by a training in economics and sociology, the problems of which form the subject-matter of most legislation.

(2) *Providing economic training for technical students.* Three credits in economics are required of all students in the College. In consultation with the deans of the various schools, required and elective courses have been worked out supplementary to the work of each school.

(3) *Training specialists in agricultural economics and rural sociology.* The School of Agriculture provides that students may elect a minor in Agricultural Economics and Rural Sociology. Such a minor affords excellent preparation for those who intend to go back to the farm and assume positions of business, educational, and political leadership. It gives the training needed for positions in State and Federal bureaus of markets. It lays a foundation for a business career as commission man, broker, jobber, wholesale merchant, or exporter of farm products. It should give the best possible training for positions as county agents, where capacity for leadership outweighs all other considerations.

(4) *Doing of field work. The Bureau of Organization and Markets.* In 1914 the Board of Regents established the Bureau of Organization and Markets for the purpose of assisting farmers in marketing their products. The Bureau has been carrying on its work in cooperation with the Bureau of Agricultural Economics of the United States Department of Agriculture. The work of the Bureau, in the first place, is investigational. It aims to find out the conditions fundamental to successful marketing, and to place the results of its investigation at the disposal of all who are interested. In the second place, it is at the service of any group of farmers contemplating

the establishment of any sort of business organization. It has worked out model constitutions and by-laws and standardized systems of accounting; it has lists of equipment and, in cooperation with the various technical departments of the College, can inform farmers where such equipment can be most cheaply obtained. It also assists organizations in planning the kind of plants necessary to carry on their business.

NOTE: The courses in Economics and Sociology are arranged in numerical order within the following groups: General Economics, General Sociology, Agricultural Economics and Rural Sociology, Banking and Finance, Marketing.

COURSES IN GENERAL ECONOMICS

ES 101. Commercial Geography. The physiographic basis of commerce and industry; the natural resources of the different countries of the world; the geographic distribution of labor and industry as determined by natural conditions such as climate, topography, soil, and mineral resources. Specimens from the Commercial Museum are used by the students. Assigned readings, outline maps. (Juniors and seniors wishing to take Economic Geography, see ES 408, page 250.)

Any term; 4 credits; 4 recitations.

ES 105. Economic Development of the United States. In this course the economic progress of the United States is analyzed. The objectives of the course are (1) a knowledge of the development of our own economic activities and institutions, (2) a preparation for the advanced courses in economics by the study of American economic life in action, (3) a preparation for actual business through the study of the phenomena of the Business Cycle in American economic life.

Prerequisite: ES 101. First or second term; 4 credits; 4 recitations.

ES 203. Outlines of Economics. A general course covering our industrial and commercial organization, the nature of wealth, its production, consumption, and distribution; law of diminishing returns; division of labor and efficiency in production; exchange and distribution in their relation to the price-making process; factors determining prices, wages, interest, rent, and profits; problems of taxation; public expenditures; protection and free trade; money and banking; labor problems; and transportation. Text-book, lectures and reports on assigned readings. Open to non-Commerce students only.

Any term; 4 credits; 4 recitations.

Professor Comish,
Associate Professor Mittelman, Assistant Professor Wilson.

ES 205, 206. Principles of Economics. The fundamentals of economics, treating of wealth, consumption, production, business organization, value, exchange and distribution, money and monetary problems, banking, business cycles, international trade, labor problems, monopoly, combinations and trusts, transportation and public utilities, socialism and public finance. ES 205 is a prerequisite to ES 206. Not open to students who have taken ES 203 or ES 391.

First and second, or second and third terms; 4 credits each term; 2 lectures; 2 recitations. Professor Nelson, Assistant Professor French.

ES 301. Labor Problems. Undertakes a summary study of the worker's income; factors determining that income in whole and in part; industrial hazards and methods of meeting them; trade union solutions of the wages, hours, and conditions problems; social effects and reactions.

Prerequisite: ES 203; or ES 205, 206; or ES 391. Second or third term; 4 credits; 4 recitations. Associate Professor Mittelman.

ES 303. Insurance. A course designed to cover, in a general way, the whole field of insurance. Nature and statistical basis of different kinds of insurance; application of the principles discovered to different forms of insurance such as straight life, endowment, accident, industrial, old age, fire, livestock, hail, etc., taken up in detail.

Third term; 4 credits; 4 recitations.

Professor Schmitt.

ES 313. Economic Development of Europe. The most important economic changes and developments in modern Europe; study of manorial system, handicraft system, domestic and factory systems; important changes in agriculture; rise of factory system; trades unionism; labor organizations, together with socialism and social insurance.

Third term; 4 credits; 4 recitations.

Mrs. Whaley.

ES 391. Introduction to Economics. Abbreviated course (see ES 203). Not open to Commerce students.

Any term; 3 credits; 3 recitations.

Associate Professor Mittelman, Assistant Professors Wilson and French.

ES 395. Economics of Consumption. The underlying principles of wealth consumption, standards of living, costs of living, budgeting, consumer markets, conservation policies, and theories of consumption.

Prerequisites: ES 203; or ES 205, 206; or ES 391, 362 or equivalent. First term; 4 credits; 4 recitations. Professor Comish.

ES 401. Public Finance. Public expenditures, local, state, and national; brief history of reforms calculated to secure efficiency in these expenditures; forms of taxes, customs, and fees whereby revenues are raised; present systems of land taxation studied in the light of proposed reforms; special attention to war finance; bonds versus taxes in public finance; management of national and local debts. Assigned readings.

First or second term; 4 credits; 4 recitations. (G) Professor Dreesen.

ES 403. Transportation. A brief historical review of the development of systems of transportation; organization and financing of different systems; effect of competition in the railroad business; freight classification and the making of rates and fares; the necessity of government control and attempts at regulation by State and Federal governments.

Prerequisites: ES 203; or ES 205, 206; or ES 391. Third term; 4 credits; 4 recitations. (G) Assistant Professor French.

ES 404, 405, 406. **Seminar in Economics and Sociology.** Study of current economic or sociological topics led by the professor in charge.

Elective to juniors or seniors who have completed at least 15 credits in economics. Three terms; credit depending on amount of work done; 1 period. (G) Professor Nelson.

ES 407. **Personnel Management.** Principles of scientific management, job analysis, systematic hiring, placing and promoting, methods of wage payment, turnover problems, labor's participation in management, the public's concern in such participation. Recommended for seniors in Commerce and Forestry and juniors and seniors in Engineering who expect to employ and manage men.

Third term; 3 credits; 3 recitations. (G)

Associate Professor Mittelman.

ES 409. **Business Combinations.** The historical development and present status of American trusts in their different manifestations, including pools, trade associations, trusts proper, holding companies, and consolidations. Typical trusts are studied, as well as the bases of monopolies, fair and unfair practices, monopoly price problems, and governmental agencies for control.

Prerequisites: ES 203; or ES 391; or ES 205, 206. Second term; 3 credits; 3 recitations. (G) Professor Nelson.

ES 411. **Business Cycles and Forecasting.** Considers the causes of periods of alternate prosperity and depression; methods of predicting cyclical changes; suggested remedies for diminishing the range of business fluctuations.

Prerequisites: ES 203; or ES 205, 206; or ES 391. First term; 3 credits; 3 recitations. (G) Associate Professor Mittelman.

ES 414. **Economics of Public Utilities.** A study of the development of public utilities in the United States; the economic and legal characteristics of public utilities; problems of public utility regulation; trends in policies affecting public utilities. Offered alternate years. Offered 1931-32.

Prerequisites: ES 203; or ES 205, 206; or ES 391. Second term; 3 credits; 3 recitations. Assistant Professor French.

ES 419. **Risk Bearing.** A study of the element of risk and uncertainty in business enterprises, and the organizations and means developed for reducing such risks by social control, hedging, insurance, guaranty, surety, speculative contracts, cycles of prosperity and depression, forecasting systems.

First term; 4 credits; 4 lectures or recitations.

Professor Schmitt.

ES 422, 423. **History of Economic Thought.** A critical survey in historical perspective of the significant schools of economic thought, cover-

ing the mercantilists, physiocrats, classicists, nationalists, socialists, historical economists, Austrians, psychological economists. Elective with the consent of the instructor. The two terms constitute a unit course, and credit is not given for either term separately.

Prerequisites: ES 203; or ES 205, 206; or ES 391; at least 4 additional approved credits in economics of junior or senior grade. First and second terms; 3 credits each term; 3 recitations. (G) Professor Comish.

ES 424. **Modern Economic Theories.** A study in contemporary economic thought especially with reference to the principles of value, price and distribution.

Prerequisites: ES 203; or ES 205, 206; or ES 391; at least 4 additional approved credits in economics of junior or senior grade. Junior or senior standing. Third term; 3 credits; 3 recitations. (G) Assistant Professor Wilson.

ES 451. **Principles of Real Estate.** A survey course treating in a general way the development of urban economy; economic problems of urban land utilization; the nature of real estate operations, involving chiefly problems in valuation and appraisals, property management, building operations, office organization, merchandising, financing, city planning, and professional relationships.

Prerequisites: ES 203; or ES 205, 206; or ES 391; ES 315. First term; 3 credits; 3 lectures or recitations. Professor Schmitt.

COURSES IN GENERAL SOCIOLOGY

ES 121. **Social Orientation.** Designed to show how the elements of civilization, as we know it, originated and developed; how man's environment and inherent capacities contribute to a development of his social relationships and responsibilities.

Any term; 3 credits; 3 recitations. Assistant Professor Dann.

ES 305. **General Sociology.** Analysis of the phenomena of group life, embracing social origins, a comparative study of group behavior and social institutions. A sociological study of the problems of social control, crime, poverty, family life, racial and economic conflicts, recreation, and character development.

Any term; 4 credits; 2 lectures; 2 recitations. Professor Moore, Assistant Professor Dann.

ES 307. **Educational Sociology.** A study of the field of sociology from the educational point of view; social institutions in their origin and development; social activities in their relation to institutions and the individual; social control or the molding of social institutions and the directing of social activities; different methods of social investigation and their comparative results.

First term; 3 credits; 3 recitations. Assistant Professor Dann.

ES 365. Population Problems. Social significance of birth rates and death rates. Factors of immigration and migration movements. Offered alternate years. Offered 1931-32.

First term; 3 credits; 3 recitations.

Professor Moore.

ES 413. Applied Sociology. The application of the case study method to the problems of social maladjustment with an analysis of the techniques of adjustment. A study of social agencies and resources within the community. Students looking toward professional social work should elect this course. The major portion of the course is devoted to problems of poverty, crime, and punishment. Visits to certain state and local institutions.

Prerequisite: ES 305. Third term; 3 credits; 3 recitations. (G)

Professor Moore.

ES 415. The Family. A survey of the evolution of matrimonial institutions; the modern legal status of marriage; economic and social aspects of the modern family; women in industry and the new woman's movement in relation to the family; a comparative study of the divorce problem. Open only to juniors and seniors.

Prerequisite: ES 305. Any term; 3 credits; 3 recitations. (G)

Assistant Professor Dann.

ES 416. Social Psychology. Analysis of group attitudes, social values, crowd behavior, fashion, custom, public opinion and forces forming it. Factors in personality, elements and types of racial and group consciousness.

Prerequisites: ES 305, Psy 201. Second term; 3 credits; 3 recitations. (G)

Professor Moore.

ES 417. Social Progress. The facts of social change; the factors which produce or prevent change; the evolution of culture; methods of diffusion; the phenomena of invention; the evidence of cultural lag; theories of social progress. Offered alternate years. Not offered 1931-32.

Prerequisite: ES 305. First term; 3 credits; 3 recitations. (G)

Professor Moore.

COURSES IN AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

ES 315. Land Economics. Deals with the underlying theory and principles pertaining to urban, agricultural, mineral, forest, and other types of land in their social setting. Attention is focused on land resources, their classification, valuation, and use and related problems of finance and taxation. (Attention of student is directed also to FMg 452, page 150, Agricultural Land Economics, in which the applied phases of this subject are treated.)

Prerequisite: ES 203; or ES 205, 206; or ES 362; or ES 391. First term; 3 credits; 3 recitations.

Assistant Professor Wilson.

ES 362. Agricultural Economics. Fundamental principles of production, consumption, and distribution with special reference to agriculture; land tenure; land values; the law of proportions; pricemaking processes; money; banking; rural credit; cooperation; marketing; transportation; taxation; rent, interest, wages, and profits.

Second term; 3 credits; 3 recitations. Assistant Professor Wilson.

ES 364. Cooperation and Farmers' Movements. A review of the fundamentals of cooperation followed by a discussion of agrarian organizations such as the Grange, Farmers' Union, American Society of Equity, the Gleaners, Farm Bureau, Nonpartisan League, and cooperative organizations for production, distribution, consumption, and credit purposes. Open to students who have had ES 203, 391, or 362.

Third term; 3 credits; 3 recitations. Professor Comish.

ES 366. Literature and Exposition of Rural Life. A critical study of the general field of literature bearing upon rural life; typical interpretations of rural life from the best poetry and prose; the rural press studied with a view to estimating its sociological and economic influence; themes upon current economic and sociological topics and the subject-matter discussed in the classroom to familiarize the student with the problems involved in the rural life movement. Offered alternate years. Not offered 1931-32.

Second term; 4 credits; 4 recitations.

ES 433. Land Taxation. A critical study of the present system of land assessment and taxation; tax burden of real property compared with tax burden of personal property, tangible and intangible; study of methods of taxing mineral wealth, forests, and water-power; analysis of effects of changes in taxation system. Offered alternate years. Not offered 1931-32.

Prerequisite: ES 203 or equivalent. Second term; 3 credits; 3 recitations. Professor Dreesen.

ES 464. Rural Sociology. Special problems of the evolution of rural institutions, the rural community, the rural family, the rural school, the rural church, rural societies and associations; rural systems of transportation and communication; the dependence of national welfare upon the rural community.

Third term; 3 credits; 3 recitations.
Professor Moore, Assistant Professor Dann.

ES 465. Rural Community Organization. A study of the social forces, agencies, and institutions in rural and small town communities. Consideration is given to the different possible plans of organization applicable to rural communities, small towns, and counties, together with practical community programs to promote social progress. Case studies are made of conscious attempts at reorganization.

Prerequisite: ES 305 or ES 464. First term; 3 credits; 3 recitations. (G)
Professor Moore.

ES 466. Business and Agricultural Statistics. Sources of business and agricultural statistics; study of statistical devices used in the fields of business and agriculture, such as indices, trends, seasons; problems involved in comparing statistical results.

Prerequisites: ES 203; or ES 205, 206; or ES 391; ES 411. Third term; 3 credits; 3 recitations. (G)
Associate Professor Mittelman.

ES 467. Economic Development of Agriculture. The evolution of the economic organization starting with the earliest stages in Roman and medieval times, but with special attention given to later agriculture in Europe and in America. Methods of agricultural production and marketing, types of farming, and systems of tenure are traced historically. Offered alternate years. Offered 1931-32.

Prerequisite: Senior standing. Second term; 3 credits; 3 recitations.
Professor Nelson.

ES 468. Rural Finance. Fundamental principles of credit and finance as applied to agriculture; the credit requirements of agriculture; existing agencies for supplying credit and ways and means of utilizing them; strength and weakness of present credit system and proposals for reform. Offered alternate years. Not offered 1931-32.

Prerequisite: Junior or senior standing. Second term; 3 credits; 3 recitations.
Professor Nelson.

ES 605. The Rural Survey. The principles of the scientific method and their statistical application to rural economic and sociological research; the purposes, forms, and preparation of schedules; editing, tabulation, and interpretation of data; principles of graphic presentation, study of a wide range of typical social and economic surveys, showing varieties of form and method adapted to different purposes. A seminar course for graduate students in Agricultural Economics and Rural Sociology to which seniors may be admitted by permission of the instructor. Offered alternate years. Not offered 1931-32.

Prerequisites: ES 203 or 391 or 362, and ES 305. Second term; 3 credits; 2 meetings. (G)
Professor Moore.

ES 691, 692, 693. Graduate Study and Research. Opportunity is given students to undertake, under the direction of one of the instructors in the department, the study and investigation of special problems related to agricultural economics and rural sociology.

Three terms; credits and hours to be arranged. (G)

ES 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits and hours to be arranged. (G)

COURSES IN BANKING AND FINANCE*

ES 311. Money and Banking. (a) Money. The nature and functions of money; the factors affecting price, and their relation to business conditions; brief history of the various forms of money; present problems and conditions. (b) Banking. Functions of banks; history of banking, including our national banking system, with emphasis upon the Federal Reserve Bank Act; comparison of our banking system with those of foreign countries. Assigned readings. Two sections first term; one section second term.

Prerequisites: ES 203; or ES 205, 206; or ES 391. First or second term; 4 credits; 4 recitations. Professor Dreesen.

ES 321. Credits and Collections. Industrial, mercantile, and bank credit; problems of credit man and credit department; credit instruments; financial statements; credit information; collections; legal remedies.

Second term; 3 credits; 3 recitations.

ES 418. Domestic and Foreign Exchange. A study of the nature and variety of bills of exchange arising out of domestic and foreign trade; rates of exchange and their interrelations; sources of supply and demand of exchange; gold movements; import and export credits; the exchange markets, London, New York; the present position of National Banks in the exchange market. Offered alternate years. Not offered 1931-32.

Prerequisites: ES 203 or ES 205, 206; 311. Second term; 3 credits; 3 recitations. (G) Assistant Professor French.

ES 429. Corporation Finance. The promotion and financing of business enterprises; principles of borrowing; securities-issuing organizations; forms of security issues; raising capital through the sale of securities; underwriting; required working capital; financial management; dividend policies; causes of failures; processes of reorganization.

Prerequisites: ES 203 or ES 205, 206 or ES 391; ES 311; BO 201. First or second term; 4 credits; 4 lectures or recitations. (g $\frac{3}{4}$) Professor Nelson.

ES 430. Bank Management. The aim of this course is to familiarize the student with the organization, management, and operation of a bank. Visits of inspection to local banks, lectures by practical bankers on the operation of the various departments. Designed particularly for those intending to engage in banking or some other financial pursuit.

Prerequisite: ES 311. First term; 4 credits; 4 recitations.

Professor Schmitt.

ES 432. Investments. A study of sound and unsound investments; markets and the price of securities; their demand and supply; the computing of earnings; government, state, county, municipal, and corporation bonds and real estate loans as investment securities; the stock exchange.

Second term; 4 credits; 4 lectures or recitations. (g) Professor Schmitt.

*A. I. B. Certificate. The College is included in the Linn and Benton Chapter of the American Institute of Banking. Any student in Banking and Finance at the College may become an active member, and on passing a satisfactory examination in the subjects prescribed by the Institute is entitled to an A. I. B. Certificate.

ES 453. Real Estate Finance. An analytical study of the various types of credit required and the various methods used in financing real estate operations; real estate contracts; installment purchases, earnest money, escrow transactions; real estate mortgages, real estate bonds; functions and activities of the real estate bond and investment house; joint stock and federal land banks, building and loan associations, insurance company loans.

Third term; 3 credits; 3 periods.

Professor Schmitt.

COURSES IN MARKETING

ES 304. Ocean Transportation. An advanced course in the study of ocean trade routes, ship canals, ports, and terminals, ocean transportation service and marine insurance. For students planning to enter foreign trade.

Elective to students who have had ES 101 and ES 203, or ES 205 and 206. First term; 3 credits; 3 recitation and lecture periods. (g)

Assistant Professor French.

ES 306. Introduction to Foreign Trade. International values; international commercial policies and treaties; bases of foreign trade; consular service; foreign exchange and international banking systems; ocean routes and carriers; methods of packing and shipping; shipping documents; marine insurance; foreign trade organizations. Elective to students who have had ES 101 and ES 203; or ES 205, 206; or ES 391.

Third term; 4 credits; 4 recitation and lecture periods.

Assistant Professor Wilson.

ES 402. Markets and Marketing. A critical study of the marketing of staples, semi-staples, and perishable farm products, including the geographical location of producing areas, marketing routes from the producer to the consumer, types of middlemen, direct marketing, marketing costs, standardization, factors influencing prices, and a general description of our whole marketing system as it exists today.

Prerequisites: ES 203; or ES 205, 206; or ES 391; or ES 362. First or second term; 4 credits; 4 recitations.

Professor Comish.

ES 408. Economic Geography. An advanced course for students who are specializing in markets and marketing and foreign trade.

Prerequisites: ES 101, 203, or equivalent. Third term; 3 credits; 3 recitations.

Mrs. Whaley.

ES 425. Marketing Manufactured Goods. A course that treats marketing from the standpoint of the manufacturer. Merchandising channels, sales organizations, sales management, and the economics of advertising are critically considered.

Prerequisite: ES 402. Second term; 4 credits; 4 lectures and recitations. (G)

Professor Comish.

ES 603. Markets and Marketing. Continuation of ES 402. An intensive study of the products entering domestic and foreign trade and the methods

of marketing them. Among other topics taken up are the following: development of marketing systems; market news; price factors; speculation, organized and unorganized; local, state, and national commercial programs and policies; commercial clubs, boards of trade, chambers of commerce.

Elective upon consultation with the instructor. Third term; 4 credits; 4 recitations. (G) Professor Comish.

ES 606. Cooperative Marketing Organization. Principles of organization, management, and operation of cooperative marketing associations; application to the various types of agricultural commodities. Emphasis on types of organization and methods of formation, financial and operating policies, membership relations, marketing machinery and functions, sales methods and policies, and public relations.

Prerequisites: ES 203; or ES 205, 206; or ES 362 or 391; ES 402. First term; 3 credits; 3 recitations. (G) Professor Nelson.

Political Science

IN the courses in Political Science proper the department seeks to instruct in the basic general principles of all government, the structure and operation of modern governments, with particular attention to that of the United States, and the rules and principles which regulate the relations of governments to each other. The courses are planned with the purpose of equipping students for an intelligent participation in governmental affairs. The work culminates in the courses in Advanced American Government and Practical Legislation, designed to instruct in the fundamentals of lawmaking. The work assumes that, as citizens, students and graduates will take a dynamic part in the various activities of government, including lawmaking.

In the Business Law courses the department endeavors to train students for practical business affairs, particularly to give the legal information necessary to prevent the common business errors. Special attention is given to industrial and rural problems.

NOTE: The courses in Political Science are arranged in numerical order within the following groups: Business Law, Government.

COURSES IN BUSINESS LAW

PS 263. Introduction to Business Law. A short course in the laws of business, covering briefly much the same field as PS 201 and PS 202, but applied particularly to the special needs of students. Work for Pharmacy students gives emphasis to strictly business law. Work for Agriculture students stresses farm law. Recitations and discussions.

Third term; 3 credits; 3 recitations.

Associate Professor LeMaster, Assistant Professor Riddlesbarger.

PS 201. Business Law. (a) Contracts in General. Requisites, formation, interpretation, and remedies for breach of contracts. (b) Sales of personal property. Passage of title, warranties and remedies.

First or second term; 4 credits; 4 recitations.

Associate Professor LeMaster, Assistant Professors
Chambers and Riddlesbarger.

PS 202. Business Law. Continuation of PS 201. (c) Negotiable instruments. Requisites of contract assignment and negotiation. Liability of maker, drawer, acceptor, and indorser. Proceedings to protect rights of parties. (d) Agency. Appointment powers and responsibilities of agents. (e) Partnership and Corporation. Comparison of methods of formation, dissolution, and powers and liabilities of members. (f) Property. Classes; titles, abstracts, mortgages, and leases. The case method is used throughout the course. Lectures, reports, and discussions.

Second or third term; 4 credits; 4 recitations.

Associate Professor LeMaster, Assistant Professors
Chambers and Riddlesbarger.

PS 413. Corporation Law. This course is designed for those who transact business with and through corporations and cooperative organizations. A study of the nature, classification, manner of creation, organization, powers, membership rights and obligations of members, duties and liabilities of directors and agents, rights of creditors, and dissolution of corporations.

Prerequisites: PS 201, 202. Third term; 4 credits; 4 recitations.

Assistant Professor Riddlesbarger.

PS 423. Real Estate Law. Planned to give a knowledge of the law pertaining to real property such as estates and land, mortgages, abstracts of title, deeds and related subjects. Designed for students in Real Estate. Lectures, cases, reports, and discussions.

Third term; 3 credits; 3 recitations.

Associate Professor LeMaster.

PS 601, 602. Business Law. (Advanced.) Essential principles of business law, including contracts, sales of personal property, partnerships, agency, corporations, negotiable instruments, and real property. Cases and problems are used constantly. Research projects are assigned in keeping with the special interests of the student involved. For graduate students other than Commerce.

First and second terms; 4 credits each term; 4 recitations. (g)

Associate Professor LeMaster.

COURSES IN GOVERNMENT

PS 301. National Government. Consideration of the organization, functions, and present-day problems of the American Federal Government.

Any term; 3 credits; 3 recitations.

Professors Dubach and Magruder, Associate Professor LeMaster,
Assistant Professors Chambers and Riddlesbarger.

PS 302. State and Local Government. Consideration of the organization, functions, and present-day problems of state, county, and township

government in the United States. The government of Oregon receives special attention.

Second or third term; 3 credits; 3 recitations.

Professor Magruder, Associate Professor LeMaster,
Assistant Professor Riddlesbarger.

PS 303. Municipal Government. Consideration of the organization, functions, and present-day problems of city and town government. The cities of the Northwest receive special attention.

Third term; 3 credits; 3 recitations.

Professor Magruder, Assistant Professor Chambers.

PS 401. International Relations. A brief description of the leading governments of the world and a discussion of their interrelations, with emphasis upon their relations with the United States. General principles of international law, the League of Nations, and current political events are considered.

First or third term; 4 credits; 4 recitations. (g) Professor Magruder.

PS 402. Comparative Governments. A critical study of the governments of the principal countries of Europe with emphasis on modern movements and features of government that are problems in the United States at present. Lectures, reports, and discussions.

Second term; 3 credits; 3 recitations. (g) Professor Magruder.

PS 403. Comparative Governments. A critical study of the governments of the countries of Latin America with emphasis on modern movements having a bearing upon problems in the United States. Lectures, reports, and discussions.

Third term; 3 credits; 3 recitations. (g) Professor Dubach.

PS 404, 405, 406. Seminar in Political Science. Discussions of current political and legal topics led by the various instructors in the department. Questions pertaining to the American government are considered the first term, legal questions the second, and foreign problems the third term. Open only to seniors who have completed all sophomore and junior work in Political Science.

Three terms; 1 credit each term; 1 period. (g)

Professor Magruder, Associate Professor LeMaster,
Assistant Professor Chambers.

PS 411. American Government. (Advanced course.) Supplementary to PS 301, 302, and 303, giving chief attention to the interpretation of Federal and State constitutions, and the relation of legislation to the constitutions. Court reports are used liberally to show the interpretation of the rights of the people guaranteed in the constitutions and of the powers granted to the government by these instruments.

Prerequisite: PS 301. First term; 4 credits; 4 recitations. (g $\frac{3}{4}$)

Associate Professor LeMaster.

PS 412. **Practical Legislation.** Instruction in practical bill drafting; attention to correct form, and expression of desired content of bills; emphasis on the necessity of preparing laws with reference to prior legislation and court decisions; emphasis on rural and industrial legislation.

Prerequisite: PS 411. Second term; 4 credits; 4 recitations. (g)

Professor Dubach.

Secretarial Training

COURSES offered by this department are designed for three classes of students: (a) those desiring a thorough training for positions as responsible secretaries; (b) those who intend to teach commercial branches in high schools, and (c) high school commercial teachers desiring advanced training.

Equipment. The Secretarial Training department is equipped with the latest office appliances and fixtures, including the standard types of typewriters, duplicators, mimeographs, dictaphones, mimeoscopes, filing cabinets, and adding, bookkeeping, and accounting machines. Each student is given access to equipment upon payment of a fee required for the course in which he is registered. All appliances and equipment are kept in constant repair. Students are taught how to keep and repair the appliances they use.

DESCRIPTION OF COURSES*

ST 101, 102, 103. **Stenography.** Theory of Gregg shorthand; practical application of theory principles in sentence dictation. Typing (ST 111, 112, 113) must be taken concurrently with this course unless the student has had the equivalent. Students who have had at least one year of Gregg shorthand are not permitted to take course ST 101 for credit.

Three terms; 3 credits each term; 4 recitations.

ST 111, 112, 113. **Typing.** Theory and practice of touch typing; rhythm drills, dictation exercises; writing paragraphs; punctuation and mechanical arrangement of business correspondence, legal forms, tabulating, manifold-ing, speed practice. Students who have had at least one year of typing are not permitted to take ST 111 for credit.

Three terms; 2 credits each term; 5 periods laboratory work; 1 hour home assignment. Fee \$2.00 each term.

ST 201, 202. **Applied Stenography.** Advanced principles and phrases of Gregg shorthand; dictation and transcripts covering vocabularies of representative businesses, such as law, banking, insurance, railway, and manufacturing; advanced dictation, legal forms, newspaper and magazine articles.

*Less than 9 credits in Stenography or 6 credits in Typing will not be counted toward the bachelor's degree in Commerce.

Prerequisites: ST 103 and 113 or equivalent. First and second terms; 5 credits each term; 5 recitations; 5 hours home work; 5 one-hour laboratory periods. Fee \$2.00 each term.

ST 203. **Office Procedure.** Training course in stenographic methods and office practice, advanced dictation, transcripts, practical use of modern office appliances.

Prerequisite: ST 202 or equivalent. Any term; 5 credits; 2 lectures; 4 two-hour laboratory periods. Fee \$2.00.

ST 251, 252, 253. **Office Methods and Appliances.** Designed for students not taking stenography. Study and use of modern office appliances such as mimeoscope, mimeograph, dictaphones, calculating and bookkeeping devices, filing and office routine. Principles and practice of scientific office management covering organization, arrangement, and operation with special consideration of the employment and training of office workers. Office efficiency problems and business ethics.

Prerequisites: ST 112, BO 102. Three terms; 2 credits each term; 1 lecture; 2 two-hour laboratory periods; 1 hour home assignment. Fee \$2.00 each term.

ST 261. **Expert Typing.** Emphasis on artistic typing and rapid tabulating, billing, and manifolding, with absolute accuracy. A speed of sixty-five words a minute is required. Proficiency certificates for speed and accuracy are granted.

Prerequisite: ST 113. First or third term; 2 credits; 5 laboratory periods; 1 hour home assignment. Fee \$2.00.

ST 404, 405, 406. **Seminar in Secretarial Training.** Research and survey course in the organization and practice of a modern office in which the student is especially interested and prepared.

Three terms; 1 credit each term; 1 period.

ST 411, 412. **Secretarial Training.** A survey of the duties of the secretary in business and the professions; relation of the private secretary to the employer; office organization and management. Lectures, investigation, assigned reading. Study and application of actual problems in college offices.

Prerequisite: ST 203 or equivalent. First and second terms; 3 credits each term; 3 lectures.

School of Engineering and Mechanic Arts

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.
HARRY STANLEY ROGERS, C.E., Dean of the School of Engineering and Mechanic Arts; Director of the Engineering Experiment Station.
SAMUEL HERMAN GRAF, M.S., Director of Engineering Research.
MARION HANSON, Secretary to the Dean.

Civil Engineering

HARRY STANLEY ROGERS, C.E., Professor of Civil Engineering.
JAMES RINALDO GRIFFITH, C.E., Professor of Structural Engineering.
SAMUEL MICHAEL PATRICK DOLAN, C.E., Associate Professor of Civil Engineering.
CHARLES ARTHUR MOCKMORE, C.E., Associate Professor of Civil Engineering.
BURDETTE GLENN, B.S., Assistant Professor of Civil Engineering.
GLENN WILLIS HOLCOMB, B.S., Assistant Professor of Civil Engineering.
FRED MERRYFIELD, B.S., Assistant Professor of Civil Engineering.
RUPERT ALRED WANLESS, B.S., Instructor in Civil Engineering.
CECIL SIDNEY CAMP, B.S. (in C.E.), Instructor in Civil Engineering.
GEORGE BURKHALTER HERINGTON, D.E., Executive Secretary, Portland A. G. C.,
Lecturer on Construction Administration.

Electrical Engineering

RICHARD HAROLD DEARBORN, E.E., Professor of Electrical Engineering.
LAWRENCE FISHER WOOSTER, B.S., Professor of Applied Electricity.
FRED ORVILLE McMILLAN, M.S., Research Professor of Electrical Engineering.
HAROLD COCKERLINE, B.S., Assistant Professor of Electrical Engineering.
ARTHUR LEMUEL ALBERT, M.S., Assistant Professor of Electrical Engineering.
EUGENE CARL STARR, B.S., Assistant Professor of Electrical Engineering.
BEN HODGE NICHOLS, B.S., Instructor in Electrical Engineering.

Highway Engineering

GORDON VERNON SKELTON, C.E., Professor of Highway Engineering.

Industrial Arts

GEORGE BRYAN COX, B.S., Professor of Industrial Arts; Director of Engineering Shops.

AMBEROSE ELLIOTT RIDENOUR, B.S., Assistant Professor of Industrial Arts.

MARTIN LOUIS GRANNING, Instructor in Machine Shop.

WILLIAM HAMILTON HORNING, Instructor in Forging.

EDWIN DAVID MEYER, B.S., Instructor in Industrial Arts.

ALFRED CLINTON HARWOOD, Mechanician.

Mechanical Engineering

FREDERICK GOTTLIEB BAENDER, M.M.E., Professor of Mechanical Engineering.

WALLACE HOPE MARTIN, M.E., M.S., Professor of Heat Engineering.

MARK CLYDE PHILLIPS, B.M.E., Associate Professor of Mechanical Engineering; Superintendent of Heating.

WALTER RICHARD JONES, M.E., Assistant Professor of Aeronautical Engineering.

ROBERT EDWARD SUMMERS, B.S., Assistant Professor of Mechanical Engineering.

JOHN HENRY CLOUSE, M.E., Assistant Professor of Mechanical Engineering.

EARL CLARK WILLEY, B.S., Instructor in Mechanical Engineering.

WILLIAM HOWARD PAUL, B.S., Instructor in Mechanical Engineering.

RAY FRED NEWTON, B.S., Instructor in Mechanical Engineering.

WILL JAMES KOLLAS, B.S., Research Fellow in Mechanical Engineering.

Mechanics and Materials

SAMUEL HERMAN GRAF, M.S., Professor of Mechanics and Materials.

CHARLES EDWIN THOMAS, M.E., Associate Professor of Mechanics and Materials.

IVAN FREDERIC WATERMAN, C.E., Assistant Professor of Mechanics and Materials.

JAMES CAREY OTHUS, M.E., Assistant Professor of Mechanics and Materials.

GEORGE WALTER GLEESON, B.S. (in Ch.E.), Instructor in Mechanics and Materials.

Curricula in Engineering and Industrial Arts

B.S. and M.S. Degrees

*Civil Engineering
Electrical Engineering*

*Mechanical Engineering
Industrial Arts*

FOUR-YEAR curricula leading to the degree of Bachelor of Science are offered in the School of Engineering as follows: a general curriculum in Civil Engineering with options in Highway and in Hydraulic and Sanitary Engineering; a general curriculum in Electrical Engineering; a general curriculum in Mechanical Engineering with an option in

Aeronautical Engineering; curricula in Industrial Arts Education and Industrial Shop Administration.

A minor for Commerce students in courses offered in the School of Engineering is outlined under the School of Commerce.

Requirements for Graduation. In each of the four-year curricula offered in the School of Engineering, 207 college credits are required for the bachelor's degree. These credits include the required work in physical education and military science.

Common Freshman Year. All students registered in Civil, Electrical and Mechanical Engineering have the same work throughout the freshman year. The common first-year program in General Engineering has been arranged to permit students to wait until the beginning of the second year before deciding finally upon the particular branch of engineering they wish to follow. After spending one year in college a student will be able to make a more intelligent choice.

The freshman program for students in Industrial Arts is given on page 262.

Graduate Curricula. The degree of Master of Science is offered to graduates of the College, or other colleges of equal rank, who have attained the degree of Bachelor of Science in some engineering curriculum, and met the College requirements for graduate study. These requirements specify one full year of resident work amounting to 48 college credits, including an acceptable thesis.

Curriculum in General Engineering

Freshman year for students in Civil, Electrical, and Mechanical Engineering. For the freshman year in Industrial Arts see page 262.

	Term credits—		
	1st	2d	3d
Trigonometry (Mth 122), College Algebra and Analytic Geometry I, II (Mth 134, 135).....	5	5	5
Engineering Physics (Ph 101, 102, 103).....	3	3	3
English Composition (Eng 101, 102, 103).....	3	3	3
Linear Drawing and Lettering (GE 111).....	2	---	---
Elementary Mechanical Drawing (GE 112).....	---	2	---
Mechanical Drawing (GE 113).....	---	---	2
Engineering Problems (GE 101, 102, 103).....	2	2	2
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	17½	17½	17½

Curricula in Civil Engineering

CIVIL ENGINEERING: GENERAL CURRICULUM

B.S. Degree

Sophomore Year

Differential and Integral Calculus (Mth 251, 252, 253).....	4	4	4
General Chemistry (Ch 101, 102, 103).....	3	3	3
Plane Surveying (CE 221, 222, 223).....	5	3	3
Field Curves (CE 231), Curves and Earthwork (CE 232).....	---	3	3
Descriptive Geometry (CE 211).....	3	---	---
Mechanics (MM 351, 352).....	---	3	3
Physical Education.....	2½	2½	2½
Military Science and Tactics.....	2	2	2
	17½	18½	18½

	Term credits		
	1st	2d	3d
Junior Year			
Strength of Materials (MM 354).....	4	.....	.....
Structural Analysis (CE 381).....	.....	4	.....
Reinforced Concrete (CE 371).....	.....	.....	4
Hydraulics, Hydraulic Machinery (CE 311, 312, 313).....	3	3	3
Materials of Engineering (MM 311).....	3	.....	.....
Structural Laboratory (MM 427).....	.....	3	.....
Roads and Pavements (HE 313).....	.....	.....	4
Steam, Air, and Gas Power (ME 345, 346).....	.....	3	3
General Geology (G 301).....	3	.....	.....
¹ Extempore Speaking (PSP 254) (Elective).....	(3)	.....	.....
Electives	3	3	3
	16	16	17

Senior Year			
Structural Engineering, Design (CE 482, 483).....	4	4	.....
Building Design (CE 475).....	.....	.....	4
Masonry and Foundations (CE 472).....	4	.....	.....
Hydrology, Hydraulic Design (CE 411, 412).....	.....	3	3
Contracts and Specifications (HE 427).....	3	.....	.....
Estimating and Cost Analysis (CE 460).....	.....	3	.....
Engineering Administration (CE 461).....	.....	.....	3
National Government (PS 301).....	3	.....	.....
Principles of Accounting for Engineers (BO 385).....	.....	3	.....
Introduction to Economics (ES 391).....	3	4	3
Electives	3	4	4
	17	17	17

CIVIL ENGINEERING: HIGHWAY OPTION*B.S. Degree*

Senior Year			
Structural Engineering, Design (CE 482, 483).....	4	4	.....
Building Design (CE 475).....	.....	.....	4
Highway Engineering (HE 411, 412, 413).....	4	3	4
Highway Materials Laboratory (MM 426).....	3	.....	.....
Economics of Highway Construction (HE 416).....	.....	3	.....
Contracts and Specifications (HE 427).....	.....	.....	3
National Government (PS 301).....	3	.....	.....
Principles of Accounting for Engineers (BO 385).....	.....	3	.....
Introduction to Economics (ES 391).....	3	4	3
Electives	3	4	4
	17	17	18

CIVIL ENGINEERING: HYDRAULIC AND SANITARY ENGINEERING OPTION*B.S. Degree*

	Term credits		
	1st	2d	3d
Sophomore Year			
Differential and Integral Calculus (Mth 251, 252, 253).....	4	4	4
General Chemistry (Ch 101, 102, 103).....	3	3	3
Plane Surveying (CE 221, 222, 223).....	5	3	3
General Bacteriology (Bac 204, 205).....	.....	3	3
Descriptive Geometry (CE 211).....	3	.....	.....
Mechanics (MM 351, 352).....	.....	3	3
Physical Education.....	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Military Science and Tactics.....	2	2	2
	17 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$

¹Recommended but not required.

	Term credits		
	1st	2d	3d
Junior Year			
Hydraulics, Hydraulic Machinery (CE 311, 312, 313).....	3	3	3
Strength of Materials (MM 353).....	3	---	---
Structural Analysis (CE 381).....	---	4	---
Reinforced Concrete (CE 371).....	---	---	4
Qualitative Analysis (Ch 231).....	5	---	---
Quantitative Analysis (Ch 241).....	---	3	---
Microscopy of Waters (Bac 342).....	---	---	3
Sanitary Bacteriology (Bac 341).....	---	3	---
Materials of Engineering (MM 311).....	---	---	3
Geology (G 301).....	3	---	---
Electives.....	3	3	3
	17	16	16

Senior Year			
Sewerage (CE 453).....	3	---	---
Hydrology (CE 411).....	---	3	---
Sewage Disposal (CE 454).....	---	---	3
Masonry and Foundations (CE 472).....	4	---	---
Water Supply (CE 452).....	---	3	---
Water Filtration (CE 455).....	---	---	3
Sanitary Chemistry (ChE 451).....	3	---	---
Public Health Administration (H 414).....	---	---	3
Seminar (CE 421, 422, 423).....	1	1	1
National Government (PS 301).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	3	---
Introduction to Economics (ES 391).....	---	---	3
Elective in Hygiene.....	3	3	---
Electives.....	3	4	4
	17	17	17

Curriculum in Electrical Engineering

(No Specialized Options)

B.S. Degree

Sophomore Year			
Differential and Integral Calculus (Mth 251, 252, 253).....	4	4	4
General Chemistry (Ch 101, 102, 103).....	3	3	3
Introduction to Electrical Engineering (EE 201, 202, 203).....	4	4	4
Foundry Practice (IA 240).....	2	---	---
Machine Shop Practice (IA 260).....	---	2	---
Forging and Welding (IA 250).....	---	---	2
Plane Surveying (CE 226).....	3	---	---
Elements of Machine Design (ME 242).....	---	3	---
Extempore Speaking (PSP 254).....	---	---	3
Physical Education.....	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Military Science and Tactics.....	---	---	2
	18 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$

Junior Year			
Electrical Engineering (EE 301, 302, 303).....	3	3	3
Electrical Laboratory (EE 321, 322, 323).....	3	3	3
Mechanics (MM 351, 352).....	3	3	---
Strength of Materials (MM 353).....	---	---	3
Heat Power Engineering (ME 331, 332).....	3	3	---
Hydraulics (CE 321).....	---	---	3
National Government (PS 301).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	3	---
Introduction to Economics (ES 391).....	---	---	3
Electives.....	3	3	3
	18	18	18

	Senior Year		
	Term credits		
	1st	2d	3d
Electrical Engineering (EE 401, 402, 403).....	3	3	3
Electrical Design (EE 411, 412, 413).....	1	1	1
Electrical Laboratory (EE 421, 422), or Communication Laboratory (EE 462).....	3	3	---
Industrial Engineering (ME 471).....	---	---	3
Hydraulic Power Plants (CE 322) or Heat Power Engineering (ME 333).....	3	---	(3)
Materials of Engineering (MM 311).....	---	3	---
Wood and Steel Structures (CE 488).....	---	---	3
Technical options.....	2	2	2
Electives.....	3	3	3
	15	15	15

Curricula in Mechanical Engineering

MECHANICAL ENGINEERING: GENERAL CURRICULUM

B.S. Degree

	Sophomore Year		
	Term credits		
	1st	2d	3d
Differential, Integral Calculus (Mth 251, 252, 253).....	4	4	4
General Chemistry (Ch 101, 102, 103).....	3	3	3
Plane Surveying (CE 226).....	---	---	3
Foundry Practice (IA 240).....	2	---	---
Machine Shop Practice (IA 260).....	---	2	---
Forging and Welding (IA 250).....	---	---	2
Mechanism (ME 213).....	---	3	---
Descriptive Geometry (ME 211).....	3	---	---
Heat Engineering (ME 221, 222, 223).....	2	2	2
Physical Education.....	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Military Science and Tactics.....	2	2	2
	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$

Junior Year

National Government (PS 301).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	3	---	---
Introduction to Economics (ES 391).....	---	3	---
Industrial Engineering (ME 471).....	---	---	3
Hydraulics (CE 341).....	3	---	---
Hydraulic Machinery (CE 342).....	---	3	---
Mechanics (MM 351, 352).....	3	3	---
Strength of Materials (MM 353).....	---	---	3
Materials of Engineering (MM 311).....	---	---	3
Heat Engineering (ME 321, 322, 323).....	3	3	3
Mechanical Engineering Laboratory (ME 352, 353).....	---	3	3
Electives.....	3	3	3
	18	18	18

Senior Year

Metallography and Pyrometry (MM 481).....	3	---	---
Power Plant Engineering (ME 431, 432).....	---	3	3
Engineering Laboratory (ME 451, 452, 453).....	2	2	2
Machine Design (ME 411, 412, 413).....	3	3	3
Direct Currents (EE 251).....	3	---	---
Alternating Currents (EE 252).....	---	3	---
Alternating Current Machinery (EE 253).....	---	---	3
Fuel Engineering (ME 441, 442, 443).....	3	3	3
Electives.....	3	3	3
	17	17	17

MECHANICAL ENGINEERING: AERONAUTICAL OPTION

B.S. Degree

	Term credits		
	1st	2d	3d
Junior Year			
Heat Engineering (ME 321, 322, 323).....	3	3	3
Introduction to Economics (ES 391).....		3	---
Principles of Accounting for Engineers (BO 385).....	3	---	---
Electrical Ignition Systems (EE 255).....		3	---
Hydraulics (CE 341).....	3	---	---
Mechanics (MM 351, 352).....		3	---
Materials of Engineering (MM 311).....		---	3
National Government (PS 301).....	3	---	---
Strength of Materials (MM 353).....		---	3
Mechanical Engineering Laboratory (ME 352, 353).....	---	3	3
Aerodynamics (ME 343).....		---	3
Electives.....	3	3	3
	18	18	18
Senior Year			
Aero Propulsion (ME 421).....	3	---	---
Machine Design (ME 411, 412).....	3	3	---
Industrial Engineering (ME 471).....	---	---	3
Metallography and Pyrometry (MM 481).....	---	---	3
Engineering Laboratory (ME 451, 452).....	2	2	---
Fuel Engineering (ME 441, 442).....	3	3	---
Structural Analysis (CE 381, 485).....	4	3	---
Airplane Design (ME 425, 426).....	---	3	3
Electives.....	3	3	7
	18	17	16

Curricula in Industrial Arts

GENERAL INDUSTRIAL ARTS

Freshman and sophomore years for students in Industrial Arts. At the end of the sophomore year the student chooses as his major either Industrial Arts Education or Industrial Shop Administration.

	Term credits		
	1st	2d	3d
Methods in Woodworking (IA 111, 112).....	3	3	---
Sheet Metal Work (IA 280).....		---	3
Forging (IA 151).....	3	---	---
Foundry Practice (IA 142).....		3	---
Machine Shop (IA 163).....	---	---	3
Linear Drawing and Lettering (GE 111).....	2	---	---
Elementary Mechanical Drawing (GE 112).....	---	2	---
Mechanical Drawing (GE 113).....	---	---	2
Methods of Study (Ed 101).....	3	---	---
Mental Hygiene (Psy 100).....	---	3	---
Trigonometry (Mth 122).....	---	---	5
English Composition (Eng 101, 102, 103).....	3	3	3
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	16½	16½	18½

	Term credits		
	1st	2d	3d
Sophomore Year			
Industrial Arts Drawing (A 231).....	3	---	---
¹ Industrial Arts Design (A 232) or ² Elements of Machine Design (ME 242).....	---	3	---
Machine Drawing (ME 243).....	---	---	2
Descriptive Geometry (CE 211).....	3	---	---
House Planning (Ar 331).....	---	3	---
³ Mill Work—Machine Woodwork (IA 311) or Production Machine Work (IA 363).....	---	---	3
Machine and Tool Maintenance (IA 225 or 265).....	---	---	3
General Physics (Ph 111, 112, 113) or General Chemistry (Ch 101, 102, 103).....	3	3	3
Extempore Speaking (PSP 254).....	3	---	---
Extempore Speaking (PSP 255) or History of Western Civilization (Hst 212).....	---	3	---
History of Western Civilization (Hst 212 or 213).....	---	---	3
⁴ Departmental Electives.....	2	2	---
Military Science and Tactics.....	2	2	2
Physical Education.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$

INDUSTRIAL ARTS EDUCATION

B.S. Degree

Junior Year			
General Psychology (Psy 201).....	5	---	---
Educational Psychology (Psy 222).....	---	3	---
Principles of Teaching (Ed 311).....	---	---	3
Educational Sociology (ES 307).....	3	---	---
Secondary Education (Ed 212).....	---	3	---
⁴ Organization and Special Methods (IEd 373).....	---	---	5
Automobile Mechanics (AE 281, 282).....	3	3	---
Practical Electricity (IA 370).....	---	---	3
Pattern Making (IA 231) or Carpentry (IA 223).....	3	---	---
Wood and Metal Finishing (IA 222).....	---	2	---
National Government (PS 301).....	---	3	---
Introduction to Economics (ES 391).....	---	---	3
Departmental Electives.....	2	2	2
Advised Electives.....	3	3	3
	19	19	19
Senior Year			
⁵ Supervised Teaching (Ed 401).....	5	---	---
Electives in Education.....	---	5	3
Trade Analysis (IEd 472).....	3	---	---
The General Shop and Its Problems (IEd 473).....	---	3	---
Measurement in Education (Ed 433).....	---	---	3
Materials of Engineering (MM 311) or ⁶ Commercial Woods (F 334).....	3	---	---
Home Mechanics and General Shop (IA 325).....	---	2	---
Shop Planning and Organization (IA 403).....	---	---	3
⁷ Business English (Eng 105).....	---	---	(3)
Departmental Electives.....	3	4	3
General Electives.....	3	3	3
	17	17	15

¹Required for those majoring in Industrial Arts Education.

²Required for those majoring in Industrial Shop Administration.

³Departmental electives for first and second terms should be chosen in line with intended option. Those electing Production Machine Work during third term should elect IA 261 and 264 during first and second terms.

⁴May be deferred to first term, senior year, for those who plan to do supervised teaching during the second and third terms of that year. In case of deferment, it is recommended that electives in Education be advanced to the third term of the junior year, and Business English be elected to complete the work of that year.

⁵All seniors report to head of department at first opportunity (before registration, if possible), for assignment to sections.

⁶Note that Commercial Woods is offered during the third term only. Those desiring this course should register for an additional three-credit departmental elective during the first term and for F 334 during the third term.

⁷Recommended but not required.

INDUSTRIAL SHOP ADMINISTRATION

B.S. Degree

	Term credits		
	1st	2d	3d
Junior Year			
¹ Business Law (PS 201, 202).....	4	4	4
Labor Problems (ES 301).....	3	---	---
Introduction to Economics (ES 391).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	3	---
Analysis of Financial Statements (BO 203).....	---	---	3
General Chemistry (Ch 101, 102, 103) or General Physics (Ph 111, 112, 113).....	3	3	3
Pattern Making (IA 231) or Carpentry (IA 223).....	3	---	---
Departmental Electives.....	2	5	5
Advised Electives.....	3	3	3
	18	18	18
Senior Year			
Business Organization and Management (BO 331, 332).....	3	3	---
Cost Accounting (BO 407).....	---	---	3
Trade Analysis (IEd 472).....	3	---	---
Foreman Training (IEd 480).....	---	3	---
Personnel Management (ES 407).....	---	---	3
Contracts and Specifications (HE 427).....	3	---	---
Industrial Engineering (ME 471).....	---	---	3
Materials of Engineering (MM 311).....	3	---	---
Metallography and Pyrometry (MM 481) or ² Commercial Woods (F 334).....	---	3	---
Departmental Electives.....	2	6	5
General Electives.....	3	3	3
	17	18	17

General Engineering

ENGINEERING courses required in the common freshman year are grouped in the department of General Engineering. The courses include Engineering Problems (GE 101, 102, 103) and three courses in Mechanical Drawing (GE 111, 112, 113). The General Engineering department courses are taught by members of the Civil, Mechanical, and Electrical Engineering departmental staffs, who for purposes of coordination and unified effort work as a committee in planning and supervising the instruction.

DESCRIPTION OF COURSES

GE 101, 102, 103. **Engineering Problems.** Lectures and problems dealing in an elementary way with the general field of engineering. The purpose of the instruction is fourfold: first, to inform the student concerning the problems and occupations in the various fields of engineering; second, to unify the purpose of all courses in the engineering curricula; third, to assist the student in the acquisition of elementary knowledge in the fields of civil, mechanical, and electrical engineering; and fourth, to train the student in engineering habits of thinking and expression.

¹Those majoring in Industrial Shop Administration must present evidence of not less than two months satisfactory employment in an industrial plant or manufacturing establishment. It is recommended the summer periods be used for this purpose.

²Note that Commercial Woods is offered during the third term only. Students desiring this course should register for an additional three-credit departmental elective during the second term and for F 334 during the third term.

Three terms; 2 credits each term; 1 lecture; 2 two-hour problem periods. Fee \$1.00.

GE 111. Linear Drawing and Lettering. Training in the use of drafting instruments and in the art of lettering. Intended for students who have had no previous college training in mechanical drawing. The instruments and materials for this course cost about \$20.00. The instruments are used in all later drawing courses.

First or second term; 2 credits; 3 two-hour drawing periods. Fee \$0.50.

GE 112. Elementary Mechanical Drawing. Practice in making working drawings of machine parts; orthographic projection; methods of dimensioning and checking; use of auxiliary planes of projection; section drawings; study of isometric drawing; making tracings from these drawings.

Prerequisite: GE 111 or equivalent. Second or third term; 2 credits; 3 two-hour drawing periods. Fee \$0.50.

GE 113. Mechanical Drawing. A continuation of GE 112; also free-hand orthographic and perspective sketching; practical application of drawing principles to working drawings; use of charts and diagrams.

Prerequisite: GE 112. Third term; 2 credits; 3 two-hour drawing periods. Fee \$0.50.

Civil Engineering

THE curriculum in Civil Engineering is organized to train young men in those fundamental principles of engineering science and technology which are basic and common to the fields of geodesy and surveying, highways, railroads, irrigation and drainage, river and harbor improvements, structures, hydraulics, sanitation, and municipal engineering, and to permit some latitude of choice in the three general fields of structures, hydraulics, and highways. The civil engineer's problems in the development of the Northwest are directly related to the structural, hydraulic, and highway fields. The curriculum is planned to prepare graduates for advancement to responsible positions in these fields.

The organization of courses is developed about four general fields of knowledge and the sequence is determined for the purpose of developing strong continuity in these various fields. These groups of courses are general engineering science and technology; mathematics and physical science; English and social science; and military education, physical education, and free electives.

Equipment. The department is provided with quarters and equipment for adequately and thoroughly performing its work. The third floor of Apperson Hall is devoted to classrooms and drawing rooms. A large room on the ground floor of Mechanic Arts Building houses the surveying instru-

ments, and the entire middle third of the Engineering Laboratory is occupied by hydraulic equipment. The equipment of the instrument room consists of 29 transits, 25 levels, and 16 plane-tables; together with the necessary auxiliary supply of stadia, level, and line rods, hand levels, tapes, and other minor equipment.

The equipment of the hydraulic laboratory is adequate for the execution of all basic experimental work in the field of hydraulic engineering. The machinery installed is modern and complete. It is extensive enough so that all the theoretical studies of the classroom may be verified by the performance of machines in the laboratory. Classified upon the factors of quantity of water, pressure under which water is available, square feet of floor space, and value of equipment it ranks among the leading hydraulic laboratories of the United States. The major items of the equipment are two direct-connected 8-inch centrifugal pumps operated by 40-horse-power motors; a 35-inch Pelton impulse wheel with oil pressure governor; a 14-inch spiral cased Francis type reaction turbine with Pelton governor; a large pressure tank five feet in diameter by twenty feet high; and two 16,000-pound capacity weighing tanks mounted upon direct reading scales.

DESCRIPTION OF COURSES

CE 125. Plane Surveying. Theory, use, and adjustments of tape, compass, and level.

Second term; 3 credits; 1 recitation; 6 periods field work. Fee \$1.00.

CE 126. Plane Surveying. A continuation of CE 125. Theory, use, and adjustment of transit. Measurement and subdivision of land.

Prerequisite: CE 125. Third term; 5 credits; 2 recitations; 9 periods field work. Fee \$1.00.

CE 211. Descriptive Geometry. A study of the principles of orthographic projection and of their applications to the graphical solution of engineering problems.

Prerequisite: GE 112. First term; 3 credits; 1 recitation; 2 three-hour drawing periods. Fee \$1.00.

CE 221. Plane Surveying. Theory, use, and adjustment of level and transit. Measurement and subdivision of land.

First or third term; 5 credits; 2 recitations; 9 periods field work. Fee \$4.50.

CE 222. Plane Surveying. A continuation of CE 221. A study of surveying problems as related to subdivision of public land, farm and city surveying; special problems and methods; further practice in use of instruments; note-keeping.

Prerequisite: CE 221. Second term; 3 credits; 1 recitation; 6 periods field work. Fee \$1.00.

CE 223. Plane Surveying. Use of stadia and of plane-table; topographical mapping and drawing; determination of meridian by stellar and by solar observation.

Prerequisite: CE 222. Third term; 3 credits; 1 recitation; 6 periods field work. Fee \$3.00.

CE 224. Precise Surveying and Geodesy. Instruction in precise leveling, triangulation, base line measurement, stellar and solar observations.

Prerequisite: CE 223. Any term; 3 credits; 1 recitation; 6 periods field work. Fee \$1.00.

CE 226. Plane Surveying. Theory, use, and adjustment of engineer's level and transit.

First or third term; 3 credits; 1 recitation; 6 periods field work. Fee \$3.00.

CE 231. Field Curves. Instruction and field work in simple curves and compound curves as related to railroads, highways, and canals.

Prerequisite: CE 223. Second term; 3 credits; 2 recitations; 3 periods field work. Fee \$1.50.

CE 232. Curves and Earthwork. Instruction and field work in easement, and parabolic curves as related to railroads, highways, and canals. Complete survey of a transportation line, reconnaissance, preliminary, and location surveys; estimates of quantities.

Prerequisite: CE 231. Third term; 3 credits; 1 recitation; 6 periods field work. Fee \$3.00.

CE 311. Hydraulics. A study of the principles underlying pressure and flow of water; laboratory measurements of pressure and flow. Planned particularly for Civil Engineering students.

First term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00.

CE 312. Hydraulics (Advanced). A continuation of CE 312. A study of the impulse and reaction of jets and energy of water.

Prerequisite: CE 311. Second term; 3 credits; 1 recitation; 4 periods laboratory work. Fee \$1.00.

CE 313. Hydraulic Machinery. Operation, characteristics, efficiency, theory, design, and installation of pumps and turbines; laboratory studies. Planned particularly for Civil Engineering students.

Prerequisite: CE 312. Third term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00. (G)

CE 321. Hydraulics. A study of the principles underlying and laboratory measurements of the pressure, flow, and energy of water. Planned particularly for Electrical Engineering students.

Third term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00.

CE 322. Hydraulic Power Plants. A study of the application of the principles of hydraulics to power production in hydro-electric plants; stream flow, dams, head works, pipe lines, wheels, and speed regulation.

Prerequisite: CE 321. First term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00.

CE 341. **Hydraulics.** A course similar to CE 321 for students in Mechanical Engineering.

First term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00.

CE 342. **Hydraulic Machinery.** A study of the application of the principles of hydraulics to the performance and design of pumps and turbines and the layout of pumping and power plants.

Prerequisite: CE 321 or 341. Second term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$3.00.

CE 371. **Reinforced Concrete.** Study and design of slabs, beams, and columns of reinforced concrete.

Prerequisite: MM 353. Third term; 4 credits; 2 recitations; 4 periods laboratory work. Fee \$1.00.

CE 381. **Structural Analysis.** Graphical and algebraic analysis of simple roof and bridge structures.

Prerequisite: MM 351. First or second term; 4 credits; 2 recitations; 4 periods laboratory work. Fee \$1.50.

CE 387. **Structural Analysis.** Analysis of roof trusses.

Prerequisite: MM 351. Second term; 2 credits; 1 recitation; 3 periods laboratory work. Fee \$1.00.

CE 411. **Hydrology.** A study of precipitation, storage and run-off; field studies in standard methods of measurement.

Second term; 3 credits; 2 recitations; 3 periods field and laboratory work. Fee \$1.00.

CE 412. **Hydraulic Design.** Selection, design, and construction for the storage, conveyance, distribution, control, and measurement of water.

Prerequisite: CE 312. Third term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00. (g)

CE 413. **Reclamation Engineering.** Preliminary investigations and design of drainage and irrigation systems.

Prerequisite: CE 312. Third term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00. (G)

CE 421, 422, 423. **Seminar.** Members of the senior classes in Civil, Hydraulic, and Highway Engineering and the departmental faculty constitute the seminar. The purposes of the seminar are to examine current engineering literature and practice and to provide additional practice in oral and written English.

Three terms; 1 credit each term; 1 lecture. Fee \$2.00.

CE 433. Railroad Engineering. A study of methods in railway construction, maintenance, and valuation, of standard structures, trestles, tunnels, culverts, minor bridges, ballast, rails and rail fastenings, yards, terminals, etc.

Prerequisite: CE 232. Second term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00.

CE 451. Water Power Engineering. Development of water power; storage and load; characteristics of modern turbines; selection of turbines; practical problems in design.

Prerequisite: CE 313, 322, or 342. Any term; 3 credits; 1 recitation; 6 periods laboratory work. Fee \$1.00. (G)

CE 452. Water Supply. A study of the quality and quantity of water necessary for a municipal supply and of works for its collection, purification, and distribution.

Any term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00. (G)

CE 453. Sewerage. A study of the quantity of municipal sewage flow and of works for its removal and disposal.

Any term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00. (g)

CE 454. Sewage Disposal. The several processes for the disposal and treatment of sewage; problems and considerations encountered in the design and operation of sewage treatment plants.

Prerequisite: CE 453. Third term; 3 credits; 2 recitations; 3 laboratory periods. Fee \$1.00. (G)

CE 455. Water Filtration. The methods of filtering water; the problems and considerations encountered in the design and operation of filtration plants.

Prerequisite: CE 452. Third term; 3 credits; 2 recitations; 3 periods laboratory work. Fee \$1.00. (G)

CE 460. Estimating and Cost Analysis. Procedure in quantity surveying; general and detailed considerations in establishing unit prices; sub-contracts, overhead cost and profit; methods of preparing estimates in construction.

Second term; 3 credits; 3 recitations. Fee \$1.00. (g)

CE 461. Engineering Administration. Fundamental construction operations; application of machinery to engineering construction; organization of construction operations; labor, housing, purchasing, and storing problems; financing a construction job.

Third term; 3 credits; 3 recitations. Fee \$1.00. (g)

CE 463. Irrigation Operation. Operation and maintenance of irrigation systems; protection of canals; maintenance of structures; delivery of water; organization; financial phases of operation.

Third term; 3 credits; 3 recitations.

CE 472. Masonry and Foundations. Study and design of masonry foundations, walls, piers, dams, and arches.

Prerequisite: CE 371. First term; 4 credits; 2 recitations; 6 periods laboratory work. Fee \$1.50.

CE 473. Reinforced Concrete and Foundation Design. Fundamental principles of reinforced concrete applied to design of power stations and machinery beds.

Prerequisite: MM 353. Third term; 3 credits; 1 recitation; 6 periods laboratory work. Fee \$1.00.

CE 475. Building Design. Study of various types and design of typical structural building frames.

Prerequisite: CE 371. Third term; 4 credits; 2 recitations; 6 periods laboratory work. Fee \$1.50.

CE 482. Structural Engineering. Design of simple steel structures, beams, through and deck plate girders, and viaducts.

Prerequisite: CE 381. First term; 4 credits; 2 recitations; 6 periods laboratory work. Fee \$1.50. (g)

CE 483. Structural Design. Design and estimating of roof and bridge trusses.

Prerequisite: CE 482. Second term; 4 credits; 2 recitations; 6 periods laboratory work. Fee \$1.50. (g)

CE 484. Structural Design. Design of voussoir and elastic arches.

Prerequisite: CE 483. Third term; 5 credits; 2 recitations; 9 periods laboratory work. Fee \$1.50. (G)

CE 485. Structural Analysis. (Advanced course.) A study of statically indeterminate structures.

Prerequisite: CE 381. Second term; 3 credits; 1 recitation; 6 periods laboratory work. Fee \$1.50. (G)

CE 486. Elastic Deformations and Secondary Stresses. A continuation of CE 485.

Prerequisite: CE 485. Third term; 3 credits; 1 recitation; 6 periods laboratory work. Fee \$1.50. (G)

CE 488. Wood and Steel Structures. Design of mill buildings.

Prerequisite: CE 387. Second or third term; 3 credits; 1 recitation; 6 periods laboratory work. Fee \$1.50.

CE 489. Trusses and Towers. Design of steel roof trusses and transmission towers.

First term; three credits; 1 recitation; 6 periods laboratory work. Fee \$1.00.

CE 691, 692, 693. **Graduate Study and Research.** Courses providing an opportunity to outline advanced studies in the science or technology of civil engineering. Comprehensive reports indicating a thorough mastery of the fields studied are required in each case.

Three terms; hours and credits to be arranged. (G)

CE 694, 695, 696. **Graduate Thesis.** Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; hours and credits to be arranged. (G)

Electrical Engineering

THE curriculum in electrical engineering is designed especially to train the young engineer in the fundamental principles of electrical engineering; the practical work in shop and laboratory is subordinated to this end. Practical acquaintance with actual conditions can be acquired only in the field during vacation and after graduation. For this reason, and in order to supplement his college education, the student is urged to spend at least a part of his vacation in some phase of electrical industry.

The electrical engineering industries of the Northwest have cooperated in providing opportunities for vacation employment in practical fields and many of the electrical manufacturing and operating companies throughout the United States have organized special training courses for introducing graduates to the field of application.

Equipment. The Electrical Engineering department is housed in Apperson Hall and adequately provided with classroom and laboratory facilities. The laboratory equipment is complete enough so that all the principles discussed in the classroom can be verified and demonstrated by tests.

The following laboratories are available for instructional and experimental work.

The sophomore laboratory has adequate facilities for investigating the fundamental principles of electricity.

The general power laboratory is equipped with direct and alternating current machinery of all the usual types. Several special machines are available for experimental work requiring unusual frequencies or voltages.

The standardizing laboratory is provided with equipment for the precise measurement of potential, current, and power over wide ranges and for the standardization and calibration of electrical measuring instruments, meters, instrument shunts and instrument transformers.

The communications laboratory is well equipped with apparatus and instruments for performing tests and making studies involving the currents, voltages, and frequencies used in electrical communication over wire circuits; for studying electronic devices; and for investigating electrical sound systems.

The storage battery laboratory contains both the lead-acid and alkaline types of cells, and equipment for charging and for performing complete storage-battery tests.

The illumination laboratory contains stationary and portable photometers for use in rooms arranged for testing of different types of light sources.

The high voltage laboratory is equipped with two 60-cycle high voltage testing transformers, one rated at 100 K.V-a, 200,000 volts and one at 10 K.V-a, 100,000 volts, and one impulse or lightning voltage generator capable of producing impulse voltages up to 600,000 volts and having adjustable wave fronts. This laboratory is also equipped with sphere gap voltmeters, electrostatic voltmeters, and Lichtenberg figure-type surge voltage recorders for measuring high voltages, a high voltage potentiometer, and other equipment necessary for the usual high voltage tests.

Oscillographs of the Duddell type and also the low voltage and Du Four cathode ray types are available for transient and high-frequency investigations in any of the laboratories.

DESCRIPTION OF COURSES

EE 201, 202, 203. Introduction to Electrical Engineering. An introductory study of fundamental electrical phenomena and their application to electrical engineering.

Three terms; 4 credits each term; 2 lectures; 1 two-hour problem period; 1 three-hour laboratory period. Fee \$3.00 each term.

EE 251. Direct Currents. A preliminary electrical course for non-electrical engineering students, covering the fundamentals of direct current circuits and direct current machines.

Prerequisites: Ph 101, 102, 103. First or second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00.

EE 252. Alternating Currents. A continuation of EE 251, covering alternating current circuits.

Second or third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00.

EE 253. Alternating Current Machinery. A continuation of EE 252, with emphasis placed on the study of machines and auxiliary equipment.

Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00.

EE 255. Electrical Ignition Systems. Study of the various types of electrical ignition systems from a theoretical standpoint; storage batteries, magnetos, and generators as sources of electromotive force; alternating and direct current systems compared.

Prerequisites: Ph 101, 102, 103. Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00.

EE 301, 302, 303. **Electrical Engineering.** A study of electrostatics, electromagnetism, and direct and alternating current machinery.

Three terms; 3 credits each term; 3 recitations.

EE 321, 322, 323. **Electrical Laboratory.** A study of alternating-, direct-current generator and motor equipment. Particular attention is given to voltage and speed regulation, armature reaction, parallel operation, wave form, efficiency and stability.

Three terms; 3 credits each term; 1 lecture; 1 three-hour laboratory period. Fee \$5.00 each term.

EE 401, 402, 403. **Electrical Engineering.** An analysis of electric-power generation, transmission, and distribution with special reference to the economic and financial problems involved.

Three terms; 3 credits each term; 3 lectures. (g)

EE 411, 412, 413. **Electrical Design.** Design and computations supplementary to courses EE 401, 402, 403.

Three terms; 1 credit each term; 1 three-hour period. (g)

EE 421. **Electrical Laboratory.** Alternating-current machinery and apparatus testing to determine the characteristics. The generation, regulation, conversion, and rectification of alternating currents are given special consideration and study with both indicating instruments and the oscillograph.

First term; 3 credits; 1 four-hour laboratory period. Fee \$5.00. (g)

EE 422. **Electrical Laboratory.** A study of alternating-current apparatus and circuits, including the transformer, the induction motor, the induction generator and the analysis of complex alternating-current waves taken in the laboratory by the method of Fourier.

Second term; 3 credits; 1 four-hour laboratory period. Fee \$5.00. (g)

EE 431. **Electric Lighting.** Study of electric lamps and their application to exterior and interior illumination.

First term; 3 credits; 3 recitations. (g $\frac{3}{4}$)

EE 432. **Industrial Lighting.** Problems in the application of illumination to industrial conditions.

Second term; 3 credits; 1 lecture; 2 recitations. (g $\frac{3}{4}$)

EE 442. **Electrical Transportation.** Study of the application of electricity to street and interurban railways; traffic conditions; rolling stock; speed time curves.

Second term; 3 credits; 3 recitations. (g)

EE 443. **Railway Electrification.** A study of factors governing the electrification of trunk lines.

Third term; 3 credits; 3 lectures. (G)

EE 451. **Electrical Transients.** A theoretical and experimental study of both direct and alternating current single energy and double energy transients in circuits and machines having both fixed and variable circuit constants.

First term; 3 credits; 1 lecture; 1 recitation; 1 four-hour laboratory period. Fee \$5.00. (G)

EE 452. **High Voltage Engineering.** The study and experimental investigation of high voltage and high frequency phenomena; special attention to insulation and corona problems as applied to transmission.

Second term; 3 credits; 2 lectures; 1 four-hour laboratory period. Fee \$5.00. (G)

EE 455. **Electrical Characteristics of Transmission Circuits.** A theoretical and experimental study of the electrical characteristics of high voltage transmission circuits. A comparison of approximate methods with the rigorous solutions by convergent series and by hyperbolic functions.

Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$5.00. (G)

EE 461. **Electrical Communication.** A general study of electrical communication with special attention to voice and carrier frequency, telephone problems, transmission theory, inductive interference, and related subjects.

First term; 3 credits; 3 lectures. (G)

EE 462. **Communication Laboratory.** An investigation of fundamental electric circuits and apparatus at frequencies, currents, and voltages used in communication, including a study of artificial lines and electric filters.

Second term; 3 credits; 1 four-hour laboratory period. Fee \$5.00. (G)

EE 463. **Electron Tubes and Circuits.** A study of vacuum tubes, photoelectric cells, and similar electronic devices, and their uses in electrical circuits.

Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$5.00. (G)

EE 465. **Engineering of Sound Systems.** A study of the methods and apparatus used in electrical recording, reproduction, and amplification of both speech and music.

Second term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$5.00.

EE 472. **Modern Developments in Electrical Engineering.** Study of various recent developments in the field of electrical engineering, with particular reference to the correlation of the theory and practice involved; ionization; gaseous conduction; special machines and circuits; lightning phenomena and protection; high-voltage rectification; the cathode ray oscillograph and related subjects.

Second term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$5.00.

EE 473. **Electrical Problems.** Problems designed to review fundamental laws and methods, to correlate courses previously studied, and to apply these to engineering conditions.

Third term; 2 credits; 1 two-hour computation period.

EE 481, 482, 483. **Seminar.** Presentation of abstracts and discussion of articles in the current electrical periodicals.

Any term; 1 credit; 1 recitation.

EE 494, 495, 496. **Thesis.** A course, elective with approval, for undergraduates whose records indicate ability to initiate and complete special projects under the direction of the departmental faculty. One, two, or three terms; 3 credits each term. Fee \$5.00 each term.

EE 691, 692, 693. **Graduate Study and Research.** Advanced studies in the science or technology of electrical engineering. Comprehensive reports indicating a thorough mastery of the fields studied are required in each case.

Three terms; hours, credits, and fees to be arranged. (G)

EE 694, 695, 696. **Graduate Thesis.** Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; hours, credits, and fees to be arranged. (G)

Highway Engineering

In few fields of public endeavor is more money being spent than in the field of highway engineering. In few fields is a higher degree of technical training required. The purpose of these courses is to meet the demand in this state and throughout the Northwest for men equipped to take charge of road and street construction and maintenance work.

The curriculum in Highway Engineering is offered as an option in the Civil Engineering Curriculum and is differentiated from that curriculum only in the senior year.

Thorough theoretical instruction is accomplished by as much laboratory and field practice as possible. In the study of highways, special reference is made to the conditions and needs of Oregon. Besides study of the higher types of roads, due consideration is given to the construction and maintenance of earth, gravel, and broken-stone roads. In consequence of the vast area of the state, this class of roads must, of necessity, constitute the greater part of its highways for many years.

Equipment. The equipment of the department is modern and adequate. The department of Mechanics and Materials is equipped with modern testing laboratories, including the best cement and highway-testing machinery, thus affording students in Highway Engineering the opportunity of studying by direct observation and experiment the strength and properties of the various engineering materials.

DESCRIPTION OF COURSES

HE 313. Roads and Pavements. A study of the fundamental principles of location, construction, and maintenance of roads; materials used in road and street building; asphalt, brick, wood block, stone, concrete, and other types of pavements. This course is given in connection with the laboratory course MM 311.

Third term; 4 credits; 4 recitations.

HE 411. Highway Engineering. Economic grades and proper location for different soils and surfacing materials; surface and subsurface drainage; culvert design and construction; construction and maintenance of earth, sand-clay, gravel, macadam, concrete, brick and other types of roads; dust preventives and road binders; reconnaissance, surveys, estimates, plans, and specifications; organization of construction and engineering forces; cost data; methods of handling work.

Prerequisite: HE 313. First term; 4 credits; 2 recitations; 2 three-hour laboratory periods. (g)

HE 412. Highway Engineering. Continuation of HE 411.

Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. (g)

HE 413. Highway Engineering. Continuation of HE 411 and 412.

Third term; 4 credits; 2 recitations; 2 three-hour laboratory periods. (g)

HE 416. Economics of Highway Construction. Economic and social advantages of improved roads; the traffic census; local and centralized systems of control; highway laws of different states, organization of construction and engineering forces; cost data; estimates; methods of handling work; forms of contract—lump sum, unit price, percentage, and cost plus fixed sum.

Second term; 3 credits; 3 recitations. (g)

HE 417. Highway Transportation. A study of the various methods of highway transportation with especial reference to cost; the traffic census and its application; highway laws of different states; methods of financing highway construction; relation of character of traffic to type of construction, etc.

Prerequisite or parallel: HE 411. First term; 3 credits; 3 recitations.

HE 427. Contracts and Specifications. A study of the general principles and laws of contracts as applied to engineering, including preparation and study of specifications and contracts based upon the latest and best engineering practice.

Any term; 3 credits; 3 recitations.

HE 438. Municipal Engineering and City Planning. The modern city streets, boulevards, and transportation systems; drainage and sanitation; water supply; lighting. A course of lectures and assigned readings.

Third term; 3 credits; 3 recitations. (G)

Industrial Arts

It is the purpose of this department to aid in the promotion of industry through providing technical training for those who plan to enter industrial careers as well as for those who plan to teach industrial arts subjects in the public schools. The work of the department, in meeting these aims and purposes, falls under three main fields of training:

(1) Industrial Arts Education: Training Teachers of Industrial Subjects.

- (a) Industrial arts.
- (b) Trade and industrial.

(2) Industrial Administration: Training for Junior executives in Industry.

- (a) Technical operations.
- (b) Production management.

(3) General Engineering Shop Work.

Training in technical operations and the technology of industrial processes is fundamental in all three fields and forms the main part of the work of the first two years in groups (1) and (2) above. Each of these two fields of major choice offers a great number of specific objectives through different avenues of training.

The Curriculum in Industrial Arts Education is designed to give the type of training required for successful teaching in the public schools and for entrance into college teaching. The work of the last two years is given over mainly to the science and philosophy of education and to applied principles of pedagogy. These courses are based upon and interpreted through the technical background formed during the first two years. While a strong motivating thread of technical training is present throughout the four-year curriculum, the work of the junior and senior years is outstanding in the opportunities created for election of both technical and non-technical subjects that will meet the needs of individual students following different avenues of training. (See curriculum on page 263.)

The Curriculum in Industrial Shop Administration follows that of General Industrial Arts for the first two years. Specialization during the junior and senior years involves further study of the basic sciences, industrial organization and management, labor problems, cost accounting, and production control. This curriculum is designed to meet the increasing demand for workers in Industry who are trained in the basic sciences and in the fundamentals of industrial organization and management, and who, through their knowledge of technical and industrial operations, can work quickly and efficiently into junior executive positions. Provision is made for election of both technical and non-technical subjects that will meet the needs of individual students. (See curriculum on page 264.)

Facilities. The department of Industrial Arts is housed in the Mechanic Arts Building and the Foundry, both being modern, well-lighted

structures, with a combined floor space of approximately twenty-five thousand (25,000) square feet. The principal subdepartments are Mechanical Drawing, Woodwork and Furniture Construction, Millwork in Wood, Wood Finishing, Pattern Making, Foundry, Forging and Welding Shop, Machine Shop, and Sheet Metal. Each of these subdepartments is provided with individual shops of ample size and is carefully equipped along the most modern and approved lines. These strictly departmental facilities are reinforced through the facilities and equipments of other departments, such as Applied Arts, Technical Forestry, Mechanics and Materials, the basic sciences, etc., and the Corvallis Public Schools, all of which contribute toward the enrichment of curricula and opportunities for Industrial Arts students. The supervised teaching for those majoring in Industrial Arts Education is done in the Corvallis Public Schools. The program for the last two years of work is administered jointly with the department of Industrial Education (see School of Vocational Education).

DESCRIPTION OF COURSES

IA 111, 112. Methods in Woodworking. A methods course in wood-working, with special reference to applied design and craftsmanship in new and individual projects. Primarily an elementary course, with incidental reference to course outlines and methods of teaching.

First and second terms; 3 credits each term; 1 lecture; 6 laboratory periods. Fee \$4.00 each term.

IA 142. Foundry Practice. Green- and dry-sand molding, core making, melting and mixing of iron and cupola management, with suggestions for courses of study and teaching.

Second term; 3 credits; 3 three-hour laboratory periods. Fee \$6.00.

IA 151. Forging. Exercises and projects in bending, shaping, upsetting, and welding of iron; hardening and tempering steel; brazing and elementary acetylene and electric welding. Suggestions for care of equipment and for organization of instructional material.

First term; 3 credits; 3 three-hour laboratory periods. Fee \$6.00.

IA 163. Machine Shop. Exercises and projects involving instruction on bench work, the engine lathe and drill press, with suggestions for courses of study and teaching.

Third term; 3 credits; 3 three-hour laboratory periods. Fee \$6.00.

IA 203. Furniture Design and Drawing. A study of types and periods of furniture and an application of the principles of design to the technique of furniture and cabinet drawing. Projects designed in this course will be executed in IA 312.

Prerequisites: GE 112, A 232 or equivalent. First term; 2 credits; 6 laboratory periods. Fee \$1.00.

IA 220. Wood Turning. Thorough instruction in tool processes and lathe technique, executed through the designing, turning, and finishing of individual projects of merit.

Prerequisite: IA 112. Second term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 221. **Wood Turning.** (Advanced course.) A continuation of IA 220. Emphasis upon more intricate cuts and turning processes, special chucking devices and fancy turning.

Prerequisite: IA 220. Second term; 1 credit; 1 three-hour laboratory period. Fee \$3.00.

IA 222. **Wood and Metal Finishing.** A study of materials, processes, and methods of application of finishes for both wood and metal surfaces; both brush and spray application of all types of finishing materials; special attention to the modern lacquer finishes (including Duco) for both furniture and automobile work.

Prerequisite: IA 112 or equivalent. Second term; 2 credits; 6 laboratory periods. Fee \$5.00.

IA 223. **Carpentry.** The fundamentals of house carpentry, involving discussions of forms and foundations and the practical application of problems in framing, use of steel square, exterior and interior finish, and estimating.

First term; 3 credits; 1 lecture; 6 laboratory periods. Fee \$4.00.

IA 224. **Upholstering and Seat Weaving.** A study of typical cases of upholstering, including foundations with and without springs. Seat and panel weaving with cane and fiber. Offered alternate years. Not offered 1931-32.

Prerequisite: IA 112 or equivalent. Second term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 225. **Machine and Tool Maintenance (Wood Shop).** Methods of care and maintenance of woodworking tools, machines and supplementary equipment. Band saw brazing, saw sharpening, sharpening and setting of planer, jointer, tennonner and shaper knives and the repair and maintenance of hand tools.

Prerequisite: IA 112. Third term; 3 credits; 2 lectures; 4 laboratory periods. Fee \$2.00.

IA 226. **Fiber Furniture Weaving.** The construction of frames and the weaving of Art Fiber Furniture, with suggestions for the use of this material in public school teaching.

Prerequisite: IA 112 or equivalent. First term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 231. **Pattern Making.** Thorough technical instruction and careful execution in the fundamentals of pattern making, with emphasis upon the relation of pattern making to drafting, design, foundry and machine-shop operations. Formulation of course outlines and discussion of methods of teaching pattern making.

Prerequisite: IA 112. First term; 3 credits; 1 lecture; 6 laboratory periods. Fee \$4.00.

IA 232. **Pattern Making.** (Advanced course.) A continuation of IA 231, emphasis being placed upon the solution of problems confronted in the making of patterns for more complicated machine parts and upon factors influencing production cost of these parts.

First term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 240. **Foundry Practice.** Principles of foundry practice; use and care of cupolas; mixing and melting of iron; molding in green and dry sand; preparation of cores. Strictly commercial practice on a production basis. Also includes discussion of pattern requirements. Intended primarily for Engineering students. Not open to Industrial Arts majors.

Any term; 2 credits; 6 laboratory periods; 3 lectures during term, to be arranged. Fee \$4.00.

IA 242. **Foundry Practice.** (Advanced course.) A continuation of IA 142 or IA 240, with emphasis on more advanced processes and a study of production costs.

First or third term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 243. **Brass and Alloy Foundry.** Practice in brass and alloy foundry and the compounding of simple alloy mixtures.

Prerequisite: IA 142 or 240. First or third term; 1 credit; 1 three-hour laboratory period. Fee \$3.00.

IA 250. **Forging and Welding.** Principles and practice of forging and welding, including gas, electric, thermit, and hammer welding, in line with modern manufacturing processes. Intended primarily for Engineering students. Not open to Industrial Arts majors.

Any term; 2 credits; 6 laboratory periods; 3 lectures during term, to be arranged. Fee \$4.00.

IA 252. **Blacksmithing.** (Advanced course.) A continuation of IA 151 or IA 250, with emphasis on farm blacksmithing and repair problems.

First or third term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 253. **Ornamental Iron Work.** Craftsmanship in wrought iron work. The designing and making of wrought iron furnishings, lamps, light fixtures, etc.

Prerequisite: IA 151 or IA 250. Second or third term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 254. **Forging and Heat Treating.** A study of methods and materials for heat treating and the practical application of the principles of hardening, tempering, annealing and case hardening through exercises and through tool making and repair.

Prerequisite: IA 151 or IA 250. Second term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 260. **Machine Shop Practice.** Exercises and projects involving the use of the drill press, lathe, shaper, planer, and milling machine. A first

course in methods and technical procedure. Designed for Engineering students. Not open to Industrial Arts majors.

Any term; 2 credits; 6 laboratory periods; 3 lectures during term, to be arranged. Fee \$4.00.

IA 261. Machine Shop Practice. A continuation of IA 260 or IA 163. Involves more advanced operations in machine shop production.

Prerequisite: IA 163 or 260. First term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 264. Machine Shop. Milling machine operation and advanced problems in lathe, shaper, and planer work.

Prerequisite: IA 261. Second term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 265. Machine and Tool Maintenance (Machine Shop). Methods of care, repair, and maintenance of machine shop tools, machines and equipment. Designing and making of special tools and jigs and the grinding of milling machine cutters. Offered alternate years. Offered 1930-31.

Prerequisite: IA 163 or 260. Third term; 3 credits; 2 lectures; 4 laboratory periods. Fee \$2.00.

IA 280. Sheet Metal Work. Exercises and projects suitable for sheet metal work instruction for public school teaching, including sheet metal pattern drafting and technical operations. Suggestions for course outline and methods of teaching.

Prerequisite: GE 112. Third term; 3 credits; 1 lecture; 6 laboratory periods. Fee \$4.00.

IA 311. Mill Work—Machine Woodwork. A production course in machine woodworking in which jobs are selected and the class personnel so organized that the work follows closely those methods used in factory production.

Prerequisites: IA 111, 112. Third term; 3 credits; 3 three-hour laboratory periods. Fee \$3.00.

IA 312, 313. Furniture Construction. The designing and construction of furniture and cabinet work, according to the needs and ability of the individual student. IA 313 offered alternate years. Offered 1931-32.

Prerequisites: IA 311, A 232. First and second terms; 2 credits each term; 6 laboratory periods. Fee \$4.00 each term.

IA 325. Home Mechanics and General Shop. Problems and projects suitable for use in the teaching of general shop work and home mechanics, with practice in the performance of typical jobs ordinarily included in this type of public school teaching. Suggestions for subject-matter organization.

Prerequisite: IEd 473 parallel. Second term; 2 credits; 6 laboratory periods. Fee \$4.00.

IA 350. Welding Practice. (Advanced course.) A study of the problems of electric and acetylene welding, with reference to intricate and specialized operations. Conducted upon an investigational basis.

Prerequisite: IA 151 or 250. Second or third term; 1 credit; 1 three-hour laboratory period. Fee \$5.00.

IA 360. Motor Maintenance. Automobile and electric motor maintenance. Cylinder grinding and reboring, fitting of new pistons and rings, and other maintenance jobs requiring the use of machine shop equipment and methods.

Prerequisite: IA 163 or 260. Second term; 3 credits; 1 lecture; 6 laboratory periods. Fee \$4.00.

IA 363. Production Machine Work. A study of industrial organization and production management. Factors influencing production, scheduling, planning, routing, dispatching, inspection, and costs, illustrated by an application of modern production methods through quantity manufacture of some appropriate machine shop project. Offered alternate years. Offered 1931-32.

Prerequisite: IA 261. Third term; 3 credits; 1 lecture; 6 laboratory periods. Fee \$3.00.

IA 370. Practical Electricity. Electrical wiring problems, including signal, light, and power circuits, and a study of underwriter's specifications for electrical installation.

Prerequisite: Ph 113 or equivalent. Third term; 3 credits; 1 lecture; 1 recitation; 4 laboratory periods. Fee \$4.00.

IA 374. Automotive Electricity. Lighting, starting, and ignition systems of the automobile, including development of fundamental principles of operation, remedial measures for faulty operation, and the mechanics of upkeep and repair.

Prerequisite: AE 281 or equivalent. First term; 2 credits; 1 lecture; 4 laboratory periods. Fee \$4.00.

IA 403. Shop Planning and Organization. A discussion of shop needs and shop types and the drawing of shop plans for secondary school purposes. Organization and improvement of equipment. A portion of the laboratory period is devoted to some phases of improvement in College shop laboratories.

Prerequisite: Ed 401 parallel or teaching experience. Third term; 3 credits; 2 lectures; 4 laboratory periods. Fee \$1.00.

Mechanical Engineering

THE curriculum in Mechanical Engineering is planned to prepare young men for useful and responsible positions in power plants, various manufacturing enterprises, oil refining, automobile factories, steel industries, heating and ventilation, refrigeration, air conditioning, and aero-

navics. It is differentiated from curricula of other engineering courses in its emphasis on transformation of heat energy from fuels into mechanical energy and in the application of the principles of mechanism, mechanics, and strength of materials to design and construction of machinery. Because of the distinctive character of the dynamic and structural principles underlying aeronautical developments, a special option in aeronautical engineering is offered.

During the first two years the work consists largely of those courses which are fundamental to all engineering training, such as mathematics, chemistry, physics, and English. A sequence of subjects that has its beginning in mathematics, engineering problems and chemistry, extends through physics, elementary heat engineering, hydraulics and thermodynamics to power plant engineering and allied subjects. Another sequence of subjects that has its beginning in mathematics, engineering problems and drawing extends through descriptive geometry, shop, mechanism, mechanics, and strength of materials to machine design. Another that has its beginning in English extends through public speaking and laboratory report writing to seminar. The work in the major courses is supplemented by cultural and business courses and by brief courses in Electrical and Civil Engineering.

Equipment. The department has drafting and computing rooms equipped with the necessary desks, boards, and lockers. The departmental laboratories are equipped for tests and demonstrations in steam, gas, and aeronautical engineering. They are housed in the Engineering Laboratory.

The steam laboratory is equipped with two turbines and three engines each of approximately the same capacity, but of different types. These are installed in such a way that complete tests for economy and efficiency can be made. Three other steam engines are permanently installed and are used for the more elementary work in steam engines. A horizontal water tube boiler furnishes the steam for laboratory purposes and for heating the building and is provided with the necessary facilities for testing. The college heating plant consisting of three 5,000-square-foot boilers and necessary auxiliaries is also provided with testing facilities.

The gas engine laboratory contains a stationary single-cylinder gasoline engine, two semi-Diesels, a three-cylinder solid-injection full Diesel connected to generator, fully equipped for testing; a four-cylinder 120-horse-power two-cycle oil engine fully equipped for testing; also a 100-horse-power Sprague electric dynamometer, and automobile engines installed with necessary facilities for complete tests for economy and efficiency. Several other gas engines are available for the more elementary work. Several thousand dollars are invested in accessories, auxiliaries, and instruments for testing and analysis of tests.

The aeronautical laboratory is equipped with a 12-cylinder 400-horse-power Liberty engine; an 8-cylinder Curtis airplane engine and wing sections, and several aircraft engines.

DESCRIPTION OF COURSES

ME 211. Descriptive Geometry. Theory and problems on the projection of points, lines, surfaces, and solids. An effort is made to make the

work as practical as possible and to reveal to the student its value in solving drafting-room problems.

First term; 3 credits; 3 three-hour drawing periods. Fee \$1.00.

ME 213. Mechanism. A study of mechanical movements, including velocity ratios, transmission of motion by link work, gearing, cams, and belting.

Second term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$1.00.

ME 221, 222, 223. Heat Engineering. An introductory course in the principles of heat, dealing with the gas laws, fuels, and properties of steam; characteristics of operation of the steam engine and internal combustion engine; special attention to the underlying theory of heat laws.

Prerequisites: GE 101, 102, 103. Three terms; 2 credits each term; 2 recitations first and second terms; 1 recitation, 1 three-hour laboratory period third term. Fee \$1.00 each term first and second terms, \$3.00 third term.

ME 225. Elementary Heating and Ventilating. The fundamental principles of heating and ventilating systems for homes and industrial buildings; fuels, combustion, draft, radiation; fresh air requirements, etc.; hot air, hot water, steam and vapor systems compared and designed; stress placed upon cost, efficiencies, and utility of installations.

Prerequisites: Elementary chemistry and physics. First term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$1.00.

ME 242. Elements of Machine Design. An introductory course in machine design. Simple designs; design drawing; application of the principles of descriptive geometry to the solution of problems; calculations of machine stresses; kinematics.

Second term; 3 credits; 1 recitation; 2 three-hour drafting periods. Fee \$1.00.

ME 243. Machine Drawing. Application of the elements of machine design through the designing and drawing of machine parts, jigs, and special fixtures. Given in cooperation with the machine shop and intended primarily for Industrial Arts students.

Third term; 2 credits; 2 three-hour drafting periods. Fee \$1.00.

ME 321, 322, 323. Heat Engineering. Thermodynamics of gases, gas cycles, air compressor cycles, vapors, special properties of steam, refrigerants, etc. A technical consideration of various heat cycles as related to steam-driven units and to internal combustion engines.

Prerequisites: Mth 253, Ph 103. Three terms; 3 credits each term; 2 recitations; 1 three-hour laboratory or problem period. Fee \$3.00 each term.

ME 331, 332. Heat Power Engineering. A brief descriptive survey of the heat power plant and principal auxiliaries, followed by a study of the

physical properties and laws of gases, and their application to the air compressor, air motor, automobile engine, and Diesel engine. Introduction to study of vapors, use of steam tables, humidity, steam cycles. During the second term a flow sheet for a modern central station is sketched and function of each piece of equipment noted. Study of fuels, combustion, evolution of the boiler furnace, types and characteristics of boilers, furnace and boiler efficiency, superheaters, economizers, air pre-heaters, feed water heaters, condensers, heat transfer, flow of gases and vapors, steam turbines, and power plant piping.

Prerequisites: Mth 253, Ph 103. First and second terms; 3 credits each term; 2 recitations; 1 three-hour computation or laboratory period. Fee \$3.00 each term.

ME 333. Heat Power Engineering. Continuation of ME 332. Principally laboratory work involving operation and testing of steam boilers, steam turbines, steam engines, gas and air machinery. Special attention is given to latest practice and standard methods of testing power machinery, study of instruments used in testing, and their proper application.

Third term; 3 credits; 1 recitation; 1 three-hour laboratory period. Fee \$5.00.

ME 343. Aerodynamics. Fundamental laws of aerodynamics. Airfoils and airfoil combinations. Factors affecting stability, control, and performance.

Prerequisite: Junior standing. Third term; 3 credits; 3 recitations. Fee \$1.00.

ME 345. Steam, Air, and Gas Power. A course adapted to the needs of Civil Engineering students. Elementary principles of thermodynamics; properties of steam; fuels and their combustion; boilers; and auxiliaries.

Second term; 3 credits; 2 recitations; 1 two-hour computation period. Fee \$1.00.

ME 346. Steam, Air, and Gas Power. Performance and operation of internal combustion engines; steam turbines, steam engines; fans, blowers, and air compressors. Various laboratory tests are made.

Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00.

ME 352, 353. Mechanical Engineering Laboratory. A detailed study of the instruments and apparatus required for testing steam, gas, and air machinery; including the calibration and correction of pressure and vacuum gages; indicators; planimeters; draft gages; air measurement; steam calorimeter, valve setting; and elementary tests of various engines for economy and mechanical efficiency.

Prerequisite: ME 321. Second and third terms; 3 credits each term; 1 recitation; 1 four-hour laboratory period. Fee \$3.00 each term.

ME 363. Refrigeration and Cold Storage. An elementary course in the principles and practice of refrigeration and cold storage. Operation of the direct expansion and brine systems as applied to cold storage, ice making

and dairy manufactures. Types, size, and capacity of machines, proper methods of installing piping, and insulation. Household refrigeration. This course is specially planned for students interested in dairy manufactures, horticultural products, and other industries involving use of refrigeration. Text and recitation work is supplemented by manufacturers' catalogues.

Third term; 2 credits; 2 recitations. Fee \$3.00.

ME 411. Machine Design. With ME 412, 413 this constitutes three terms of work covering application of the principles of mechanism, mechanics and strength of materials to design of machine elements. Problems involving riveted joints; screws; shafts and shafting; belt and rope drive; pulleys; gearing; bearings; machine frames; analysis of force and energy problems; fly-wheels; engine balancing; computations and drawings necessary to the design of one or more complete machines.

Prerequisite: MM 353. First term; 3 credits; 2 recitations; 1 three-hour design period. Fee \$1.00. (g)

ME 412, 413. Machine Design. Continuation of ME 411.

Prerequisite: ME 411. Second and third terms; 3 credits each term; 1 recitation; 2 three-hour design periods. Fee \$2.00 each term. (g)

ME 421. Aero Propulsion. Study of screw propeller theories; factors influencing choice of engines, propellers, and power plant accessories for specific airplane; power plant installation.

Prerequisite: ME 343. First term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00. (g)

ME 422. Navigation. Fundamental laws of navigation; longitude, latitude, spherical trigonometry; commercial flight routes; flight instruments.

First term; 3 credits; 3 recitations. Fee \$1.00.

ME 425, 426. Airplane Design. Design of airplanes for specific duties. Estimation of weights, balance, stability, and performance. Computation of loadings and design of major structural parts.

Prerequisite: ME 343. Second and third terms; 3 credits each term; 1 recitation; 2 three-hour laboratory periods. Fee \$1.00 each term.

ME 431, 432. Power Plant Engineering. Detailed study of the principles involved and the construction and operation of power plant equipment; engines; turbines, boilers; condensers; heaters; water and vacuum pumps; stokers, furnaces, and combustion of fuels. Attention is given to the proper location of plant, selection of equipment for given conditions, and methods of determining fixed charges and operating cost; also the design of a complete power plant in which special stress is placed upon the economical selection of power plant apparatus.

Prerequisite: ME 323. Second and third terms; 3 credits each term; 3 recitations. Fee \$1.00. (ME 432, g)

ME 441, 442, 443. **Fuel Engineering.** Technical study of fuels, involving their origin, physical and chemical properties; careful study of the composition of solid, liquid, and gaseous fuels relating to their quality and adaptability for commercial use; the laws governing their combustion; coal carbonization, both high and low temperature methods; application of fuels to industry stressed. This course is especially designed to supplement the work in fuels as given in earlier courses and is an advanced treatment of the entire subject of fuel technology.

Prerequisite: ME 323. Three terms; 3 credits each term; 3 recitations first and second terms; 2 recitations, 1 three-hour laboratory period third term. Fee \$1.00 first and second terms, \$5.00 third term.

ME 451, 452, 453. **Engineering Laboratory.** A detailed study of mechanical equipment and processes by the method of laboratory tests and analysis of test results. Efficiency and economy tests and operating characteristics of steam, gas, and oil engines; steam turbines; steam pumps; boilers; fans and blowers; heating and ventilating equipment; compressed air and refrigerating machinery. The A. S. M. E. Power Test Code is used as a laboratory manual.

Prerequisite: ME 353. Three terms; 2 credits each term; 4 periods laboratory work. Fee \$5.00 each term. (g)

ME 461. **Heating and Ventilating.** Study of modern methods of heating and ventilating; approved systems of heating by means of air, steam, and hot water; methods of computing radiating surface; effective methods of ventilation; general design; construction and operation of heating plant.

Prerequisite: ME 322. Third term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$1.00. (g)

ME 462. **Refrigeration.** A study of the thermodynamics of refrigeration, systems in use and principal characteristics of each, fundamentals of design, principal applications with special reference to the industries of the Northwest.

Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$3.00.

ME 471. **Industrial Engineering.** Especially arranged for Engineering students. Various industrial organization systems and their methods of operation, including apprenticeship courses, labor problems, and process work; the problems of engineering contracts and specifications, laying special stress upon the engineering phraseology and introducing modern legal standards.

First or third term; 3 credits; 3 recitations. Fee \$1.00.

ME 481, 482. **Mechanical Engineering Seminar.** Practice in effective writing and speaking on engineering and allied subjects. Preference is given to the discussion of new developments in the field of mechanical engineering. The work supplements that of the prescribed courses. Elective.

First and second terms; 1 credit each term. Fee \$1.00 each term.

ME 691, 692, 693. **Graduate Study and Research.** Each student is assigned special problems which may involve: assembling and correlating of existing data on some specific subject; design; analysis of experimental data; or research. Detailed written reports are required.

Three terms; credits and hours to be arranged. (G)

ME 694, 695, 696. **Graduate Thesis.** Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; hours and credits to be arranged. (G)

Mechanics and Materials

COURSES are offered covering statics, dynamics, and the strength and properties of engineering materials. In the last division there are, in addition to the general courses which deal with structural materials, several special courses from which the student may learn the technique belonging to various specialized branches of materials treatment and testing.

The offices, classrooms, and laboratories of the department are located in the east division of the Engineering Laboratory. The floor-space occupied is about 14,000 square feet, affording separate laboratories for structural materials, cement and concrete, bituminous and nonbituminous highway materials, oils, fuels, and the microscopic examination and heat treatment of metals. The equipment is modern and is well arranged for the work of instruction and for a limited amount of research.

DESCRIPTION OF COURSES

MM 311. **Materials of Engineering.** A lecture and laboratory course on the materials of engineering construction with special reference to the methods and specifications adopted by the American Society for Testing Materials and other national engineering organizations. The laboratory program is varied somewhat for the students from different departments to include tests on those materials of special interest to them; for example, Civil Engineering students do special work on highway materials, Forestry students on timber, etc.

Elective to suitably prepared students. Any term; 3 credits; 1 lecture; 1 three-hour laboratory period. Fee \$5.00.

MM 351. **Mechanics (Statics).** Applied mechanics for engineering students; forces and force systems with reference to the equilibrium of rigid bodies, including simple framed structures; methods of finding centers of gravity and moments of inertia and their practical applications; numerous problems having engineering application.

Prerequisites: Differential and integral calculus. First or second term; 3 credits; 1 recitation; 2 two-hour computing periods.

MM 352. Mechanics (Dynamics). A continuation of MM 351 dealing with principles and problems in kinetics; force as a factor causing motion; work, energy, friction, and impact studied and illustrated by means of numerous problems.

Prerequisite: MM 351. Second or third term; 3 credits; 1 recitation; 2 two-hour computing periods.

MM 353. Strength of Materials. In this course the general principles of mechanics are applied to the elements of engineering structures to determine their strength and fitness. Some of the features are tensile and crushing strength of various engineering materials; stresses in beams and girders under different systems of loading and support; supporting strength of columns; application of torsion to shafts in transmission of power. Students are required to solve numerous practical problems.

Prerequisite: MM 351. Second or third term; 3 credits; 1 recitation; 2 two-hour computing periods. (g $\frac{3}{4}$)

MM 354. Strength of Materials. Similar to MM 353. For Civil Engineering students.

Prerequisite: MM 351. First term; 4 credits; 2 recitations; 2 two-hour computing periods.

MM 426. Highway Materials Laboratory. Designed particularly for those specializing in Highway Engineering. Different roads and paving materials and binders are tested and their relative values determined. Sheet asphalt mixtures and bituminous mortars are studied to determine the effects of various changes in the grading of the aggregates. Finally, samples of various types of roads and pavements are analyzed for density, composition, and grading, with special reference to their conformity with specifications. Assigned references.

First term; 3 credits; 1 lecture; 1 four-hour laboratory period. Fee \$5.00. (g)

MM 427. Structural Laboratory. An advanced laboratory course on plain and reinforced concrete beams and columns to study methods of reinforcing. Design of concrete mixtures. Stress distribution under unsymmetrical loads. Riveted and welded joints. Thermal conductivity of concrete. Study of stresses in structures by strain gage.

Prerequisite: MM 311. Second term; 3 credits; 1 lecture; 1 four-hour laboratory period. Fee \$5.00. (g)

MM 441. Fuel and Lubricant Testing. A lecture and laboratory course covering the properties and testing of fuels, and of materials such as oils, bearing metals, etc., used in power transmission. Designed particularly as an elective course for Mechanical and Electrical Engineering students. Assigned readings and reports.

Prerequisite: MM 311. First or third term; 3 credits; 1 lecture; 1 four-hour laboratory period. Fee \$5.00. (g)

MM 481. Metallography and Pyrometry. Lectures and laboratory work designed to give a working knowledge of the methods of study of

structure of metals and alloys; particular attention given to correlation of thermal and mechanical treatment with structure and physical properties of iron and steel; calibration and use of various types of pyrometers; laboratory experiments in heat treatment; preparation of specimens; etching; studying structure under the microscope; making photomicrographs; physical tests, whenever possible, to show the effects on strength, ductility, hardness, or other mechanical properties of the different thermal treatments or other industrial processes.

Prerequisite: MM 311. Any term; 3 credits; 1 lecture; 1 four-hour laboratory period. Fee \$5.00. (g)

MM 671, 672, 673. **Research Seminar.** A discussion of research problems and projects of the Engineering Experiment Station; critical reviews of developments in the fields of science and technology. Prescribed by all major engineering departments in graduate curricula.

Three terms; 1 credit each term. (G)

MM 691, 692, 693. **Graduate Study and Research.** An opportunity is given for suitably prepared students interested in research to work out original problems. These may be either of their own choosing or suggested by the department, and may consist of any subject within the scope of the department laboratories.

Prerequisites: Must be approved in each case, and will vary according to the work proposed. Three terms; credits, hours, and fees to be arranged. (G)

MM 694, 695, 696. **Graduate Thesis.** Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; hours and fees to be arranged. (G)

School of Forestry

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.
GEORGE WILCOX PEAVY, M.S.F., Dean of the School of Forestry.
MARY LOU TILTON, Secretary to the Dean.

Logging Engineering

HENRY RICHARD PATTERSON, JR., B.S., Professor of Logging Engineering.
FRED JACOB SCHREINER, B.S. (L.E.), Instructor in Logging Engineering.
JASON KERMIT BRANDBERRY, B.S., Instructor in Logging Engineering.

Technical Forestry

THURMAN JAMES STARKER, B.S., Professor of Forestry.
EARL GEORGE MASON, M.F., Assistant Professor of Forestry.
PHILIP CORNWELL JOHNSON, B.S., Laboratory Assistant.
VONDIS ELBERT MILLER, B.S., Research Fellow in Silviculture.
VERN MCDANIEL, M.S., Forest Nurseryman.

Lumber Manufacture

WILLIAM JENNINGS BAKER, M.S., Assistant Professor of Lumber Manufacture.
RICHARD SENG KEARNS, M.S., Assistant in Forest Products.

THE immense timber resources of Oregon and the vast area of land within the state suited to no other use than the continued production of timber crops point to a very definite obligation on the part of the Oregon State School of Forestry. That obligation is to train men so to manage these great properties that the maximum product may be received from them, that this maximum production may be continuous, and that the product itself may be economically and most efficiently utilized. Oregon has an interest in forestry greater than any other state in the Union. The state has within its limits an area of 22,000,000 acres which, because of peculiarities of soil, topography, and climate, appears to be permanently classified as forest land. The economic interests of the state unquestionably demand that this great basic resource should be kept at work producing that which it is best adapted to grow. Under present methods of utilization, Oregon has approximately 400 billion feet of standing timber, the largest amount possessed by any state, and an amount equaling fully 20 percent of the total stand remaining in the United States.

While the lumber industry of Oregon is, comparatively, in its early stage, yet an area of more than 100,000 acres of timber-land is now annually

cut over. This product has a value in excess of \$100,000,000. In harvesting and manufacturing this timber crop 47,000 men are annually employed.

Technical Forestry. In technical forestry the School has a dual responsibility. It has its obligation to the Federal Government in training men to be of service in helping to manage the National Forests, which now comprise an area of more than 160,000,000 acres. This is a very definite responsibility for the reason that the nation as a whole is cutting its timber crop four times as rapidly as a new crop is being grown. This fact points to a time, not far distant, when the country will be without reasonably priced timber. History has very clearly shown that adequate timber supplies have made a decided contribution to the general welfare. The School has its more immediate obligation to the State of Oregon in preparing men to aid in solving the forestry problems which are involved chiefly in the reforestation and protection of the commonwealth's 10,000,000 acres of privately owned timber-lands. An industry which now has on its pay-roll 47,000 men and which annually produces wealth in excess of \$100,000,000 is one which every economic and social consideration dictates should be conserved and perpetuated. This accomplishment is one of the chief objectives of the School of Forestry.

Logging Engineering. The logging engineer is the product of the Pacific Northwest. Far-sighted men in the industry, realizing the peculiar engineering requirements of their business, requested the schools of forestry to train men for service in this branch of the lumber industry. Departments of logging engineering were organized in response to this request. The logging engineer is trained in timber estimating, in topographic surveying in rough country, in the preparation of topographic and relief maps from field data, in the location and construction of logging railroads, in bridge design, and in making topographic logging plans. The curriculum in Logging Engineering outlined below was prepared in consultation with some of the ablest timbermen in the state.

Lumber Manufacture. Sawing logs into boards can no longer be regarded as the sole objective of the sawmill man. His business involves such problems as the design of his plant for efficient operation, kiln-drying of lumber, human efficiency, and scientific merchandising. In response to the demands of the industry for men with basic training along these lines, a carefully selected group of subjects is offered young men desiring to enter the lumber manufacturing field. This curriculum may be elected following the two basic years. Men majoring in Lumber Manufacture are granted the bachelor's degree in Lumber Manufacture.

Summer Employment. The principal operations of the lumber industry of the United States are in the Pacific Northwest. This fact creates conditions which make it easy for students who are physically fit to find employment in the logging camps and in sawmills. The United States Forest Service has adopted a definite policy of employing forestry students during vacation periods. Because of this policy students expecting to engage in forestry work are enabled to obtain valuable field experience at reasonable pay without incurring the costs incident to traveling long distances.

Curricula. All students registered in the School of Forestry are expected to take the subjects outlined for the freshman and sophomore years.

Following this, they may elect their major work in Technical Forestry, Logging Engineering, or Lumber Manufacture.

A minor in Forestry for Commerce students is outlined under School of Commerce.

Advanced Degrees. The professional degree of Master of Science in Forestry, Logging Engineering, or Lumber Manufacture is offered to graduates of the College, or other colleges of equal rank, who have attained the degree of Bachelor of Science in the corresponding forestry curriculum, and met the College requirements for graduate study. These requirements specify one full year of resident work amounting to 48 college credits, including an acceptable thesis.

Equipment and Land. The School of Forestry is housed in the Forestry Building, a thoroughly modern three-story structure 80 feet wide by 136 feet long. The building contains roomy laboratories for work in silviculture, dendrology, mensuration, forest protection, wood technology, drafting, lumber grading, and logging devices and equipment. These laboratories are well equipped with appropriate instruments and apparatus. Through the courtesy of the manufacturers of logging equipment much valuable logging machinery has been accumulated for demonstration purposes. Lumber manufacturing concerns have generously supplied the School with wood products made from various species of Oregon trees. All available publications dealing with general forestry, logging, or lumber manufacture are provided for the use of students.

Actual field work, so essential in preparing men for work in forestry and logging engineering, is made possible by the fact that large areas of timbered lands are easily accessible from the College. Some of the largest lumber manufacturing plants in the Northwest are located within two or three hours' ride from Corvallis. Located as it is in the heart of the greatest timbered region of the United States, the School of Forestry possesses unique advantages for preparing men for service in professional forestry, logging engineering, and lumber manufacture.

A State forest of 75,000 acres has, by law, been placed at the disposal of the School of Forestry for scientific management. This forested area lies within 75 miles of the College. An area of 160 acres of logged and second growth fir, presented to the School by the Spaulding Logging Company, lies within 10 miles of the campus. Mrs. Mary J. L. McDonald of San Francisco gave the School 640 acres of timbered land for demonstration purposes. This land lies near Prospect in the Crater Lake region. A tract of 500 acres of second growth Douglas fir has recently been acquired for experimental purposes. A tract of cut-over land, 92 acres in extent, is devoted to arboretum and experimental planting purposes. The two areas last named lie within 8 miles of the School and are easily accessible. A forest nursery on the arboretum tract, financed by the United States Forest Service and the State Board of Forestry, is operated under the supervision of the School. A full-time nurseryman is required for this project.

Through the generosity of John W. Blodgett, a prominent timberman, a tract of 2,400 acres of cut-over land in Columbia county has been presented to the School of Forestry. This area is to be devoted to research work in reforestation.

Requirements for Graduation. For graduation the College requires a student to complete 207 credits of collegiate work. The institution specifies that every student before graduation must have completed 9 credits in English composition, 3 credits in economics, 3 credits in political science, 3 credits in business organization and operation or sociology, and 9 credits in biologic or physical science. A minimum of 70 professional credits is required by the School of Forestry. No student will be recommended for graduation who has not had at least six months of practical field work which is in line with his objective and which has been accepted as satisfactory by the faculty of the School of Forestry.

Curricula in Forestry

PROGRAM FOR FRESHMEN AND SOPHOMORES

The following courses are for all freshman and sophomore students in Forestry. Students are expected to complete the work as outlined.

	Term credits		
	1st	2d	3d
Freshman Year			
General Forestry (F 111, 112).....	3	3	---
English Composition (Eng 101, 102, 103).....	3	3	3
College Algebra (Mth 113), Trigonometry (Mth 121), Mathematics of Statistics (Mth 133).....	4	4	4
Forest Engineering (F 121, 122, 123).....	3	3	4
General Botany (Bot 101, 102) or General Chemistry (Ch 101, 102).....	3	3	---
Outlines of Economics (ES 203).....	---	---	4
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	18½	18½	17½
Sophomore Year			
Mensuration (F 221, 222, 223).....	4	4	4
¹ Forest Engineering (F 224, 225, 226).....	5	4	4
Tree Identification (F 253).....	---	---	4
National Government (PS 301).....	3	---	---
Logging Methods (LE 292).....	---	4	---
² General Physics (Ph 111, 112, 113).....	3	3	3
Physical Education.....	2½	2½	2½
Military Science and Tactics.....	2	2	2
	17½	17½	17½

PROGRAMS FOR JUNIORS AND SENIORS

TECHNICAL FORESTRY

B.S. Degree

The following courses are for junior and senior students who are majoring in Technical Forestry.

	Term credits		
	1st	2d	3d
Junior Year			
Identification of Woods (F 331).....	4	---	---
Wood Utilization (F 332).....	---	4	---
Forest Protection (F 313).....	---	---	4
Silviculture (F 341, 342, 343).....	4	4	4
Forest Administration (F 311).....	3	---	---
Forest Pathology (Bot 314).....	---	3	---
Principles of Forest Entomology (Ent 321).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	---	3
Electives.....	3	6	6
	17	17	17

¹Students intending to major in Lumber Manufacture may substitute approved courses for F 224, 225, 226.

²G 301 may be substituted for Ph 113.

	<i>Recommended Electives</i>		
	Term credits		
	1st	2d	3d
State and Local Government (PS 302).....	3	---	---
Business Law (PS 201, 202).....	4	4	4
Labor Problems (ES 301).....	---	4	or 4
Range and Pasture Botany (Bot 341).....	3	---	---
Plant Ecology (Bot 442).....	---	---	3
General Chemistry (Ch 101, 102, 103).....	3	3	3
Forest Entomology (Ent 323).....	---	---	3
Extempore Speaking (PSP 254).....	---	---	3
Principles of Dietetics (FN 200).....	2	---	---
Principles of Zoology (Z 130).....	---	5	---

Senior Year			
Forest Finance (F 411, 412).....	5	5	---
Economics of the Lumber Industry (F 413).....	---	---	5
Dendrology (F 451, 452).....	4	4	---
Lumber Seasoning (LM 496).....	4	---	---
Timber Technology (F 432).....	---	4	---
Seminar (F 461, 462, 463).....	1	1	1
Personnel Management (ES 407).....	---	---	3
Electives	3	3	6

<i>Recommended Electives</i>			
Money and Banking (ES 311).....	4	---	---
Materials of Engineering (MM 311).....	---	3	---
Transportation (ES 403).....	---	---	4
American Literature I, II (Eng 331, 332).....	3	3	---
General Geology (G 301).....	---	---	3
Wood and Steel Structures (CE 488).....	---	3	---
Business English (Eng 105).....	---	---	3
Forest Management (F 416).....	---	---	5
Industrial Organization and Management (BO 381).....	---	---	3
Soils (Sls 201, 202).....	3	3	---
Climatology (Sls 331).....	---	---	2
Timber Technology (F 433).....	---	---	4

LOGGING ENGINEERING

B.S. Degree

The following courses are for junior and senior students who are majoring in Logging Engineering.

	<i>Junior Year</i>		
	Term credits		
	1st	2d	3d
Identification of Woods (F 331).....	4	---	---
Wood Utilization (F 332).....	---	4	---
Logging Machine Design (LE 386).....	---	---	3
Bridge Design (LE 381).....	3	---	---
Logging Devices and Equipment (LE 383).....	---	---	3
Business Law (PS 201, 202).....	4	4	---
Forest Protection (F 313).....	---	---	4
Principles of Forest Entomology (Ent 321).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	---	3
Forest Pathology (Bot 314).....	---	3	---
Electives	3	6	4
	17	17	17

<i>Recommended Electives</i>			
Materials of Engineering (MM 311).....	---	---	3
Calculus (Mth 251, 252, 253).....	4	4	4
General Chemistry (Ch 101, 102, 103).....	3	3	3
Steam, Air and Gas Power (ME 345).....	---	3	---
Principles of Dietetics (FN 200).....	2	---	---
Extempore Speaking (PSP 254).....	---	---	3
Labor Problems (ES 301).....	---	4	---

Senior Year			
Timber Transportation (LE 474, 475, 476).....	5	5	5
Logging Plans (LE 471, 472, 473).....	5	5	5
Seminar (F 461, 462, 463).....	1	1	1
Electives	6	5	5
	17	16	16

	Term credits		
	1st	2d	3d
Forest Finance (F 411, 412).....	5	5	5
Economics of the Lumber Industry (F 413).....	.....	.....	5
Corporation Accounting (BO 201).....	3	.....	.....
Industrial Organization and Management (BO 381).....	.....	.....	3
Cost Accounting (BO 407).....	.....	.....	3
Lumber Seasoning (LM 496).....	4	.....	.....
Production Control (F 316).....	.....	4	.....

LUMBER MANUFACTURE

B.S. Degree

The following courses are recommended for junior and senior students who are majoring in Lumber Manufacture.

	Term credits		
	1st	2d	3d
Junior Year			
Identification of Woods (F 331).....	4	.....	.....
Wood Utilization (F 332, 333).....	.....	4	4
Business Law (PS 201, 202).....	4	4	.....
Production Control (F 316).....	.....	4	.....
Principles of Accounting for Engineers (BO 385).....	.....	.....	3
Industrial Organization and Management (BO 381).....	.....	.....	3
Money and Banking (ES 311).....	4	.....	.....
Transportation (ES 403).....	.....	.....	4
Electives.....	5	5	3
	17	17	17

	Term credits		
	1st	2d	3d
Senior Year			
Forest Finance (F 411).....	5	.....	.....
Economics of the Lumber Industry (F 413).....	.....	.....	5
Lumber Seasoning (LM 496).....	4	.....	.....
The Lumber Plant (LM 497).....	.....	4	.....
Lumber Merchandising (LM 498).....	.....	.....	4
Seminar (F 461, 462, 463).....	1	1	1
Electives.....	7	11	6
	17	16	16

Students who plan to engage in the *practical* side of sawmilling will make a choice of electives from the following group:

	Term credits		
	1st	2d	3d
Linear Drawing and Lettering (GE 111).....	2	.....	.....
Elementary Mechanical Drawing (GE 112).....	.....	2	.....
Steam, Air, and Gas Power (ME 345).....	.....	3	.....
Materials of Engineering (MM 311).....	.....	3	.....
Fuel and Lubricant Testing (MM 441).....	3	.....	.....
Direct Currents (EE 251), Alternating Currents (EE 252).....	.....	3	3
Alternating Current Machinery (EE 253).....	.....	.....	3
Forest Pathology (Bot 314).....	.....	3	.....
Personnel Management (ES 407).....	.....	.....	3
Calculus (Mth 251, 252, 253).....	4	4	4

Students emphasizing the *administrative* side of lumber manufacture will choose electives from the following group:

	Term credits		
	1st	2d	3d
Business English (Eng 105).....	.....	.....	3
Business English I, II (Eng 207, 208).....	3	3	.....
Markets and Marketing (ES 402).....	4	.....	.....
Marketing Manufactured Goods (ES 425).....	.....	4	.....
Mathematical Theory of Interest (Mth 101, a and b).....	3	.....	.....
Mathematics of Investment (Mth 102).....	.....	3	.....
Mathematics of Statistics (Mth 103).....	.....	.....	3
Extempore Speaking (PSP 254).....	.....	.....	3
Merchandising (BO 141, 142).....	3	3	.....
Personnel Management (ES 407).....	.....	.....	3
Ocean Transportation (ES 304).....	3	.....	.....
Domestic and Foreign Exchange (ES 418).....	.....	3	.....
Typing (ST 111, 112, 113).....	2	2	2

Logging Engineering

COURSES in Logging Engineering are designed to prepare men to deal with the woods problems peculiar to the lumber industry of the Pacific Northwest. Emphasis is placed upon the preparation of logging plans and the transportation of timber from the woods to the mills.

DESCRIPTION OF COURSES

LE 292. Logging Methods. Yarding, skidding, and loading of logs by all known methods; falling and bucking; relative merits of various methods; all known methods of handling timber from the standing tree to the mill. A non-technical course.

Second term; 4 credits; 3 lectures. Fee \$3.00.

LE 370. Field Work. Based upon practical work performed by the student between the sophomore and junior years or between the junior and senior years. Work must be done on some modern logging operation. A satisfactory report based upon an approved outline must be submitted.

One to 6 credits.

LE 381. Bridge Design. Principles of the design of wood structures as applied to logging railroad practice. Stresses in simple trusses; details, specifications, and estimates for Howe truss.

First term; 3 credits; 1 recitation; 2 two-hour laboratory periods. Fee \$3.00.

LE 383. Logging Devices and Equipment. Rigging; types of logging railroad locomotives, cars, and trucks; donkey engines, aerial equipment, skidders, loading and unloading devices; construction equipment, inclines, wire rope; fire prevention equipment; modern camp layouts.

Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$3.00.

LE 386. Logging Machine Design. Designing logging equipment, rigging, and tools; drawings of standard equipment constructed in camp shops.

Third term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Fee \$3.00.

LE 471. Logging Plans. (Control of area.) Instrument control. Surveying timbered area, preparation of topographic and relief maps, cruising.

First term; 5 credits; 1 recitation; 1 three-hour field period; 1 nine-hour field period. Fee \$5.00.

LE 472. Logging Plans. (Preparation of plans.) Complete set of working plans for the area from data obtained in LE 471. Plans showing logging area limits, railroads, spurs, landings, machine settings, types of

equipment to be employed, detailed cruise for each logging area. Detailed costs per thousand covering the entire area.

Prerequisite: LE 471. Second term; 5 credits; 3 recitations; 2 two-hour laboratory periods. Fee \$5.00.

LE 473. Logging Plans. (Management control.) Organization, planning, standardization, employment, wage payment, purchasing, stores, tool storage and issuing, office management, plant layout, plant maintenance, production control.

Prerequisite: LE 472. Third term; 5 credits; 3 recitations; 2 two-hour laboratory periods. Fee \$5.00.

LE 474. Timber Transportation. Chute and flume construction; pole roads; motor trucks; railroads adapted to logging operations.

First term; 5 credits; 3 lectures; 2 three-hour laboratory periods. Fee \$5.00.

LE 475. Timber Transportation. Distinction between logging railroads and common carrier railroads; grades; alignment; economic theory of location and construction.

Prerequisite: LE 474. Second term; 5 credits; 1 lecture; 1 three-hour laboratory period; 1 nine-hour field period. Fee \$5.00.

LE 476. Timber Transportation. Structures and materials used in logging railroads, costs of surveys, construction, operation and maintenance; bridge and tunnel construction.

Prerequisite: LE 475. Third term; 5 credits; 1 lecture; 1 three-hour laboratory period; 1 nine-hour field period. Fee \$5.00.

LE 691, 692, 693. Graduate Study and Research. Approved study and research for an advanced degree.

Three terms; credits and hours to be arranged. (G)

LE 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits and hours to be arranged. (G)

Lumber Manufacturing

COURSES in Lumber Manufacture are designed to meet the needs of men who desire to prepare themselves for service in the lumber manufacturing industry. Especial attention is given to manufacturing conditions existing in the Pacific Northwest.

DESCRIPTION OF COURSES

LM 496. Lumber Seasoning. Air seasoning. Fundamental principles underlying seasoning and kiln drying of woods; kiln drying methods and

their merits; effect of kiln drying upon wood structure; types of kilns; study of recording instruments used. Field trips required.

Prerequisite: F 331. First term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

LM 497. **The Lumber Plant.** Discussion of various types of modern mills; electrical versus steam mills; machinery and power of small and large plant; lumber-handling devices. Examination of up-to-date mills and reports on them.

Second term; 4 credits; 3 lectures; 1 two-hour laboratory period. Fee \$3.00.

LM 498. **Lumber Merchandising.** Lumber salesmanship; selling agencies; trade associations; standardization of sizes and grades; trademarking; advantages of wood construction.

Prerequisite: LM 497. Third term; 4 credits; 4 lectures. Fee \$2.00.

LM 691, 692, 693. **Graduate Study and Research.** Approved study and research for an advanced degree.

Three terms; credits and hours to be arranged. (G)

LM 694, 695, 696. **Graduate Thesis.** The preparation of a thesis for an advanced degree.

Three terms; credits and hours to be arranged. (G)

Technical Forestry

BASIC training needed for the practice of forestry, particularly in the Northwest, is afforded in the courses in Technical Forestry. The scientific methods involved in measuring, tending, and utilizing the forest crop are stressed.

DESCRIPTION OF COURSES

F 111. **General Forestry.** Forest regions of the United States; the forests of the world, their distribution and importance; preliminary survey of the whole field of forestry. May be elected by students in other schools.

First term; 3 credits; 3 lectures or recitations. Fee \$1.00.

F 112. **General Forestry.** Origin and distribution of our public domain; development of forestry in the United States; forestry as a timber production problem; forestry as a land problem; present status of forestry legislation. May be elected by students in other schools.

Second term; 3 credits; 3 lectures or recitations. Fee \$3.00.

F 121. **Forest Engineering.** (Theory and use of forest surveying instruments.) Measurement of distance, direction, and elevation.

First term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$3.00.

F 122. Forest Engineering. (Elements of forest mapping.) Forest maps; profiles; form lines; contour mapping; property maps; differential leveling; use and application to forest surveys. Transit and level: theory, use, and adjustments.

Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$3.00.

F 123. Forest Engineering. (Elements of forest mapping.) Continuation of F 122. Drafting of maps. Topographic conventional signs. Free-hand lettering. Computation of areas.

Third term; 4 credits; 2 recitations; 2 three-hour laboratory periods. Fee \$4.00.

F 221. Mensuration. (Measurement of felled timber and its products.) The cubic contents; scaling and grading logs; piece and cord measurements.

First term; 4 credits; 3 recitations; 1 three-hour field or laboratory period. Fee \$3.00.

F 222. Mensuration. (Measurement of standing timber.) The volume of individual trees; timber cruising; timber appraisals.

Second term; 4 credits; 3 recitations; 1 three-hour field period. Fee \$3.00.

F 223. Mensuration. (The growth of timber.) The growth of even-aged stands; growth of many-aged stands; growth of individual trees.

Third term; 4 credits; 2 recitations; 2 three-hour field periods. Fee \$3.00.

F 224. Forest Engineering. (Forest mapping controls.) Survey of a definite area. Triangulation schemes; base-line measurements; solar and polar observations; traverses.

First term; 5 credits; 3 recitations; 1 four-hour field period; 1 two-hour laboratory period. Fee \$5.00.

F 225. Forest Engineering. (Forest maps and mapping.) Mapping definite area. Contour maps by forest methods; Abney and aneroid methods; stadia and plane-table mapping; theory of photographic mapping of forested areas. Costs.

Prerequisite: F 224. Second term; 4 credits; 2 recitations; 1 four-hour field period; 1 two-hour laboratory period. Fee \$4.00.

F 226. Forest Engineering. (Forest improvements.) Road and trail location; construction and maintenance; forest bridges, telephone lines, lookout houses.

Third term; 4 credits; 2 recitations; 1 four-hour field period; 1 two-hour laboratory period. Fee \$4.00.

F 253. Tree Identification. Field characteristics and classification of principal timber trees of the Pacific Coast, their commercial range, local

occurrence, size, growth, form; climate, soil, and moisture requirements; resistance; relative tolerance and reproduction.

Third term; 4 credits; 2 lectures; 2 three-hour laboratory or field periods. Fee \$4.00.

F 311. Forest Administration. Principles of forest administration; Federal, State, and private forest administration.

First term; 3 credits; 3 lectures or recitations. Fee \$2.00.

F 313. Forest Protection. Fire suppression; fire preparedness; fire administration.

Third term; 4 credits; 4 lectures or recitations. Fee \$1.00.

F 316. Production Control. Discussion of production control systems as applied to sawmills; cost keeping versus bookkeeping; bonus, merit, profit-sharing.

Second term; 4 credits; 3 lectures; 1 two-hour laboratory period. Fee \$3.00.

F 331. Identification of Woods. Study of wood structure; identification of important commercial woods; physical and structural properties.

First term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

F 332. Wood Utilization. (Uses.) Adaptation to commercial uses; chief wood-using industries and relative amounts of principal commercial species used annually; adaptation of wood to special purposes; substitutes for wood; minor uses of wood; by-products.

Second term; 4 credits; 3 lectures; 1 two-hour laboratory period. Fee \$4.00.

F 333. Wood Utilization. (Lumber grading.) A study of basic grades and standard commercial grading rules.

Third term; 4 credits; 2 lectures; 2 two-hour laboratory periods. Fee \$4.00.

F 334. Commercial Woods. Designed primarily to meet requirements of woodworkers and engineers. Identifying woods commonly used. Dendrology and its significance in wood technology. Seasoning, gluing, and preservation of woods.

Third term; 3 credits; 2 lectures; 1 two-hour laboratory period. Fee \$2.00.

F 341. Silviculture. (Silvics.) The life-history of trees; tolerance; soil requirements; climate; fire resistance; forest description; forest ecology and forest types.

First term; 4 credits; 3 lectures; 1 three-hour laboratory period. Fee \$3.00.

F 342. **Silviculture.** (Systems of cutting.) Marking trees for cutting; improvement of woodlands; protection as related to silviculture; natural and artificial regeneration.

Second term; 4 credits; 3 lectures or recitations; 1 three-hour laboratory period. Fee \$3.00.

F 343. **Silviculture.** (Seeding and planting.) Collection and storage of forest tree seeds; nursery practice; field planting. Inspection of commercial and Forest Service nurseries.

Third term; 4 credits; 3 recitations; 1 three-hour laboratory period. Fee \$3.00.

F 370. **Field Work.** Based upon practical work performed by the student between the sophomore and junior years or between the junior and senior years. Work must be done in connection with some technical forestry work carried on by private interests, the State or by the Forest Service. A report based upon an approved outline must be submitted.

One to 6 credits.

F 411, 412. **Forest Finance.** Investments and costs in forest production; value of forestry property for destructive lumbering and for continued timber production; appraisal of damages due to the destruction of forest property; forest taxation; stumpage values; comparison of forest values with agricultural values; timber bonds; ultimate ownership of forest lands.

First and second terms; 5 credits each term; 5 lectures or recitations. Fee \$2.00 each term.

F 413. **Economics of the Lumber Industry.** Brief history of lumbering in the United States; stumpage prices; prices of manufactured lumber; shifting centers of production; transportation; freight rates; substitutes and their effects; lumbermen's associations; present rate of consumption and the future supply; function of the Government in the future of the industry.

Third term; 5 credits; 5 lectures or recitations. Fee \$2.00.

F 416. **Forest Management.** (Forest organization and working plans.) Ownership, classification, and uses of land; acquisition of forest lands; investigative projects to determine forestry principles and methods; administrative projects to determine location, areas and quantities; divisions of the forest; regulation of the forest; sustained yield; working plans; revision of working plans.

Third term; 5 credits; 4 lectures; 1 two-hour conference period. Fee \$2.00.

F 417, 418. **General Forestry.** Survey of the field of technical forestry. Of special interest to those who plan to enter the Federal or State Forest Service.

First and second terms; 2 credits each term; 2 recitations. Fee \$2.00 each term.

F 420. **Pulp and Paper Mill Organization.** Lectures on the industrial organization of pulp and paper mills.

First term; 3 credits; 3 lectures.

F 432, 433. **Timber Technology.** Preservatives and methods of treatment; manufacture of alcohol, turpentine, resin, tar, and other chemical products from wood; manufacture of pulp and paper; closer utilization of wood waste; glues and methods of use.

Second and third terms; 4 credits each term; 3 lectures; 1 two-hour laboratory period. Fee \$3.00 each term.

F 451, 452. **Dendrology.** Classification and identification of forest trees, including study of forest ecology and taxonomy; silvical characteristics, and distribution of commercial species; life-history and requirements of trees.

First and second terms; 4 credits each term; 2 recitations; 2 two-hour laboratory periods. Fee \$2.00 each term.

F 461, 462, 463. **Seminar.** Preparation and discussion of reports of special subjects; current forestry and lumbering literature; labor problems. Each student is required to prepare a thesis on some assigned subject.

Three terms; 1 credit each term; 1 two-hour conference period. (G)

F 691, 692, 693. **Graduate Study and Research.** Approved study and research for an advanced degree.

Three terms; credits and hours to be arranged. (G)

F 694, 695, 696. **Graduate Thesis.** The preparation of a thesis for an advanced degree.

Three terms; credits and hours to be arranged. (G)

School of Health and Physical Education

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

CLAIR VAN NORMAN LANGTON, D.P.H., Dean of the School of Health and
Physical Education.

ELIZABETH HEATH, B.S., Secretary to the Dean.

Physical Education for Women

RUTH ROBINSON, M.S., Professor of Physical Education for Women.

BETTY LYND THOMPSON, M.A., Assistant Professor of Physical Education for
Women.

NATALIE REICHART, M.A., Instructor in Physical Education for Women.

ELSIE JACOBSEN, B.S., Instructor in Physical Education for Women.

LAURA CORNELIA MCALLESTER, Instructor in Physical Education for Women.

LELIA BEGGS RILEY, B.S., Instructor in Physical Education for Women.

RUTH THAYER, M.A., Instructor in Physical Education for Women.

JEANNETTE ALICE BRAUNS, B.S., Instructor in Physical Education for Women.

LOUISE MARIE HOESCHEN, B.S., Instructor in Physical Education for Women.

Physical Education for Men

CLAIR VAN NORMAN LANGTON, D.P.H., Professor of Physical Education.

PAUL JOHN SCHISSLER, JR., Director of Intercollegiate Athletics; Head Coach
of Football; Instructor in Football Tactics.

RALPH ORVAL COLEMAN, M.A., Professor of Physical Education.

GRANT ALEXANDER SWAN, B.S., Assistant Professor of Physical Education.

OTTO CHRISTIAN MAUTHE, G.G., Assistant Professor of Physical Education.

RICHARD WENRICK NEWMAN, A.B., LL.B., Instructor in Physical Education;
Head Coach of Track.

AMORY TINGLE GILL, B.S., Instructor in Physical Education; Head Coach of
Basketball.

JAMES VICTOR DIXON, Instructor in Physical Education; Assistant Coach of
Football.

ALONZO STINER, B.S., Instructor in Physical Education; Assistant Coach of
Football.

JOHN EDWARD KENNEY, B.A., Instructor in Physical Education; Head Coach of
Swimming.

ROY LAMB, B.S., Instructor in Physical Education; Assistant in Athletics.

Health Service

DANIEL CLYDE REYNOLDS, M.D., Professor of Hygiene; Director of Health Service.

BERNARD ABRAHAM MANACE, M.D., College Physician.

RACHEL CARLETON SPARKS, M.D., College Physician.

ERNA MARGUERITE PLAGEMAN, R.N., Supervising Nurse.

FLORENCE ENID VOGEL, R.N., Nurse.

MABEL RUTH DARELIUS, R.N., Nurse.

CLAUDINE MONTGOMERY, R.N., Nurse.

NELLE MARY GUNN, X-Ray Technician.

Hygiene

MELVIN PRICE ISAMINGER, D.P.H., Professor of Hygiene.

CLAIR VAN NORMAN LANGTON, D.P.H., Professor of Hygiene.

RENA HEAGEN, C.P.H., Assistant Professor of Hygiene.

Intramural Sports

RALPH ORVAL COLEMAN, M.A., Professor of Physical Education; Director of Intramural Sports.

THE School of Health and Physical Education, comprising the five departments of Physical Education for Women, Physical Education for Men, Health Service, Hygiene, and Intramural Sports, is an administrative unit concerned in developing and maintaining strong, healthy bodies and in teaching sound health principles and practices. This school is responsible for campus health and sanitation. The courses offered are service courses for students majoring in some other department or school. No degree in Physical Education or Hygiene is offered.

Physical Education for Women

THE courses in Physical Education are service courses for students who are majoring in some other department or school. No degree in Physical Education is offered. Students may elect courses in addition to the required work, and in the schools of Commerce, Home Economics, and Vocational Education provision is made for a minor in Physical Education. Freshmen who plan to take a minor in Physical Education should consult the freshman adviser in the department of Physical Education for Women before planning their schedules. Upperclass students should confer with the head of the department. This department offers to all women students an opportunity for participation in recreative activities in order that each one may reach a high level in a healthful personality and morale.

Examinations. Each student is classified according to the results of a medical and physical examination, and tests of her ability in motor activities. The program of each student is adapted to her needs according to her classification.

Costume. The costume needed for participation in the various activities of the department depends upon the program of the student. Since a regulation costume for the various activities must be worn, nothing should be purchased before coming to the College.

Fee. The physical education fee of \$3.00 a term is charged for the use of towels, dressing rooms, swimming pool, etc.

Facilities. The Women's Building provides adequate and modern facilities for convenient and hygienic participation in all the activities of an ideal program in physical education. The building contains a completely equipped dressing room, including lockers, individual showers and dressing booths, shampoo bowls and hair driers, and adequate towel service; a white-tile pool thirty-five feet wide and seventy-five feet long, with a gallery for spectators; adequate provision for hygienic care of the building; pool, swimming suits, and towels; a large gymnasium with a gallery for spectators, a special room for dancing instruction, a rest room, and rooms for individual activities; adequate offices for the staff and for the department, classrooms and special examining rooms; a large lounge or social room for all-college affairs, and special social rooms for the Women's Athletic Association and other organizations of the department.

Immediately west of the Women's Building is a large Play Field with space for hockey and soccer fields, baseball diamonds, archery ranges, and volleyball courts. Cement tennis courts are provided east of the building.

Women's Athletics. The department, in cooperation with the Women's Athletic Association, affords to every woman an opportunity for participation in interclass and interorganization contests in all activities. The Women's Athletic Association is a member of the Athletic Conference of American College Women. At least once a year a "play day" is arranged with women students of other colleges to promote a friendly spirit and to compare sport techniques.

Regulations. For graduation each woman will present 9 credits in Physical Education; 3 credits each for the first and second years, and 1½ credits each year for the third and fourth years. In addition, freshman women will present ½ credit in Social Ethics and 1½ credits in General Hygiene.

Students may make their own selection of activities according to the following directions:

- (1) Any student in need of special or individual activities may select her program from a special group, according to the medical classification.
- (2) All other students should satisfy the following group requirements:
 - (a) Physical Education Practice, ½ credit each term, first year;
 - (b) 7½ credits selected from the following classifications—Swimming, Rhythmic Activities, Team Games, Individual Sports. Work amounting to at least 1½ credits or satisfactory skill in each of the four groups is required for graduation.

Physical Education for Men

COURSES in Physical Education are service courses for students who are majoring in some other department or school. No degree in Physical Education is offered.

This department offers every man in the College an opportunity for wholesome participation in nearly every branch of recognized physical activity. In addition to certain required exercises, skills, techniques and fundamentals are taught in a wide variety of activities. These include swimming, boxing, polo, rowing, wrestling, fencing, tumbling, golf, cross country, speedball, and playground ball.

Instruction is offered in theory, practice, and technique of modern physical education, together with athletic coaching courses.

Intercollegiate Athletics. All intercollegiate athletics are under the jurisdiction of the Board of Control, composed of three members of the faculty, five members of the student body, and one alumnus. Representative teams are organized for baseball, basketball, cross-country running, football, tennis, track, wrestling, and swimming.

Examinations. Each student is classified according to the results of a medical and physical examination, and tests of his ability in motor activities. The program of each student is adapted to his needs according to his classification.

Restricted Exercises. Under trained supervision, special care is taken in controlling and restricting certain exercises to students whose health examination shows need for such precaution.

Indoor Facilities. The Men's Gymnasium provides modern equipment for physical education and recreation. The south unit contains the natatorium, one of the finest on the Coast, with a white-tile pool fifty by one hundred feet in size, with a surrounding gallery seating 1,500 spectators. High and low modern diving boards are part of the equipment. Pressure filters and automatic chlorinators are used in keeping the water sterile. Daily tests for bacteria, residual chlorine, and pH (alkalinity-acidity) values are conducted to insure that the pool water is in satisfactory condition. The east wing has an auxiliary gymnasium for volleyball and apparatus work. The physical education offices and lecture rooms are also located in this wing of the building. The west wing contains room for volleyball and apparatus work, four handball courts, one wrestling, and one boxing room. The main, central unit contains locker and shower rooms, lobby and offices, restricted exercise room, and the great gymnasium hall with a floor ninety by one hundred and fifty feet in dimensions, with three basketball courts across the main floor. The balcony which encircles the main hall seats nearly a thousand students.

The Armory, one of the largest of its kind in the United States, affords excellent facilities for winter training during inclement weather in football, track, baseball, and various other sports. An indoor clay track, banked at the turns, which is but eight laps to the mile, and the extension clay floor

space and high dome roof, furnish facilities for conducting large winter track and field meets.

Outdoor Facilities. The Oregon State fields for athletics comprise a quarter-mile cinder track; varsity football field, with a steel covered grandstand seating seven thousand people and covered bleachers bringing the total seating capacity up to twenty-five thousand; two baseball fields, a varsity and a freshman field; six practice football fields; and an intramural play field with space for speedball, baseball, and playground ball.

There are at present four tennis courts which afford excellent facilities for tennis. These courts are of concrete, assuring opportunity for playing all the year around.

REGULATIONS

Minimum Credit Requirement. A minimum of 18 credits exclusive of general gymnasium is required before minor credit will be given in Physical Education, and a minimum of 8 credits exclusive of general gymnasium is required before elective credit will be given. Students who are not physically able to complete general gymnasium requirements of $2\frac{1}{2}$ credits shall not in any case be given credit for these courses. No student is permitted to enroll in a class unless his card has been passed by the adviser in the department of Physical Education for Men.

Required Physical Education. A minimum of two hours per week in physical education is required of each freshman and sophomore, except during one term of the freshman year when hygiene is substituted for physical education.

Compulsory Swimming. All men students are required to pass a swimming examination before graduating from this institution. Every man must be able to swim at least one length (one hundred feet) of the swimming pool. Sophomores must enroll in swimming unless they can demonstrate ability to fulfill the swimming requirement.

Freshman Hygiene. General Hygiene (H 110), $1\frac{1}{2}$ credits, is required of all men students one term of the freshman year. Approximately one-third of the first-year men are registered in this course each term. During the term when General Hygiene is taken the student is not required to take the regular gymnasium work and his military requirement for that term is 1 credit instead of 2 credits.

Fees. The official receipt for the gymnasium fee of \$3.00 a term entitles the holder to full privileges of the department, including health examination, locker, use of shower rooms, towels, athletic fields, gymnasiums, etc.

Courses in Physical Education

COMBINED COURSES FOR MEN AND WOMEN

PE 253. Applied Anatomy. A study of the principles and mechanisms of bodily movements.

Prerequisite: Z 212. Third term; 2 credits; 2 periods.

Assistant Professor Swan.

PE 261. **History and Principles of Physical Education.** A historical survey of physical education including contemporary developments; the social, political, economic, and educational basis of physical education studied for the purpose of establishing principles to guide in the selection of activities in a program.

First term; 3 credits; 3 periods.

Professor Coleman.

PE 273. **First Aid.** The emergency treatment of all classes of injuries (until the doctor comes). A standard course in first aid with emphasis upon the practical use of the knowledge as applied to every-day life in varying occupations. Red Cross certificates are given.

Third term; 2 credits; 2 periods.

Professor Reynolds.

PE 352. **Nature and Function of Play.** A discussion of play in relation to the development of the individual, including instructive tendencies and physical growth and development.

Second term; 3 credits; 3 periods.

Miss Reichart.

PE 363. **Principles and Methods of Physical Education.** Application of scientific principles of teaching to physical education subjects, lesson planning, criticism of teaching, planning activities suited to age-groups with a discussion of the principles involved.

Prerequisites: PE 352, Ed 311. Third term; 3 credits.

Professor Robinson.

PE 372. **Principles of Community Recreation.** Methods and material for conducting community gatherings.

Second term; 1 credit; 2 periods.

Professor Robinson.

PE 451. **Applied Physiology.** A study of the effect of different activities on the various physiological systems of the body.

Prerequisite: Z 321, 322. First term; 3 credits; 3 periods.

Assistant Professor Swan.

GENERAL COURSES FOR WOMEN

PE 111, 112, 113. **Physical Education Practice.** Motor skills and knowledge related to sports, games, posture, and general life activities.

Three terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 121. **Social Ethics.**

One term; $\frac{1}{2}$ credit; 1 period.

PE 131, 132, 133. **Dancing.** Rhythmic activities: Beginning, Intermediate, Advanced. Selection of courses in (a) folk, (b) clog, and (c) natural dancing.

Prerequisite: PE 112. Any three terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 141, 142, 143. **Team Games.** Beginning, Intermediate, Advanced: (a) hockey, (b) field ball, (c) baseball, (d) basketball, (e) volleyball, (f) field and track, (g) games of medium organization.

Three terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 151, 152, 153, 154. **Swimming.** Beginning, Elementary, Intermediate, Advanced swimming, including life-saving.

Four terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 177, 178, 179. **Individual Sports.** Beginning, Intermediate, Advanced: (a) tumbling and related tests of ability, (b) tennis, (c) archery, (d) quoits, (e) ten-o-quoit, (f) golf.

Three terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 190. **Special Activities.** Remedial and limited activities for women unable to participate in regular activities and for those needing special assistance in skills related to posture.

One term; $\frac{1}{2}$ or 1 credit; 2 or 4 periods.

SPECIAL COURSES FOR WOMEN

PE 271. **Play and Playgrounds.** Methods of conducting playgrounds and materials suitable for use on playgrounds.

Third term; 3 credits; 2 recitations; 2 laboratory periods. Miss Thayer.

PE 373. **Individual Activities.** Methods of making physical examinations, of preventing and correcting faulty posture, weak and flat feet, and simple functional disorders.

Prerequisites: PE 253. First term; 3 credits; 2 lectures; 2 laboratory periods. Miss McAllester.

PE 382. **Pageants and Festivals.** Selection of theme, music, dance forms, and costume.

Prerequisite: Approval of instructor. Second term; 3 credits; 4 periods. Assistant Professor Thompson.

PE 464, 465, 466. **Physical Education Laboratory.**

Prerequisite: PE 363. Three terms; credits and hours to be arranged. Miss Thayer.

PE 473. **Organization and Administration of Physical Education (Women).** Fundamental facts in the organization of programs for elementary and high schools.

Prerequisites: PE 363, 373, 464. Third term; 3 credits; 3 periods. Professor Robinson.

GENERAL COURSES FOR MEN

PE 115, 116, 117. **Gymnastics and Calisthenics.** This work pursued for two terms, with H 110 one term, constitutes the freshman requirement for men in Health and Physical Education.

Three terms; $\frac{1}{2}$ credit each term; 2 periods.

PE 215, 216, 217. **Gymnastics and Calisthenics.** A choice of the following sports is offered: boxing, wrestling, fencing, cross country, tumbling, and apparatus, swimming, outdoor sports, golf, crew, and polo. At least two different activities must be elected during the year.

Prerequisites: PE 115, 116, 117. Three terms; $\frac{1}{2}$ credit each term; 2 periods.

SPECIAL COURSES FOR MEN

PE 201. **Calisthenics, Marching, and Mass Athletics.** Demonstrations and applications of various forms of marching (military, gymnastic, calisthenic) and mass athletics (games, relays, contests, track and field) for school purposes with use of rating, scoring charts.

Second term; 2 credits; 4 periods. Assistant Professor Mauthe.

PE 222. **Graded Plays and Games.** Activities for all ages; the play curriculum, progressing from the simple kindergarten plays to the highly scientific team games, novelty games for parties and mixed groups.

Second term; 1 credit; 2 periods. Assistant Professor Swan.

PE 232, 233. **Minor Sports.** A study of the technique and rules of swimming, boxing, wrestling, tennis, and fencing; the place of these sports in a school program of physical education. Lectures, demonstrations, and practice.

Second and third terms; 2 credits each term; 4 periods.

Assistant Professor Mauthe, Messrs. Dixon, Stiner, and Kenney.

PE 301. **Athletic Training and Conditioning.** A study from both practical and theoretical aspects of massage, bandaging, treatment of sprains, bruises, strains, and wounds; diet and conditioning of athletes. Lectures, demonstrations, and practice.

Prerequisite: Z 212. First term; 2 credits; 2 periods.

Assistant Professor Swan.

PE 322. **Natural Gymnastics.** A natural technique of gymnastic practice involving natural activities, including apparatus, tumbling, and stunt activities, bodily-contact and self-defense activities.

Second term; 2 credits; 4 periods. Assistant Professor Mauthe.

PE 341. **Basketball.** The coaching and training of basketball teams beginning with fundamentals, passing, dribbling, and pivoting with emphasis on the psychology of the game; various methods of defense and offense.

First term; 2 credits; 2 periods.

Mr. Gill.

PE 342. **Football.** Fundamentals of football, theory and practice, details of each position on the team, training and managing, complete technique of developing offensive and defensive tactics, a comparison of the various systems in American intercollegiate football.

Third term; 2 credits; 2 periods.

Director Schissler.

PE 343. **Baseball.** The technique of batting, pitching, baseball strategy and how to play various positions; promoting the game, making schedules,

points of inside baseball; care and construction of the field; baseball management.

Third term; 2 credits; 2 periods.

Professor Coleman.

PE 331, 332, 333. **Physical Education Laboratory.** Practical training for teaching physical education, consisting of work in the gymnasium and on the athletic field. Opportunity is given for training and instruction in various types of gymnastic work as well as in the field work of all outdoor games.

Prerequisites: Approval of instructor; PE 201. First, second, and third terms; 2 credits each term; 4 periods.

Assistant Professor Swan.

PE 381. **Play Theory and Practice.** Methods of organizing and administering playground and community recreation and the activities suitable to different groups and ages.

First term; 3 credits; 3 periods.

Professor Coleman.

PE 411. **Organization and Administration of Physical Education (Men).** Treats in detail the administrative problems involved in the coordination of health, gymnasium, athletics, and recreational phases of physical education into a unified and workable system.

Prerequisites: PE 331, 363. First term; 3 credits; 3 periods.

Professor Coleman.

PE 422. **Track and Field.** How to train for various track and field events; their form and technique; conduct of athletic meets; construction, use, and assembling of all equipment used by participants on the field; development of certain types of individuals for certain events.

Second term; 2 credits; 2 periods.

Mr. Newman.

PE 433. **Health Examination and Anthropometry.** Physical diagnosis, physical examination, and anthropometry.

Prerequisite: Z 321. Third term; 2 credits; 2 periods.

Professor Coleman.

Health Service

AS a safeguard to the health of the student body the College Health Service was established in 1916. All regularly registered students are entitled to the privileges which this department offers.

The department derives its support largely from the Health Service fee of \$3.00 a term which students pay as part of their regular fees.

Purpose. The purpose of the Health Service is to preserve health, to prevent disease, and to provide medical attention for ill students. The accomplishment of this purpose is sought through health education, detection of incipient disease, detection of remedial defects through the medium of complete medical examinations and by appropriate medical attention for acute disease conditions.

Equipment. The Health Service is housed in a frame building in the East Quadrangle. This building is equipped with a secretary's office, a waiting room, three doctors' offices, a nurse's treatment room, a laboratory and pharmacy, and an X-ray room. The College Hospital is located at 853 Harrison Street.

Health Service Staff. The Health Service Staff consists of two men physicians, a woman physician, four graduate nurses, a laboratory technician, an X-ray technician, a secretary and file clerk.

Service. Students are entitled to general medical attention and advice at the Health Service during office hours. Complete medical examinations are required of all new students and are given to other students if requested. Any student whose condition demands hospitalization for general medical attention is entitled to free care at the College Hospital not to exceed ten days during the nine months of the regular academic year. All expenses of, or connected with, surgical operations or highly specialized service must be borne by the students who require such attention.

An ill student may, upon request, be attended at his rooming place by Health Service physicians. Such calls, after Health Service hours, should be telephoned to the College Hospital. For each call at student's place of residence an additional fee of \$1.00 is charged, payable at the Business Office upon receipt of a statement from the Health Service.

Hygiene

THE department of Hygiene offers service courses in hygiene and public health for students who are majoring in some other department or school. No degree in hygiene or public health is offered. Hygiene, a very important phase of health, has assumed a large place in the lives of people today. Public health activities in the past have been concerned almost wholly with the control of communicable disease and have expended most of their energies toward the control of environment in its relation to the spread of organisms pathogenic to man. Effort was mostly concerned with sanitary engineering, bacteriology, parasites, and the insects in their relation to disease. The environmental distribution of pathogenic organisms is through air, soil, water, sewage, milk, food, and insects, and the physical routes of transmission are through these same media.

The modern trend in addition to disease prevention has added another interest which promises much in the field of health. This new interest may be termed health promotion or physical efficiency. It is concerned with the machinelike attitude toward the body, with its sound, active, vigorous, and harmonious development and maintenance, with positive health, thus permitting the individual to carry on his economic burdens and perform his duties to society with satisfaction to himself and to all concerned. This new physical efficiency program is applied to the various age periods of life, including child hygiene, school hygiene, adult hygiene. The program is to arouse in students an impelling appreciation of positive health, and to educate them in the fundamentals of right living.

In dealing with the human being with the objective of physical well-being and efficiency, several points present themselves. These are physiologic, psychologic, sociologic, immunologic, and genetic. Sociology, political science, and economics acquaint the student with the social aspect of health and well-being. Recently it has become more appreciated that education of the masses in the fundamentals of right living is paramount in effective health work. Some knowledge of the principles and practices of education, with particular reference to methods and materials in health education as applied in the schools and to the public at large, is therefore desirable for those who on leaving college assume important positions in their local communities.

DESCRIPTION OF COURSES

H 110. General Hygiene. The principles and practices of health promotion, individual and physiologic hygiene, disease prevention and control, community hygiene and public health. Lectures, recitations, and demonstrations concerning phases of health which should be understood by all college students. Required of all freshmen.

Any term; 1½ credits; 2 periods.

H 371. Methods and Materials in Health Education. Principles and practices in health education in the various grades; interrelation of health teaching to the teaching of other subjects emphasized.

Any term; 3 credits; 3 periods.

Assistant Professor Heagen.

H 372. Organization and Administration of Health Education. Practical problems in the field of health teaching; criticism of teaching material; nature and philosophy of health education; scope and content of the field of health.

Second term; 3 credits; 3 periods.

Assistant Professor Heagen.

H 373. Laboratory Course in Health Education. Training in the classroom; observation; practice in use of health education materials.

Any term; credits and hours to be arranged.

Assistant Professor Heagen.

H 413. Agricultural Sanitation. Ground and surface waters; wells, pumps, and plumbing; rodents; insects; drainage; dairy barns and pig pens; disposal of garbage; privies, sewage systems, etc.

Second term; 2 credits; 2 periods.

Professor Langton.

H 414. Public Health Administration. Public health laws and regulations; police power; enforcement of public health laws; advisory powers of boards of health; public health authorities, medical and nursing service, hospitals and institutions; details of state and municipal health administration, etc. Open only to seniors and graduate students.

Third term; 3 credits; 3 periods. (G)

Professor Isaminger.

H 415. Industrial and Municipal Sanitation. The scientific foundations of public sanitation; prevention of typhoid fever, malaria, and other dis-

eases through water purification, sewage disposal and drainage, and other major sanitary improvements involving community control of environment; the collection, utilization, and disposal of garbage and other city wastes; street cleaning methods, organization and management; industrial sanitation. Open only to seniors and graduate students.

First term; 2 credits; 2 periods. (G)

Professor Langton.

H 461 (Ed 461). **School Hygiene.** A course in the health provisions requisite for the hygienic conduct of education. Oregon laws, regulations of the State Board of Health, and other state and local authorities explained in detail.

Prerequisites: Ed 433; also one or more courses each in biologic and physical science. Third term; 2 credits; 2 recitations. (G)

Assistant Professor Heagen.

H 462 (Ed 462). **School Sanitation.** General sanitation of school yard and arrangement of buildings; toilets; plumbing; water supply; heat; light; ventilation; seats; blackboards and cleanliness.

Second term; 2 credits; 2 periods. (G)

Assistant Professor Heagen.

Intramural Sports

THE department of Intramural Sports is one of the divisions of the School of Health and Physical Education. It is under the supervision of the director of intramural sports.

The function of the department is to encourage the participation of the entire student body in organized athletic sports. The program is planned so that every student who is physically fit to take part in athletic contests may have the opportunity of participating in organized competitive sports.

The aim of this department is to bring to every student at Oregon State the moral, social, physical, and educational values of competitive sports. Further, skill in the different sports should be developed, and a desire created that urges the student to continue those activities after leaving college. The value of training in the proper use of leisure time cannot be overestimated.

Competition is organized between fraternities, independent clubs, dormitories, classes, departments in the College, and military units. The program of sports provides for both individual and team competition. Leagues are organized in those sports where time, space, and equipment permit, thus giving an opportunity for each team or contestant to play a number of games.

Intramural activities have been growing steadily on this campus. New sports have been added from year to year as experience dictates. Outdoor facilities have been increased through the development of an intramural play field which provides for eight speedball fields, eight soft ball, and two hard ball diamonds.

In some of the more strenuous sports, such as basketball, track, cross-country, speedball, and swimming, close supervision is exercised in regard to the physical condition of the men participating. In order to eliminate the danger of injury and overstrain, physical examinations are required of all entrants in these sports.

Individual and organization records are kept of participants in the different intramural sports. At the end of each year a report is made showing the numbers participating as well as those organizations most active in intramural sports.

The program of activities during the fall term consists of cross-country, speedball, basketball, Sigma Delta Psi, and tennis; during the winter term, handball, swimming meets, water polo, swimming relays, track relays, Sigma Delta Psi, foul throwing, basketball, wrestling, and boxing tournaments; during the spring term, track meets, tennis, horseshoes, playground ball, golf, Sigma Delta Psi, and baseball.

A booklet containing rules, regulations, and other information on intramural sports is published and made available to all students interested in the program.

School of Home Economics

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

AVA BERTHA MILAM, A.M., Dean of the School of Home Economics.

VETA STOVER SMYTH, B.S., Secretary.

Clothing, Textiles, and Related Arts

ALMA CATHERINE FRITCHOFF, A.M., Professor of Clothing, Textiles, and Related Arts.

JAMES RUSSELL PATTERSON, Associate Professor of Clothing and Related Arts.

MILDRED CHAMBERLAIN, Ph.B., Associate Professor of Clothing and Related Arts.

GERTRUDE STRICKLAND, Instructor in Clothing and Related Arts.

*GLADYS VIOLA JOHNSON, B.S., Instructor in Clothing and Related Arts.

ANNA CHARLOTTE PRICE, A.M., Instructor in Clothing and Related Arts.

MARGARET LOUISE BREW, Ph.B., Instructor in Clothing and Related Arts.

HELEN PEER ROBINSON, Instructor in Clothing, Textiles, and Related Arts.

MARION OLIVER, M.S., Instructor in Clothing, Textiles, and Related Arts.

DOROTHEA McLOUTH CORDLEY, B.S., Instructor in Clothing, Textiles, and Related Arts.

†HARRIET KING SINNARD, B.S., Instructor in Clothing and Related Arts; Extension Specialist in Clothing.

Foods and Nutrition

JESSAMINE CHAPMAN WILLIAMS, M.A., Professor of Foods and Nutrition.

*BEATRICE JANE GEIGER, M.S., Associate Professor of Foods and Nutrition.

AGNES KOLSHORN, M.A., Assistant Professor of Foods and Nutrition.

†LUCY ADA CASE, M.A., Assistant Professor of Foods and Nutrition; Extension Specialist in Nutrition.

MABEL ALTONA WOOD, M.S., Assistant Professor of Foods and Nutrition.

LILLIAN CATHERINE TAYLOR, M.A., Instructor in Foods and Nutrition.

WILLETTA MOORE, M.S., Instructor in Foods and Nutrition.

EVRA ALTA GARRISON, M.A., Instructor in Foods and Nutrition.

RUTH DOUGLASS, B.A., Teaching Fellow in Foods and Nutrition.

Home Economics Education

*FLORENCE BLAZIER, M.A., Professor of Home Economics Education.

FRANCES MAURINE WRIGHT, B.S., State Supervisor and Teacher Trainer in Vocational Home Economics.

*On leave of absence.

†Members also of Extension Staff.

LURA AMELIA KEISER, B.S., Critic Teacher in Home Economics Education.

MERLE BONNEY DAVIS, B.S., Critic Teacher in Home Economics Education;
Acting Head, Home Economics Education.

ELEANOR MAY SPIKE, B.S., Critic Teacher in Home Economics Education.

Home Economics Extension

CLARIBEL NYE, M.A., Professor and State Leader of Home Economics Extension.

LUCY ADA CASE, M.A., Extension Specialist in Nutrition.

ZELTA FEIKE RODENWOLD, M.S., Assistant Professor of Household Administration; Extension Specialist in Home Management.

HARRIET KING SINNARD, B.S., Instructor in Clothing and Related Arts; Extension Specialist in Clothing.

FORENA JENKS, B.S., Assistant in Home Management and Home Economics Radio Service.

Household Administration

ALMA GRACE JOHNSON, M.A., Professor of Household Administration.

SARA WATT PRENTISS, M.A., Professor of Child Development and Parent Education.

MARY EDITH CARSE, M.A., Instructor in Household Administration.

KATHARINE BARBARA HAIGHT, R.N., Instructor in Home Nursing.

VERA HASKELL BRANDON, M.S., Instructor in Household Administration.

FRANCES ANNA KELLY, M.S., Instructor in Household Administration.

JUANITA CHANEY MANNING, B.S., Teaching Fellow in Household Administration.

Institution Economics

MELISSA HUNTER, A.M., Professor of Institution Economics; Director of Dormitories.

GEORGIA CHAPMAN BIBEE, B.S., Assistant Professor of Institution Economics; Director of Memorial Union Dining Service.

WILMA HAZEL ANDERSON, B.S., Instructor in Institution Economics; Assistant Director of Dormitories.

HOME ECONOMICS work is manifold in scope: it prepares for homemaking, for teaching, for home economics extension, for institutional management or other administrative work, and for commercial fields.

Training in homemaking is fundamental in all the work of the School. A distinct curriculum, the General Curriculum, provides especially for those whose main object in attending college is preparation for home life. Courses in English, art, history, modern languages, science, and the other departments of general training, supplement the technical courses in this curriculum, which aims to provide a liberal as well as a technical education. The true homemaker not only must be trained in the science, the art, and

the economics of the household, but also must have a well-rounded personality, with intelligent interests, trained judgment, and cultivated tastes, enabling her to solve successfully the problems of the changing modern home, with its complex social and civic relationships.

In the Professional Curriculum, which prepares for the more technical pursuits, the work is largely prescribed for the first two years. In the junior and senior years the student may specialize in some particular field, as in the teaching of home economics, home economics extension, institutional management, or commercial fields. Each of these in turn offers a variety of possibilities. Teaching positions include home economics in secondary schools, colleges, universities or other institutions of higher learning, and in the field of club work and adult extension from state colleges.

Facilities. The Home Economics Building is equipped with modern facilities for carrying on all phases of home economics work.

The Foods and Nutrition department has seven laboratories, including one dietetic laboratory, animal laboratory, and facilities for instruction in family cookery and table service.

The department of Clothing and Related Arts has eight laboratories provided with modern equipment including textile and applied design laboratories.

In addition to the recitation rooms and equipment laboratories located in the Home Economics Building, the Household Administration department operates two Home Management Houses, Kent and Withycombe, and the Nursery School, housed in Covell House. These three houses are located on the campus.

The Institution Economics department is unusually well provided with space and equipment. The Memorial Union dining-room facilities afford opportunity for training in different types of food service including table d'hote, tea room, banquet and catering service. The central kitchen and cold storage rooms are equipped with modern labor-saving and power equipment. The halls of residence both for men and for women are available for study of housing problems.

The supervised teaching is carried on in the public schools of Corvallis, the plant and equipment of the high schools being used by the student-teacher group.

The extension department, through which the School maintains direct relationship with the homemakers and the 4-H Club girls of the state, provides guidance to undergraduate and graduate students who wish to specialize in this field. The School supervises apprenticeship training in counties located near the College.

Curricula. The School of Home Economics offers the following:

I. A four-year Professional Curriculum leading to the degree of Bachelor of Science, including technical courses, together with the basic arts and sciences, languages, history, economics, and sociology, for those desiring training not only for homemaking but also for positions in home economics teaching, institutional management, extension work, and com-

mercial fields. The courses for the first two years are prescribed, giving the necessary foundation for any of the occupations. Specialization within limits is possible during the junior and senior years. A student completing this curriculum meets the requirements of the Federal Board for Vocational Education for the Smith-Hughes teacher.

II. A four-year General Curriculum leading to the degree of Bachelor of Science, planned for students who, while not desiring training as teachers of home economics, wish training in the principles of homemaking together with a general cultural education. Although students in this curriculum must meet the institutional requirements for a major in Home Economics, the liberal proportion of electives permits the taking of courses in any department in the College in which the student is interested, subject to proper balancing of work according to an approved program.

III. A two-year Curriculum combining practical training in homemaking and general cultural subjects, leading to a certificate. Admission to this curriculum requires completion of a full high-school course or equivalent.

IV. Graduate work leading to advanced degrees. See the section of this catalogue devoted to Graduate Study.

V. Courses for homemakers, special students, and students registered in other schools on the campus. The following courses are planned to meet the need of these students:

	Credits
Clothing Selection and Construction (CT 217, 218, 219).....	3 each term
Foods (FN 203, 204, 205).....	3 each term
Child Care and Training (HAd 225).....	3
Millinery (CT 320).....	3
Home Nursing (HAd 230).....	2
House Furnishing (CT 231).....	3
Principles of Dietetics (FN 200).....	2
Textile Design (CT 235).....	3
Family and Personal Budgets (HAd 240).....	1
Food Selection and Preparation (FN 201, 202).....	3 two terms
Food Selection and Preparation (for men) (FN 340).....	1
Camp Cookery (for men) (FN 350).....	1

A minor in Home Economics for Commerce students is outlined under School of Commerce.

Fees. A fee of \$4.50 a term is charged all undergraduate and graduate students registered in the School of Home Economics. Students of other schools taking courses in the School of Home Economics are charged the following fees: CT 217, \$0.50; CT 432, 300, 218, 219, \$1.00; CT 211, 212, 300, 311, 416, 231, 235, \$1.50; CT 200, 438, \$2.00. FN 200, \$0.50; FN 201, \$5.00; FN 202, \$5.00; FN 203, 204, 205, 211, 212, 212, 309, 410, \$4.00 per term; FN 340, 350, \$3.00. HAd 410, 425, \$1.00. Other HAd courses, \$0.50 per course.

Requirements for Graduation. For the bachelor's degree in Home Economics a minimum of 192 credits must be completed. The work should be distributed as suggested by the following curricula. Transfers from other institutions are required to complete at least 18 credits in Home Economics at this institution.

Curricula in Home Economics

Freshman Year

The uniform freshman year enables students to choose between the General and Professional curricula after a year of basic college training. For the freshman year in the two-year curriculum see page 323.

	Term credits		
	1st	2d	3d
English Composition (Eng 101, 102, 103).....	3	3	3
Drawing and Composition (A 101), Design (A 102), Color Harmony (A 103).....	3	3	3
¹ History (Hst 212, 213, 361, or 211) or a modern language.....	3	3	3
² General Chemistry (Ch 101, 102, 103) or General Zoology (Z 101, 102, 103) or a year of another science.....	3	3	3
Home Problems (HAD 150).....	3	---	---
Social Ethics (PE 121).....	$\frac{1}{2}$	---	---
Introduction to Home Economics (HAD 100).....	---	---	1
General Hygiene (H 110).....	---	1 $\frac{1}{2}$	---
Appreciation of Music (T 120).....	---	1	---
Physical Education.....	1	1	1
	16 $\frac{1}{2}$	15 $\frac{1}{2}$	14

PROFESSIONAL CURRICULUM

B.S. Degree

Sophomore Year

[*] Textiles (CT 200), Clothing (Selection, Construction) (CT 211, 212).....	3	3	3
English (Literature).....	3	3	3
Organic Chemistry (Ch 221).....	5	---	---
Biochemistry (Ch 222).....	---	5	---
General Physics (Ph 200).....	---	---	5
Elements of Human Physiology (Z 321, 322).....	---	3	3
Foods (Preparation, Marketing, Planning) (FN 211, 212, 213).....	3	3	3
Physical Education.....	1	1	1
	15	18	18

Junior Year

Household Management (HAD 340).....	---	---	4
[*] Related Art.....	---	---	3
Costume Design (CT 300).....	3	---	---
Clothing (CT 311).....	---	3	---
General Bacteriology (Bac 204, 205).....	---	3	3
General Psychology (Psy 201).....	5	---	---
Introduction to Economics (ES 391).....	---	3	---
Extempore Speaking (PSP 254) or Elementary Industrial Journalism (IJ 200).....	3	---	---
Nutrition (FN 320, 321).....	---	3	3
Physical Education.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Electives.....	4	3	2 $\frac{1}{2}$
	15 $\frac{1}{2}$	15 $\frac{1}{2}$	15 $\frac{1}{2}$

Senior Year

Child Development (HAD 420).....	3	---	---
Home Management House (HAD 450).....	---	4	---
General Sociology (ES 305).....	---	---	4
House Furnishing (CT 431).....	---	---	3
Political Science.....	---	---	3
Physical Education.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Electives.....	13	12	5 $\frac{1}{2}$
	16 $\frac{1}{2}$	16 $\frac{1}{2}$	15 $\frac{1}{2}$

¹Hst 212, 213, required for graduation. If a modern language is chosen at least two years of that language must be completed.

²General Chemistry is required for the Professional Curriculum and should be taken in the freshman year.

³Students having had no previous Clothing courses are required to take CT 110 as a prerequisite to CT 211.

⁴Choice of CT 335, Ar 320, A 321, 322, LA 131 or 438.

HOME ECONOMICS TEACHING¹

For students preparing to teach home economics the following sequence is suggested.

	Term credits		
	1st	2d	3d
Junior Year			
Principles of Teaching (Ed 311).....	3	---	---
Educational Psychology (Psy 222).....	---	3	---
Special Methods in Home Economics (HEd 304, 305).....	---	3	3
Secondary Education (Ed 212).....	---	---	3
Senior Year			
Measurements in Education (Ed 433).....	3	---	---
Supervised Teaching (Ed 401).....	4	or 4	---

INSTITUTION ECONOMICS AND DIETETICS

For students preparing for positions as dietitians in hospitals, dormitories, cafeterias, hotels and tea rooms, the following courses are required.

	Term credits		
	1st	2d	3d
Principles of Accounting (BO 101, 102).....	3	3	---
Educational Psychology (Psy 222).....	3	---	---
Principles of Teaching (Ed 311).....	---	3	---
Quantity Cookery and Catering (IEC 310).....	3	---	---
Physiological Chemistry (Ch 461, 462).....	---	3	3
Diet in Disease (FN 420).....	---	---	3
Institutional Organization and Administration (IEC 430).....	2	---	---
Institutional Equipment (IEC 420).....	---	3	---
Institutional Marketing (IEC 440).....	---	---	2
Institution Experience (IEC 450).....	---	---	4

HOME ECONOMICS EXTENSION

For students in the Professional Curriculum preparing for positions in the field of home economics extension the following courses are suggested.

	Term credits		
	1st	2d	3d
Junior Year			
Educational Psychology (Psy 222).....	---	3	---
Household Equipment (HAd 410).....	---	3	---
Applied Design (CT 335).....	---	---	3
Principles of Teaching (Ed 311).....	---	---	3
Elementary Industrial Journalism (IJ 200).....	3	---	---
Journalism Practice (IJ 204).....	---	2	---
Senior Year			
Extempore Speaking (PSP 254).....	3	---	---
The Family (ES 415).....	---	---	3
Methods in Home Economics Extension.....	2	---	2
Food Economics (FN 410).....	---	3	or 3

GENERAL CURRICULUM

B.S. Degree

Not more than one-third of the 192 credits required for a degree in this curriculum may be in Home Economics. Of the remainder, 67 credits are required courses in arts and sciences. Of the elective credits, at least 23 credits must be in additional arts and science courses selected, with the approval of the Dean, with a view to insuring a proper balance of subjects.

¹Twenty-three credits in Education are required for a teaching certificate but are not required for graduation in Home Economics.

	Term credits		
	1st	2d	3d
Sophomore Year			
English (Literature).....	3	3	3
Foods (FN 203, 204, 205).....	3	3	3
General Bacteriology (Bac 201).....	---	---	3
Introduction to Economics (ES 391).....	---	3	---
Textiles (CT 200), Clothing (CT 211, 212).....	3	3	3
Principles of Dietetics (FN 200).....	2	---	---
Physical Education.....	1	1	1
Electives.....	4	3	3
	16	16	16

Junior Year			
Household Management (HAd 340).....	4	---	---
General Psychology (Psy 201).....	5	---	---
Food Economics (FN 410) or Meal Planning and Serving (FN 309).....	---	(3)	or 3
General Sociology (ES 305).....	---	4	---
Political Science.....	---	---	3
Costume Design (CT 300).....	3	---	---
The Family (ES 415).....	---	3	---
Physical Education.....	3 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Electives.....	4	9	10
	16 $\frac{1}{2}$	16 $\frac{1}{2}$	16 $\frac{1}{2}$

Senior Year			
Child Development (HAd 420).....	---	3	---
Home Management House (HAd 450).....	---	---	4
Physical Education.....	3 $\frac{1}{2}$	13	3 $\frac{1}{2}$
Electives.....	16	13	11
	16 $\frac{1}{2}$	16 $\frac{1}{2}$	15 $\frac{1}{2}$

INTERIOR DECORATION

For students interested in interior decoration the following sequence of related courses is suggested.

	Term credits		
	1st	2d	3d
French.....	3	3	3
Drawing (A 213).....	3	3	---
Industrial Arts Drawing (A 231).....	---	3	---
House Furnishing (CT 432).....	---	---	3
French (second year).....	3	3	3
Water Color (A 331, 332, 333).....	2	2	2
Interior Decoration (Ar 343).....	---	3	---
Applied Design (CT 438).....	---	3	---
Business Fundamentals (BO 371).....	3	---	---
Extempore Speaking (PSP 254) or Elementary Industrial Journalism (IJ 200).....	3	---	---
Merchandising (BO 141, 142).....	3	3	---
Principles of Salesmanship (BO 443).....	---	---	3

TWO-YEAR CURRICULUM

Freshman Year			
	1st	2d	3d
English Composition (Eng 101, 102), Literature.....	3	3	3
Clothing Selection (CT 217).....	3	---	---
House Furnishing (CT 231).....	---	---	3
Food Selection and Preparation (FN 201, 202).....	3	3	---
Child Care and Training (HAd 225).....	---	---	3
Introduction to Home Economics (HAd 100).....	---	---	1
Appreciation of Music (T 120).....	---	1	---
The Nature of the World (G 100).....	---	---	3
Simple Home-ground Design (LA 438).....	---	---	3
Principles of Dietetics (FN 200).....	2	---	---
Family and Personal Budgets (HAd 240).....	---	1	---
Social Ethics (PE 121).....	1 $\frac{1}{2}$	---	---
General Hygiene (H 110).....	---	1 $\frac{1}{2}$	---
Physical Education.....	1	1	1
Free electives.....	3	6	---
	15 $\frac{1}{2}$	16 $\frac{1}{2}$	17

	Term credits		
	1st	2d	3d
Sophomore Year			
English (Literature).....	3	3	3
Contemporary World Civilization (Hst 213a).....	3	.....	.....
Clothing Selection and Construction (CT 218, 219).....	3	3	.....
Home Management House (HAd 450).....	.....	.....	4
Physical Education.....	1	1	1
Electives (Science, art, or other courses not in field of Home Economics).....	3	3	3
Textile Design (CT 235).....	.....	.....	3
Free electives.....	3	6	3
	16	16	17

Clothing, Textiles, and Related Arts

OFFICES, classrooms, and laboratories of the department of Clothing, Textiles, and Related Arts are located in the Home Economics Building. All necessary furnishings and equipment are available for thorough instruction in textiles, clothing, tailoring, costume design, house decoration, textile design, and millinery.

DESCRIPTION OF COURSES

REQUIRED

Professional: CT 200, 211, 212, 300, 311, 431.
General: CT 200, 211, 212, 300.

ELECTIVE

Professional: CT 316, 320, 411, 412, 416, 432.
General: CT 311, 320, 431.
For students in *Commerce, Vocational Education, Pharmacy, etc.*: CT 217, 218, 219, 231, 235, 321.

Students planning to register for clothing courses CT 110, 211, 212, 311, should keep in mind, when planning their wardrobes for the college year, that these courses require a certain amount of clothing construction. Students in Clothing and Textiles courses who do not wish to make garments or hats for themselves may be furnished material through orders given the department.

CT 110. Elementary Clothing and Textiles. Fundamental processes of hand and machine sewing; design and construction of simple garments and household articles. Required of all Home Economics students who have not had sufficient high school work in clothing, or its equivalent in shop or home experience, to enter CT 211.

First or third term; 3 credits; 6 periods laboratory work.

CT 200. Textiles. Study of standard fabrics from the standpoint of the consumer with the aim of developing good judgment in the buying and use of clothing and house furnishing materials. Properties and uses of different textile fibers and fabrics studied.

Any term; 3 credits; 2 lectures; 1 two-hour laboratory period.

CT 211. Clothing. Principles of clothing selection and construction with emphasis on selection and design. Principles given through the use of commercial patterns and flat pattern work in the making of garments.

Prerequisite: A 103. Any term; 3 credits; 2 lectures; 2 two-hour laboratory periods.

CT 212. **Clothing.** Application of design to dressmaking with emphasis on technique of construction. Making of different types of garments in various materials. A study of wardrobe needs and of clothing costs.

Prerequisite: CT 211. Second or third term; 3 credits; 3 two-hour laboratory periods.

CT 217. **Clothing Selection.** A brief lecture course intended to develop good taste in dress and to train the judgment of young women in selecting simple, conservative, artistic, becoming, and appropriate clothes for themselves and others. Elective to students other than Home Economics.

Any term; 3 credits; 3 lectures.

CT 218, 219. **Clothing Selection and Construction.** Principles of selection and construction applied in the planning and making of garments. Elective for other than Home Economics students wishing to cover briefly the field of dress selection and construction.

Any two terms; 3 credits each term; 3 two-hour laboratory periods.

CT 231. **House Furnishing.** Brief course seeking to develop appreciation of beauty and suitability in home furnishings and some knowledge of the materials and processes involved. Elective for students other than Home Economics.

Any term; 3 credits; 2 recitations; 1 two-hour laboratory period.

CT 235. **Textile Design.** Decorative art involving consideration of art principles as applied to problems in batik, block-print, tie-dye, embroidery, weaving, lamp-shade making, etc. Elective for students other than Home Economics.

First or third term; 3 credits; 1 recitation; 2 two-hour laboratory periods.

CT 300. **Costume Design.** Principles of art applied in the selection and designing of appropriate costumes. Brief study of historic costume and its relation to modern dress.

Prerequisites: CT 200, 211. Any term; 3 credits; 3 two-hour laboratory periods.

CT 311. **Clothing.** (Advanced course.) This course aims to develop more independence, initiative, originality, and art in planning, designing, and selecting garments for different types of figures. Skill in handling difficult materials is an object. Study includes fur, leather, laces, embroideries, etc.

Prerequisites: CT 200, 212, 300. Any term; 3 credits; 1 lecture; 2 two-hour laboratory periods.

CT 316. **Historic Costumes and Their Textile Materials.** A series of lectures and discussions on men's and women's costumes from earliest times to the present day. The study of such allied subjects as fabrics, embroideries, laces, furs, etc., is made from an appreciative and historical standpoint. Readings and reports.

Prerequisite: A 103. Second or third term; 3 credits; 3 lectures.

CT 320. Millinery. Designing and constructing; methods of covering; trimming and renovating.

Any term; 3 credits; 1 lecture; 4 periods laboratory work.

CT 335. Applied Design. Decorative art involving careful consideration of line, form, proportion, and color; designs adapted and executed in various media for clothing and house-furnishing problems; tie-dyeing, batik, and stencil decoration for textiles, embroidery, weaving, lamp-shade making, etc.

Prerequisites: A 103, CT 200. Any term; 3 credits; 3 two-hour laboratory periods.

CT 411. Dress Design. Designing, modeling, and constructing of afternoon and evening dresses; development of historical costume and its relation to modern fashions with aim of giving practical help and inspiration to students and teachers of dressmaking and costume design.

Prerequisites: CT 300, 311. Third term; 3 credits; 1 lecture; 4 periods laboratory work. (G)

CT 412. Trade Course in Dressmaking. (For students who wish to enter commercial work.) Broader training in selecting, designing, fitting, and constructing garments for different types of figures; organization of work from trade standpoint; emphasis on speed, economy, effectiveness, selling features, etc. Good foundation for specialty shop work.

Prerequisite: CT 311. Second term; 2 to 4 credits; 1 lecture; 4 to 9 periods laboratory work.

CT 416. Tailoring. Development of principles and processes of tailoring; application on suits and coats. Elective. Offered also in Summer Session.

Prerequisites: CT 200, 212, 300. First term; 3 credits; 9 periods laboratory work.

CT 431. House Furnishing. A study of the points to be considered in selecting and furnishing a small home from the standpoint of comfort, beauty, and economy.

Prerequisites: A 103, CT 200. Any term; 3 credits; 2 recitations; 1 two-hour laboratory period.

CT 432. House Furnishing. (Advanced course.) A study of historic periods of decoration, decorating materials and their appropriate use.

Prerequisite: CT 431. Third term; 3 credits; 2 recitations; 1 two-hour laboratory period. (G)

CT 438. Applied Design. (Advanced course.) Continuation of CT 335 for students desiring more advanced work in applied design. Readings and reports.

Prerequisites: CT 335. Second term; 3 credits; 1 lecture; 4 periods laboratory work. (G)

CT 691, 692, 693. **Graduate Study and Research.** Special problems in the Clothing field, such as design, textiles, economics, hygiene, are selected for investigation and study. Readings, discussions, and conferences in subject-matter, bibliographies, and recent developments.

Three terms; credits and hours to be arranged. (G)

CT 694, 695, 696. **Graduate Thesis.** Original problems chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; credits and hours to be arranged. (G)

Foods and Nutrition

SIX single foods laboratories accommodating twenty students each are provided with modern equipment, including gas, electric, and wood ranges. Two dining-rooms are used in meal service in the department and for occasions by the School. A laboratory for animal experimentation and one for basal metabolism are provided for advanced work in nutrition.

Two complete approved uniforms are required for all students taking laboratory courses in Foods and Nutrition.

DESCRIPTION OF COURSES

REQUIRED

Professional: FN 211, 212, 213, 320, 321.
General: FN 200, 203, 204, 205, 309 or 410.

ELECTIVE

Professional: FN 309, 410, 420, 435, 481.
General: FN 309, 410.

For students in *Commerce, Vocational Education, Pharmacy, etc.*: FN 200, 201, 203, 204, 205, 340, 350. If FN 203, 204, 205 or FN 211, 212, 213 are elected the full three terms must be completed.

FN 200. **Principles of Dietetics.** The nutritive value of food; the selection of a proper diet for health, based on dietetic principles. Required in Commerce, Pharmacy, and in General Curriculum in Home Economics; elective to others.

Any term; 2 credits; 2 lectures.

FN 201. **Food Selection and Preparation.** A unit course for students who desire to learn food selection and preparation by meal service. Elective for students other than Home Economics.

Any term; 3 credits; 1 recitation; 2 two-hour laboratory periods.

FN 202. **Food Selection and Preparation.** Continuation of FN 201. Second term; 3 credits; 1 recitation; 2 two-hour laboratory periods.

FN 203, 204, 205.* Foods. An introduction to the subject of foods; selection, preparation, and service. For students not electing chemistry.

Prerequisites or parallel: Z 322, Bac 200 or general chemistry or zoology. Three terms; 3 credits each term; 2 recitations; 2 two-hour laboratory periods.

FN 211, 212, 213.* Foods. Study of foods in their scientific and economic aspects; selection, preparation, and service.

Prerequisites: Ch 101, 102, 103. Three terms; 3 credits each term; 2 recitations; 2 two-hour laboratory periods. Professor Williams.

FN 309. Meal Planning and Serving. Dietetic, economic, and aesthetic aspects of meal service; experience in the selection and purchase of food for the meals planned; nutritive standards for various types of meals. Students are given practice in various phases of meal planning, marketing, and service.

Prerequisite: FN 205 or 213. One term; 3 credits; 1 lecture; 2 two-hour laboratory periods.

FN 320. Nutrition. A scientific study of nutrition in relation to health; digestive and metabolic processes and products; methods of investigation which have established the quantitative basis in dietetics and the standards which have been adopted.

Prerequisites: FN 213, Ch 222. First or second term; 3 credits; 2 recitations; 1 two-hour laboratory period.

FN 321. Nutrition. A continuation of FN 320, and the application of these scientific principles in the nutrition of the individual and family group. Projects in animal experimentation and preschool child feeding.

Prerequisite: FN 320. Second or third term; 3 credits; 2 recitations; 1 two-hour laboratory period.

FN 340. Food Selection and Preparation (for Men). A course for men who are planning and preparing their own meals or who are acting as managers of clubs.

Second term; 1 credit; 1 lecture; 1 two-hour laboratory period.

FN 350. Camp Cookery (for Men). Preparation of palatable and nutritious products from foods available in camps; outdoor food preparation involving the use of Dutch ovens, reflectors, and improvised camping utensils.

Third term; 1 credit; 1 lecture; 1 two-hour laboratory period.

FN 410. Food Economics. Household marketing; study of grades, brands, and qualities of food products as found on the market; factors governing cost; food laws; the ethics of food buying and selling; field problems assigned.

*Home practice in food preparation is required of students who have completed FN 205 and FN 213, the character and amount of practice being arranged with the instructors in charge.

Prerequisite: FN 213 or 205. Second or third term; 3 credits; 2 lectures; 2 two-hour laboratory periods. (g)

FN 420. **Diet in Disease.** A study of diets for abnormal conditions. A preliminary course for students who wish to become hospital dietitians or nutrition specialists.

Prerequisites: FN 321; Z 321, 322. Third term; 3 credits; 3 lectures. (G)

FN 435. **Experimental Cookery.** Individual problems. Each student selects some piece of work concerned with foods or related subjects. Oregon products often furnish material for these experiments.

Prerequisite: Ph 200, Ch 222, FN 213. First term; 3 credits; 6 periods. (G)

FN 481. **Readings in Nutrition.** Acquaints the student with research in nutrition as reported in scientific journals. A broad background of science is required to interpret recent advances in the chemistry of food and metabolism.

Prerequisite: FN 321. One term; 3 credits; 2 two-hour periods. (G)

FN 691, 692, 693. **Graduate Study and Research.** Research problems for which the student is suited by previous training and ability. Assignment of problems by the professor in charge.

Three terms; credits and hours to be arranged. (G)

FN 694, 695, 696. **Graduate Thesis.** Original problems chosen by the student or suggested by the department are studied and reported upon in thesis form.

Three terms; 6 to 12 credits; credits and hours to be arranged. (G)

Home Economics Education*

PROFESSIONAL training for prospective teachers of home economics is afforded by the department of Home Economics Education.

Any student having a scholarship record below average should confer with the Dean of the School of Home Economics before registering for teacher training work.

This department is a joint department within both the School of Home Economics and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

In addition to the prerequisite course in General Psychology (Psy 201), required courses in Education for students registered in the professional curriculum in the School of Home Economics who are planning to teach are Educational Psychology (Psy 222), Secondary Education (Ed 212), Principles of Teaching (Ed 311), Special Methods in Home Economics (HEd 304, 305), Supervised Teaching (Ed 401). For elective courses in Education to complete requirement of 23 credits, confer with head of department of Home Economics Education.

*For Supervised Teaching, see School of Vocational Education.

DESCRIPTION OF COURSES

Hed 304. Special Methods in Home Economics. A brief history of home economics instruction and of the development of elementary and secondary home economics; equipment and organization of home economics departments; study of Smith-Hughes problems in home economics.

Prerequisites: Psy 201; Ed 311; CT 200, 212; FN 213. Junior year (second term) or senior year (first term); 3 credits; 3 recitations. Fee \$0.50.
Professor Blazier.

Hed 305. Special Methods in Home Economics. Making of lesson plans; study of special problems; the preparation and collection of illustrative material; making of courses of study; observation of teaching.

Prerequisite: HEd 304. Junior year (third term) or senior year (second term); 3 credits; 3 recitations. Fee \$0.50. Professor Blazier.

Hed 691, 692, 693. Graduate Study and Research. Advanced or graduate students qualified by previous training or experience may register for extended investigation of some specific problem in home economics education. These studies are assigned and outlined by the instructor and stated reports are made by the student.

Three terms; credits to be arranged. Fee \$2.00 each term. (G)

Hed 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G)

Home Economics Extension

THE department of Home Economics Extension has offices in the Home Economics Building. These offices are headquarters for all non-resident teaching in home economics, both junior and senior, for which the School is responsible. Through this department the School cooperates with the Extension Service of the College and the United States Department of Agriculture, Washington, D. C., in the development and supervision of the county home demonstration program. Through this department the School aims to serve the homemakers of the state by correspondence on problems that home economics subject-matter can solve, by correspondence courses, and by the preparation and distribution of bulletins and club programs.

For special courses in Home Economics Extension see the announcements for the Summer Session.

Household Administration

OFFICES, classrooms, and equipment laboratory for the department of Household Administration are afforded in the Home Economics Building. Two well-equipped and self-supporting Home Management houses and a Nursery School are located on the campus.

DESCRIPTION OF COURSES

REQUIRED

Professional: HAd 100, 150, 340, 420, 450.
General: HAd 100, 150, 340, 420, 450.

ELECTIVE

Professional: HAd 230, 410, 421, 425, 455.
General: HAd 230, 410, 421, 425, 455.

For students in *Commerce, Vocational Education, Pharmacy, etc.*: HAd 225 (required in Commerce), HAd 100, 150, 230, 240, 340, 410, 420, 421, 425, 450.

HAd 100. Introduction to Home Economics. A course for beginning students, in charge of the School Dean. Purpose, value, and scope of home economics.

Third term; 1 credit; 1 lecture or recitation.

HAd 150. Home Problems. The problems of the American home.

First term; 3 credits; 3 lectures or recitations.

HAd 225. Child Care and Training. A study of the growth, development, and training of the young child. For students other than those in Home Economics degree curricula.

Any term; 3 credits; 3 recitations.

Professor Prentiss.

HAd 230. Home Nursing. Care of the patient in the home; demonstrations of ordinary nursing procedures; home substitutes; first aid.

Any term; 2 credits; 2 recitations.

Mrs. Haight.

HAd 240. Family and Personal Budgets. A unit course for students who desire to gain greater proficiency in the control of their personal finances and a knowledge of the principles governing the making of family budgets. Elective to men and to women not majoring in Home Economics.

Any term; 1 credit; 1 lecture.

HAd 340. Household Management. An application of the principles of scientific management to the home; management of household operations and finances; family and community relationships.

Prerequisites: FN 202 or 205 or 213; CT 219 or 212. Any term; 4 credits; 4 recitations.

Professor Johnson.

HAd 410. Household Equipment. Selection, operation, care, and arrangement of household equipment.

Any term; 3 credits; 1 recitation; 2 two-hour laboratory periods.

HAd 420. Child Development. A study of the growth and development of the young child; influence of environment in shaping personality.

Prerequisite: Psy 201. Any term; 3 credits; 3 recitations.

Professor Prentiss.

HAd 421. Behavior Problems. Child training methods to be used in bringing about desirable habits of life.

Prerequisite: HAd 420. Any term; 2 credits; 2 recitations. (G)

Professor Prentiss.

HAd 425. Nursery School. Observation and study of a group of young children.

Prerequisite or parallel: HAd 225 or 420. Any term; 3 credits; 2 three-hour laboratory periods; 1 recitation. (G)

Mrs. Manning.

HAd 450. Home Management House. This course affords opportunity for living in the Home Management House for six weeks and assuming the responsibilities involved in managing a home.

Prerequisites: HAd 340; HAd 225 or 420. Any term; 4 credits; daily work in house. Fee \$7.00 a week for board.

HAd 455. Home Management House Supervision. Requires residence in and apprentice supervision of Home Management House for six weeks following HAd 450.

Prerequisite: HAd 450. Any term; 3 credits. Fee \$7.00 a week. (G)

HAd 691, 692, 693. Graduate Study and Research. Research problems for which the student is suited by previous training and ability. Assignments of problems by professor in charge.

Three terms; credits and hours to be arranged. (G)

HAd 694, 695, 696. Graduate Thesis. Original problems chosen by the student or suggested by the department are studied and reported on in thesis form.

Three terms; 6 to 12 credits; credits and hours to be arranged. (G)

Institution Economics

COURSES in Institution Economics are planned to meet the needs of students who desire to prepare for positions in the field of institutional management.

Three halls of residence for women and five for men, together with the banquet and tea rooms in the Memorial Union are used as laboratories. The facilities are adequate for thorough training in this field.

DESCRIPTION OF COURSES

IEc 310. Quantity Cookery and Catering. Application of principles of cookery to the preparation of food in large quantity; standardization of formulas, dietetic value, cost; use of modern equipment; menu planning. Experience in the preparation and service of daintier foods for special functions.

Prerequisite: FN 205 or 213. Any term; 3 credits; 1 lecture; 2 two-hour laboratory periods. Assistant Professor Bibee, Miss Anderson.

IEc 400. Cafeteria Management. This course is offered to meet the needs of the student who plans to teach and manage a school cafeteria. The work includes menu study, buying, cafeteria plans, accounting, management, and practice in quantity cookery.

Second term; 3 credits; 2 lectures; 1 two-hour laboratory period.
Assistant Professor Bibee.

IEc 420. Institutional Equipment. Study of equipment for bedrooms, living-rooms, dining-rooms, and kitchens in different types of institutions; design, materials; construction, cost, and arrangement.

Prerequisite: FN 205 or 213. Second term; 3 credits; 3 lectures. (G)
Professor Hunter.

IEc 430. Institutional Organization and Administration. Study of the principles of organization and administration as applied to various types of institutions; discussion of employment problems and training, labor laws, office records.

Prerequisite: FN 205 or 213. First term; 2 credits; 2 lectures. (G)
Professor Hunter.

IEc 440. Institutional Marketing. Institutional marketing from the standpoint of food purchasing, including production and distribution of food commodities, marketing costs, factors influencing prices, marketing of special foods such as meats, vegetables, fruits, eggs.

Prerequisite: FN 205 or 213. Third term; 2 credits; 2 lectures. (G)
Professor Hunter.

IEc 450. Institution Experience. Designed to give practical experience in organization and administration of an institution. Practice work is done in the various halls of residence, the Memorial Union Dining Service, and office of the Director of Dormitories.

Prerequisites: IEc 310, 420, 430, 440. Third term; 4 credits; 1 lecture; 3 two-hour laboratory periods. (G) Assistant Professor Bibee.

IEc 691, 692, 693. Graduate Study and Research. Research problems for which the student is suited by previous training and ability.

Three terms; credits and hours to be arranged. (G)

IEc 694, 695, 696. Graduate Thesis. Original problems chosen by the student or suggested by the department are studied and reported on in thesis form.

Three terms; 6 to 12 credits; credits and hours to be arranged. (G)

Department of Industrial Journalism

CHARLES DAVID BYRNE, M.S., Professor of Industrial Journalism.

CHARLES JARVIS MCINTOSH, B.S., Professor of Industrial Editing.

FRED MURIEL SHIDELER, B.S., Instructor in Industrial Journalism.

COURSES in Industrial Journalism are offered to train students to write and edit material on various subjects embraced within the distinctive field of the College, such as agriculture, engineering, forestry, mining, home economics, and the like; to enable them to appreciate the point of view and cooperate effectively with the editors of farm and trade journals; to conduct campus publications and other publications of a technical nature; and to furnish scientific material in popular form to the papers.

This work does not constitute training in journalism in the broad sense, such a course not falling within the scope of this institution. The College is interested in fitting those whose life work is to lie in other fields—of industry, trade, science, or agriculture—to take the places of leadership through the press as well as otherwise for which their technical training fits them.

These courses are intended to meet the needs of a large group of persons—farmers, county agricultural agents, home demonstration agents, field specialists in the extension service, research specialists at the agricultural experiment stations, teachers of industrial subjects, and others who may have occasion to prepare material for the press on industrial subjects.

Industrial Journalism is not offered as a major and no degree is given. The work is elected by students who are majoring in the regular distinctive courses of the College.

Members of the teaching staff and students taking Industrial Journalism assist in the work of the College News Service.

DESCRIPTION OF COURSES

IJ 200. Elementary Industrial Journalism. Intended primarily to give students the fundamental principles of news writing. Prepares them for writing technical articles on subjects pertaining to agriculture, home economics, engineering, etc. Required as a condition of eligibility for leading positions on the staffs of student publications.

Any term; 3 credits. Fee \$1.25.

Mr. Shideler.

IJ 204. Journalism Practice I. Constitutes laboratory practice for course IJ 200. Opportunity is given to put the fundamental principles of journalism into practice. "Beats" are assigned and students receive prac-

tical experience in reporting. Special assignments are also given. Students are expected to write for publication.

Any term; 2 credits. Fee \$1.25.

Professor Byrne.

IJ 310. Industrial Journalism. Continuation of work in course IJ 200. Principles of journalism are applied to the treatment of industrial subjects. Types of news stories are studied, news features being given special consideration.

Prerequisite: IJ 200. Second term; 3 credits; 3 lecture periods. Fee \$1.25.

Professor Byrne.

IJ 314. Journalism Practice II. See IJ 204. Accompanies IJ 310. Not offered 1931-32.

Any term; 2 credits. Fee \$1.25.

IJ 320. Editing. Copy reading, head writing, proof reading, and make-up. Actual experience is given in editing copy for publication. Training is given that fits students for the work of putting out campus publications.

Prerequisite: IJ 200. First or third term; 3 credits; 3 lecture periods. Fee \$1.25.

Professor McIntosh.

IJ 322, 323. Advertisements. Mechanics of advertising, including layout size and dimensions, type sizes and styles, kinds of cuts and positions, and use of borders and rules. Writing advertising copy for periodicals, placards, and circulars.

Prerequisites: In Advertising and Selling, IJ 200; for other students, IJ 200, 310, 320. Second and third terms; 3 credits each term; 3 periods. Fee \$1.25 each term.

Professor McIntosh.

IJ 324. Editing Practice. Supervised work in copy reading, headlining, proof reading, and make-up, not less than six hours. Open only to students who have had training and previous experience in editing.

Prerequisite: IJ 320. Second term; 2 credits; 2 two-hour laboratory periods.

Professor McIntosh.

IJ 330. Technical Journalism. Students are required to prepare copy on subjects pertaining to agriculture, engineering, commerce, home economics, etc., and to submit it for publication in farm journals, trade journals, and other periodicals. A study is made of the demands of these publications for material of a more or less technical nature. Attention is given to illustration.

Prerequisites: IJ 200, 310. Third term; 3 credits; 3 lecture periods. Fee \$1.25.

Professor Byrne.

IJ 334. Journalism Practice III. See IJ 204. Accompanies IJ 330. Not offered 1931-32.

Any term; 2 credits. Fee \$1.25.

IJ 440. Editorial Writing. Materials, style, and arrangement of periodical editorials are considered. Training is given in writing editorials. Principles of policy and ethics are studied and applied. The makeup of the editorial page of farm and trade journals is given attention.

Prerequisite: IJ 200. Second term; 3 credits; 3 lecture periods. Fee \$1.25.

Professor McIntosh.

Department of Military Science and Tactics

COLONEL WILLIAM HENRY PATTERSON, Infantry (D.O.L.); Graduate Command and General Staff School. Commandant of Cadets, Reserve Officers' Training Corps; Professor of Military Science and Tactics.

MAJOR FREEMAN WATE BOWLEY, Field Artillery (D.O.L.); Graduate United States Military Academy; Graduate Advanced Course, Field Artillery School; Graduate Command and General Staff School. Associate Professor of Military Science and Tactics. Executive officer of Field Artillery Unit, Reserve Officers' Training Corps.

MAJOR JACOB J. GERHARDT, Infantry (D.O.L.); Graduate Infantry School Officers' course; Graduate Command and General Staff School. Associate Professor of Military Science and Tactics. Executive officer of Infantry Unit, Reserve Officers' Training Corps.

CAPTAIN FREDERICK WILLIAM RASE, Infantry (D.O.L.); Graduate Company Officers' course Infantry School; Assistant Professor of Military Science and Tactics. Instructor in Infantry Unit, Reserve Officers' Training Corps.

CAPTAIN NORMAN JOHN McMAHON, Field Artillery (D.O.L.); Graduate Basic course, Field Artillery School and Graduate Troop Officers' course, Cavalry School. Assistant Professor of Military Science and Tactics. Instructor in Field Artillery Unit, Reserve Unit, Reserve Officers' Training Corps.

CAPTAIN FORREST EDWARD AMBROSE, Infantry, (D.O.L.); Graduate Company Officers' course and Advanced course, Infantry School. Assistant Professor of Military Science and Tactics. Instructor in Infantry Unit, Reserve Officers' Training Corps.

CAPTAIN MAYLON EDWARD SCOTT, Field Artillery (D.O.L.); Graduate Battery Officers' course, Field Artillery School. Assistant Professor of Military Science and Tactics. Instructor in Field Artillery Unit, Reserve Officers' Training Corps.

FIRST LIEUTENANT GEORGE ALFRED ARNOLD JONES, Field Artillery (D.O.L.); Graduate Battery Officers' course; Field Artillery School; Graduate Chemical Warfare School. Assistant Professor of Military Science and Tactics. Instructor in Field Artillery Unit, Reserve Officers' Training Corps.

FIRST LIEUTENANT GEORGE WORK MARVIN, A.B., B.S., Corps of Engineers (D.O.L.); Graduate Company Officers' course, Engineer School. Associate Professor of Military Science and Tactics. Executive Officer of Engineer Unit, Reserve Officers' Training Corps.

FIRST LIEUTENANT DONALD CHARLES HILL, B.S., Corps of Engineers (D.O.L.); Graduate United States Military Academy; graduate Company Officers' course; Engineer School. Assistant Professor of Military Science and Tactics. Instructor in Engineer Unit, Reserve Officers' Training Corps.

MASTER SERGEANT JOHN HARSCH, JR. (D.E.M.L.), United States Army. Assistant to Professor of Military Science and Tactics. Instructor in Field Artillery Unit, Reserve Officers' Training Corps.

SERGEANT CLARENCE CALVIN WOODBURY (D.E.M.L.), United States Army. Captain, Infantry Section, Officers' Reserve Corps. Assistant to Professor of Military Science and Tactics. Instructor in Infantry Unit, Reserve Officers' Training Corps.

SERGEANT JOHN CARSON WOODBURY (D.E.M.L.), United States Army. Sergeant-Major, Reserve Officers' Training Corps. Assistant to Professor of Military Science and Tactics.

SERGEANT LAURENCE EDWIN DARLINGTON (D.E.M.L.), Captain, Quartermaster Section, Officers' Reserve Corps. Assistant to Professor of Military Science and Tactics. Instructor in Engineer Unit, Reserve Officers' Training Corps.

SERGEANT LUTHER L. WADE (D.E.M.L.), United States Army. Assistant to Professor of Military Science and Tactics. Instructor in Rifle Marksmanship, Reserve Officers' Training Corps.

AN Act of the United States Congress establishing the Land-Grant colleges was passed in the midst of the Civil War; it inaugurated the cadet corps and provided for military training of all able-bodied male students. The object of this provision was to assure well-trained officers for citizen soldiers. The Act was supplemented on June 3, 1916, by another Act of Congress, since amended, establishing the Reserve Officers' Training Corps. The object of the Corps is "to qualify students, by systematic and standard training methods, to be commissioned in the Officers' Reserve Corps so that in time of national emergency, trained men, graduates of colleges and universities may lead the units of the large armies on which the safety of the country will depend."

R. O. T. C. Basic and Advanced Courses. In the fall of 1917 the War Department established at Oregon State Agricultural College both a Basic Course and an Advanced Course, Senior Division, in the Reserve Officers' Training Corps. The Basic Course covers the first two years of the college military training, enrolling physically fit men of the freshman and sophomore years except those who may be excused by the proper College authorities. The Advanced Course comprises the third and fourth years of college military training, enrolling those men who have completed the Basic Course and who have shown proper interest and aptitude for the training and who are specially selected for further training in advanced work. Once enrolled in the Advanced Course, students are required to carry it to completion as a prerequisite to graduation from this College.

Three Branches of Training. Three branches of military training are offered at the College to qualified students of the Reserve Officers' Training Corps: Infantry, Engineers, and Field Artillery. An excellent R. O. T. C. cadet band affords instruction in band practice.

Uniforms Provided by the Government. All Basic Course members of R. O. T. C. units at this institution are provided by the United States Government with military uniforms. This uniform is returned by the student at the end of each year or on withdrawal.

The Advanced Course members are provided with tailored serge uniforms, toward which they pay a part of the cost during the junior year. These uniforms are not turned back to the Government, and students who continue the R. O. T. C. training in the senior year are reimbursed for that part of the cost which they have paid, so that on completion of the senior year the student has received the uniform without cost to himself.

Commutation of Subsistence. Students selected for the Advanced Course (junior and senior years) of the R. O. T. C. are paid a commutation of subsistence by the Government throughout the entire period during which they are pursuing the Advanced Course.

Benefits to Students. The Reserve Officers' Training Corps offers the following benefits to students enrolled for training:

(a) A military education which will fit students upon completion of the four years to render efficient service to the nation in time of war as troop leaders and officers.

(b) A maximum of twenty-nine (29) college credits which count toward a degree.

(c) The use of the latest model and very finest equipment of Infantry, Field Artillery, and Engineers, issued to this institution by the Government.

(d) An allowance of rifle and pistol ammunition for target practice, with expert instructors and the use of rifles, target equipment, ranges, etc.

(e) Attendance at R. O. T. C. camps. Students attending these camps have their expenses paid; receive a monetary per diem allowance; receive a complete uniform upon arrival at camp, and board, lodging, medical and emergency dental treatment; are furnished a thorough physical examination; and are provided with recreational amusement and diversion. (Attendance at camp is required at the end of the junior year, but may be deferred until the end of the senior year, at the request of the student, approved by the College authorities and the Corps Area Commander.)

(f) The selection of honor graduates each year. Should vacancies exist in the Regular Army of the United States in the grade of second lieutenant such honor graduates may be exempted from all mental examinations for appointment as commissioned officers in the United States Army.

(g) A commission as a Second Lieutenant in the Officers' Reserve Corps of the United States Army on successful completion of four years' training.

Requirements. In the Basic Course freshmen are required to take four hours of military instruction a week for two terms and three hours a week for one term. Sophomores are required to take four hours a week through-

out the year. Juniors and seniors in the Advanced Course are required to take five hours of military instruction a week throughout the year.

Military Credits for Graduation. A minimum of 11 credits in Military Science is required for graduation. This comprises 5 credits for the first year and 6 credits for the second year of the basic work. Nine credits are given for the work of each of the junior and senior years. This makes a total of 29 credits for the entire R. O. T. C. work.

Cadet Officers. The cadet officers are selected at the beginning of each college year from the senior class; sergeants and higher non-commissioned officers from the junior class; corporals from the sophomore class.

Equipment. The military equipment is furnished by the War Department; the Armory by the State.

Military Fraternity. A chapter of the national military fraternity, "Scabbard and Blade," was installed on the campus during the spring of 1920. Membership is limited to those cadet officers who have exhibited unusually fine qualities of leadership, including high ideals and gentlemanly conduct, and whose scholarship is above average.

Bachelor's Degree in Military Science and Tactics. The College offers a curriculum leading to the bachelor's degree in Military Science and Tactics to those students desiring to major in that field (see pages 341-342).

Courses in Military Science and Tactics

Infantry.

First Year Basic Course (MS 111, 112, 113). This course aims to instruct the student in basic Infantry subjects; to inculcate obedience, decorum, cheerfulness, esprit, and other elements of good discipline with the corresponding physical development; and to lay a sound foundation for the further pursuit of military studies. Instruction includes training of the rifleman, infantry drill, simple combat principles, technique of the rifle and care of equipment; marksmanship; military courtesy; and interior guard duty.

Freshman year; three terms; 1 credit (3 periods) first term, 2 credits each term (4 periods) second and third terms.

Second Year Basic Course (MS 211, 212, 213). This course aims to give students further training in basic Infantry subjects; to inculcate leadership; to build on the knowledge they have already acquired and prepare them to take up the Advanced Course. Instruction includes training of the automatic rifleman, scouting and patrolling, and squad leader. Additional subjects lead to qualification for entrance to the Advanced Course: Command and Leadership; combat principles to develop ability as a leader of a patrol, musketry, and interior guard duty.

Sophomore year; three terms; 2 credits each term; 4 periods.

First Year Advanced Course (MS 311, 312, 313). Aims to give further training in basic Infantry subjects and in leadership, as the ground work for the duties of Junior officers of Infantry; to develop tactical judgment; to prepare the student for practical training while attending R. O. T. C. summer camp. The course includes map reading and military sketching; drill and command; machine guns; Howitzer weapons; and combat principles of the Rifle Section and Platoon.

Junior year; three terms; 3 credits each term; 5 periods.

Second Year Advanced Course (MS 411, 412, 413). This course aims to complete the preparation of the student for commission as a second lieutenant of Infantry in the Officers' Reserve Corps of the United States Army. Scope of instruction: drill and command; combat principles of the Rifle and Machine Gun Company and Howitzer Platoon; Field Engineering; administration; military law and Officers' Reserve Corps regulations; military history and policy.

Senior year; three terms; 3 credits each term; 5 periods.

Field Artillery.

First Year Basic Course (MS 121, 122, 123). The aim of this course is to instruct the student in the duties of a cannoneer of Field Artillery. Dismounted drill; military courtesy and discipline; drill of the firing battery; care and use of the pistol; gunners' examination; ordnance and matériel; equitation.

Freshman year; three terms; 2 credits each term (4 periods) first and third terms, 1 credit (3 periods) second term.

Second Year Basic Course (MS 221, 222, 223). This course consists principally in the instruction given to the drivers, the technical specialists, and the non-commissioned officers of Field Artillery. Military ceremonies; topography; orientation; reconnaissance; mounted drill and draft; elementary gunnery.

Sophomore year; three terms; 2 credits each term; 4 periods.

First Year Advanced Course (MS 321, 322, 323). The object of this course is to ground the student thoroughly in the technical duties of a junior officer of Field Artillery. The theoretical work includes computation of firing data; exterior ballistics, the laws of dispersion, meteorological data and corrections of the moment, action and effects of projectiles and fuzes, terrain board exercises, communication and liaison, battery emplacement and camouflage, functions of the various calibers of Field Artillery, pistol marksmanship, equitation and horsemanship.

Junior year; three terms; 3 credits each term; 5 periods.

Second Year Advanced Course (MS 421, 422, 423). The work of this year comprises those general subjects which round out the instruction of an officer of Field Artillery. Military law; administration and army paper work; property accountability and records; military history and policy of the United States; organization, tactics and tactical employment of field artillery; combat orders; current technical publications; mounted instruc-

tion, including polo and cross-country riding. The students in this course are required, from time to time, to act as instructors in the basic courses.

Senior year; three terms; 3 credits each term; 5 periods.

Engineer Corps.

First Year Basic Course (MS 131, 132, 133). An elementary course calculated to produce a well-trained private of Engineers, including Infantry drill, military courtesy, discipline, Infantry weapons and equipment, rifle marksmanship, cordage and rigging, military bridges, and National Defense Act.

Freshman year; three terms; 2 credits each term (4 periods) first and second terms, 1 credit (3 periods) third term.

Second Year Basic Course (MS 231, 232, 233). A course of instruction including further training in military fundamentals and such technical subjects as an intelligent corporal of Engineers should possess; Infantry drill and command, musketry, scouting and patrolling combat principles, map reading and map making, and military bridges.

Sophomore year; three terms; 2 credits each term; 4 periods.

First Year Advanced Course (MS 331, 332, 333). A course of instruction in the duties of a master sergeant of Engineers, including practical work as drill master in Engineer work and in Infantry drill and command; combat principles, explosives and demolitions, military roads and railroads, military bridges, field fortifications.

Junior year; three terms; 3 credits each term; 5 periods.

Second Year Advanced Course (MS 431, 432, 433). A course in field and garrison duties of a lieutenant of Engineers, including practical work as drill master; Infantry drill and command, combat principles, military administration, military history, military law, duties of engineers, military construction in war, and map reproduction.

Senior year; three terms; 3 credits each term; 5 periods.

Curriculum in Military Science and Tactics

B.S. Degree

	Freshman Year		
	Term credits		
	1st	2d	3d
Trigonometry (Mth 122), College Algebra and Analytic Geometry I, II (Mth 134, 135).....	5	5	5
General Chemistry (Ch 101, 102, 103).....	3	3	3
English Composition (Eng 101, 102, 103).....	3	3	3
Linear Drawing and Lettering (GE 111).....	2	---	---
Elementary Mechanical Drawing (GE 112).....	---	2	---
Mechanical Drawing (GE 113).....	---	2	2
Engineering Problems (GE 101, 102, 103).....	2	2	2
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	17½	17½	17½

	Term credits		
	1st	2d	3d
Sophomore Year			
Differential, Integral Calculus (Mth 251, 252, 253).....	4	4	4
Engineering Physics (Ph 101, 102, 103).....	3	3	3
Plane Surveying (CE 221, 222, 223).....	5	3	3
French or Spanish.....	3	3	3
Extempore Speaking (PSP 254).....	---	---	3
Field Curves (CE 231).....	---	3	---
Physical Education.....	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Military Science and Tactics.....	2	2	2
	17 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$
Junior Year			
Mechanics (MM 351, 352).....	3	3	---
Strength of Materials (MM 353).....	---	---	3
French or Spanish.....	3	3	3
Curves and Earthwork (CE 232).....	---	---	3
Materials of Engineering (MM 311).....	---	3	---
Hydraulics (CE 311, 312).....	3	3	---
National Government (PS 301).....	---	3	---
Introduction to Economics (ES 391).....	3	---	---
Principles of Accounting for Engineers (BO 385).....	---	---	3
Military Science and Tactics.....	3	3	3
Approved elective.....	3	---	---
	18	18	15
Senior Year			
French or Spanish.....	3	3	3
Direct Currents (EE 251).....	3	---	---
Alternating Currents (EE 252).....	---	3	---
General Geology (G 301).....	3	---	---
General Psychology (Psy 201).....	---	---	5
Hydrology (CE 411).....	---	3	---
Military Science and Tactics.....	3	3	3
Approved electives.....	5	4	5
	17	16	16

School of Mines

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.
JAMES HAROLD HANCE, Ph.D., Dean of the School of Mines.
CARRIE HELEN THORY, Secretary to the Dean.

JAMES HAROLD HANCE, Ph.D., Professor of Geology and Metallurgy.
JAMES HERVEY BATCHELLER, B.S. (Mining Engr.), Professor of Mining Engineering.
IRA SHIMMIN ALLISON, Ph.D., Professor of Geology.
THOMAS MELLOR BAINS, JR., E.M., Associate Professor of Metallurgy.
HENRY DAYTON SQUIRES, Ph.D., Assistant Professor of Geology.

AN adequate supply of raw minerals is vital to our national existence. Hence the work of the mining engineer is basic in the industrial civilization of which we are a part. In ever-increasing amounts enormous quantities of coal, iron, and other metals and non-metals are demanded daily. The maintenance of uniform supplies of these is the province of the mining engineer and his coworkers, the geologist and the metallurgical engineer. Because much of the work is that of a pioneer, human relations enter largely into this phase of engineering. The mining engineering curriculum must therefore be most inclusive so as to prepare a man to handle many problems ordinarily referred to other specialists. Preparation for efficient service in this field should include considerable work in non-technical subjects in order that a broad perspective may be obtained. Hence the student is urged to elect additional courses in English, history, modern languages, and the sciences.

Oregon's mineral output is modest compared with that of some of the other western states. Its mineral resources are as yet little known. As local markets grow and more is learned concerning the state, the exploitation and development of this important form of wealth may be expected to expand and play a larger part in the industrial activities of the commonwealth. Because minerals are not renewable and yet are of increasing necessity, the work of the School of Mines is of special interest and importance. Its task is to train students so that they may help to explore for new deposits, to mine or quarry them economically and skillfully, and to render the materials thus obtained suitable for human use. The problem is national and international in scope, and hence graduates will in some cases find themselves called on to travel through foreign lands. With the whole world as their field they must develop broad vision, tolerance, and a keen appreciation of relative values.

Within easy reach of Corvallis are found abundant materials to illustrate the problems which confront the geologist, mining engineer, and

metallurgist. Only a beginning has been made in a geological study of the state and as this work is expanded new mineral supplies of importance will doubtless be found. A further extension of transportation and power facilities will also render easily accessible some deposits now unimportant commercially. Many mineral deposits of value are now known to occur within the state, and other localities are considered sufficiently promising to warrant careful exploration and testing. Various methods of mining have been and are being pursued in the different mineral districts. Treatment plants for the products so mined are in operation near Corvallis and the student may thus acquaint himself with the various details of the mineral industry and prepare for that phase which is of special interest.

Curricula. The regular curriculum in Mining Engineering is broad, including diverse topics relating to the engineering field. Options in Geology and Metallurgy permit special work along these lines where it is desired. Engineering principles have found new applications in Oil Production, a field offering some attractive opportunities. By a substitution of certain courses in chemistry and electrical and mechanical engineering for those given during the third and fourth years in the regular Mining Engineering curriculum, a student may fit himself for efficient work in this relatively new and rapidly changing industry.

During the freshman and sophomore years all students in the School of Mines take prescribed work fundamental to all engineering courses. In the junior and senior years the programs differ somewhat, depending on whether the emphasis is placed on geology, mining, metallurgy or oil production.

Where geology is chosen as a major, the student takes, if possible, fundamental work in botany, zoology, and modern languages. Where metallurgy is chosen as a major, the student takes special training in such subjects as electricity, physical and applied chemistry. Where the student desires to enter the field of oil production, he takes the regular mining engineering curriculum except for such courses as will acquaint him with some of the principal problems confronting the petroleum industry today.

Requirements for Graduation. In the work offered by the School of Mines, 207 credits by men and 192 by women are required for graduation. The equivalent of one summer's employment in industrial work closely related to the student's major is a prerequisite to graduation.

Graduate Work. The degree of Master of Science is offered to graduates of the College, or other colleges of equal rank, who have attained the degree of Bachelor of Science in some corresponding engineering curriculum and have met the College requirements for graduate study, including one full year of resident work amounting to 48 credits, together with the preparation of an acceptable thesis.

Miner's Club and Junior Branch of the A. I. M. E. The Miner's Club is a society composed of all students and faculty members of the School of Mines. Senior students in this organization may become junior members of the American Institute of Mining and Metallurgical Engineers. At the monthly meetings of the Club, addresses are made by visiting mining engineers, and papers descriptive of the summer work of the students are presented by the student members.

Mine Rescue and First Aid Training. Instruction and practice in Mine Rescue and First Aid Training are conducted by members of the United States Bureau of Mines. The Bureau sends equipment and trained experts from a neighboring station and conducts the work on the College campus. Students who take these courses devote the entire time each day for a week to the work and if proficient receive a certificate from the Government Bureau.

Equipment. The School of Mines occupies a commodious three-story and basement building designed especially to house the lecture rooms and laboratories devoted to mining, metallurgy, ore dressing, geology, and closely allied subjects. The assaying and metallurgical laboratory occupies a room 30 by 60 feet extending across the entire east end of the first floor of the building. It is well lighted and is completely equipped with the necessary apparatus for the efficient conduct of experimental metallurgical operations. Crushing, grinding, and ore-dressing laboratories affording modern metallurgical testing equipment are located in the basement. On the second floor there is a mining drafting room equipped for topographical drafting and mining and metallurgical design. The entire third floor is given over to the geology and mining museum, the mineralogy and petrology laboratory, the general geology laboratory, and a lecture room. In the museums are arranged collections of ores, minerals, and rocks from important mining camps in Oregon. In addition to these collections, there are many attractive specimens of minerals, rocks, and fossils from numerous American localities. Geologic products shown include samples of various clay wares and cement goods manufactured from Oregon raw minerals. There is also a large-scale relief map of the state. The geology laboratories contain more than 12,000 specimens of minerals, ores, and rocks; rock slides for microscopic work; and geologic and topographic maps.

Curricula in Mining Engineering

B.S. Degree

Freshman Year	Term credits		
	1st	2d	3d
General Chemistry (Ch 104, 105, 106).....	5	5	5
Trigonometry (Mth 122).....	5	---	---
College Algebra and Analytic Geometry I, II (Mth 134, 135).....	---	5	5
English Composition (Eng 101, 102, 103).....	3	3	3
Mineral Industry Survey (G 101, MiE 142, Met 163).....	½	½	½
Linear Drawing and Lettering, Elementary Mechanical Drawing (GE 111, 112, 113).....	2	2	2
Physical Education, General Hygiene, Military Science.....	2½	2½	2½
	18	18	18
Sophomore Year			
General Geology (G 301), Historical Geology, (G 302, 303).....	3	3	3
Qualitative Analysis (Ch 231).....	5	---	---
Quantitative Analysis (Ch 244).....	---	5	---
Plane Surveying (CE 221).....	---	---	5
¹ Calculus (Mth 251, 252).....	4	4	---
Assaying (Met 263).....	---	---	3
Engineering Physics (Ph 101, 102, 103).....	3	3	3
Military Science and Tactics.....	2	2	2
Physical Education.....	½	½	½
	17½	17½	16½

¹Students in Geology option may substitute Mth 102, 103.

	Junior Year		
	Term credits		
	1st	2d	3d
Mechanics (MM 351).....	3	.....	.....
Mining Machinery, General Mining Operations (MiE 343).....	.....	.....	3
Mine Surveying (MiE 353).....	.....	.....	3
Fire Assaying (Met 361, 362).....	2	2	.....
Ore Dressing (Met 381, 382).....	3	3	.....
Crystallography and Mineralogy (G 211), Mineralogy (G 212).....	3	3	.....
Lithology (G 311).....	3	.....	.....
Structural Geology (G 312).....	.....	3	.....
Geologic Surveying and Mapping (G 323).....	.....	.....	3
Electives.....	3	6	5½
	17	17	14½

Senior Year			
Mining Methods (MiE 441), Mining Engineering (MiE 442, 443).....	4	3	3
General Metallurgy (Met 461), Metallurgy of the Base and Precious Metals (Met 462).....	3	4	.....
Ore Dressing Laboratory (Met 491, 492).....	3	3	.....
Industrial Organization and Management (BO 381).....	.....	.....	3
Introduction to Economics (ES 391).....	.....	.....	3
National Government (PS 301).....	.....	.....	3
Economic Geology (G 431, 432).....	3	3	.....
Petrography (G 411).....	.....	.....	3
Seminar (MiE 481, 482, 483).....	1	1	1
Electives.....	3	3	3
	17	17	19

Recommended electives—For juniors: Ch 212; CE 211; Eng 201 or 202; MM 353; Ph 311, 312, 313; Z 353; Mth 253. For seniors: EE 251, 252, 253; PSp 350; Psy 201.

GEOLOGY OPTION

Freshman and Sophomore Years

Same as for Mining Engineering except that students may substitute Mth 102, 103 for Mth 251, 252 (sophomore year).

	Junior Year		
	Term credits		
	1st	2d	3d
Crystallography and Mineralogy (G 211), Mineralogy (G 212).....	3	3	.....
Mining Machinery, General Mining Operations (MiE 343).....	.....	.....	3
Lithology (G 311).....	3	.....	.....
Structural Geology (G 312).....	.....	3	.....
Geologic Surveying and Mapping (G 323).....	.....	.....	3
General Botany (Bot 101).....	3	.....	.....
Petrography (G 411).....	.....	.....	3
Introduction to Economics (ES 391).....	.....	3	.....
National Government (PS 301).....	3	.....	.....
Principles of Zoology (Z 130).....	.....	5	.....
Industrial Organization and Management (BO 381).....	.....	.....	3
Electives.....	6	3	3
	18	17	15
Senior Year			
Economic Geology (G 431, 432, 433).....	3	3	3
Organic Chemistry (Ch 221).....	5	.....	.....
Elementary Physical Chemistry (Ch 212).....	.....	3	.....
Evolution and Eugenics (Z 353).....	.....	.....	3
Mining Methods (MiE 441).....	4	.....	.....
General Psychology (Psy 201).....	.....	5	.....
Parliamentary Drill (PSP 350) or Extempore Speaking (PSP 254).....	.....	.....	3
English Composition (Eng 201), Narrative Writing (Eng 202).....	3	3	.....
Electives.....	3	3	6½
	18	17	15½

Recommended electives—For juniors: Ph 311, 312, 313; ML 131, 132, 133; Met 361, 362; FN 200; Mth 253. For seniors: ML 231, 232, 233; G 422, 611, 622; Met 461.

METALLURGY, OIL PRODUCTION

Students who desire to major in Metallurgy or in Oil Production should consult with the staff members and arrange their work in the junior and senior years.

Geology

IN planning the courses in Geology five groups of students have been considered specifically: prospective mining and metallurgical engineers, prospective economic geologists, and those students electing one or more courses for culture or for certain related applications like general engineering. Most of the work offered is designed for the first three groups and includes a thorough training in fundamental principles and also in certain economic applications of the science. Courses for the fourth and fifth groups are diversified and of more general interest.

DESCRIPTION OF COURSES

G 100. The Nature of the World. A brief review of our present knowledge regarding the universe, matter, the earth, and the history of life on the earth; the kinship of all science is stressed. Assigned readings. Primarily a freshman course but may be elected as a three-credit course as late as the junior year. Students may not receive credit in both G 100 and G 306.

Any term; 3 credits; 2 lectures; 1 recitation. Fee \$0.50.

G 101. Mineral Industry Survey. An introduction to engineering methods of analysis with special reference to our mineral resources, their magnitude, utilization, and national importance. Planned especially for freshmen in the School of Mines. Lectures and readings.

First term; ½ credit; 1 lecture.

G 211. Crystallography and Mineralogy. An introduction to crystallography, mineralogy, and blowpipe analysis and their application to determinative mineralogy. Includes laboratory work on metallic minerals.

First term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$4.00. Deposit \$1.50.

G 212. Mineralogy. Continuation of G 211. Special attention to important economic and common rock minerals, their occurrence and origin.

Prerequisite: G 211. Second term; 3 credits; 3 three-hour laboratory periods. Fee \$4.00. Deposit \$1.50.

G 301. General Geology. Principles of geology. Modification of the earth's surface by common agencies such as the atmosphere, running water, ground water, glaciers, lakes and oceans, volcanoes and earthquakes. Laboratory work on topographic maps, minerals and rocks. Planned for Engineering and other students who elect a physical science with laboratory work. Chemistry recommended as a prerequisite.

First or third term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$1.50.

G 302. Historical Geology. Theories as to earth origin; its physical and organic history as recorded in the rocks; special attention to the

development of the North American continent. Laboratory work on geologic maps and folios.

Prerequisite: G 301 or equivalent. Second term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$1.50.

G 303. Historical Geology. Continuation of G 302.

Prerequisite: G 302 or equivalent. Third term; 3 credits; 2 recitations; 1 two-hour laboratory period. Fee \$1.50.

G 304. Mineral Resources of the United States. Our supplies of coal, petroleum, natural gas, iron, copper, lead, and zinc. Conditions of occurrence, development, and preparation for use. Planned especially for students outside the School of Mines who desire a minor in Geology. Should be preceded by G 301, 302, 303 or equivalent.

First term; 3 credits; 3 lectures. Fee \$0.50.

G 305. Mineral Resources of the United States. A continuation of G 304. Our supplies of gold, silver, platinum group, minor metals, non-metallic minerals, salines, fertilizers, building stones, clays, etc. Should be preceded by G 304 and is planned as a further development of the same topic. Not offered 1931-32.

Second term; 3 credits; 3 lectures. Fee \$0.50.

G 306. Brief Survey of the Natural Sciences. The contribution of natural sciences to human comfort; our physical environment and our increase in knowledge and control of it. Planned especially for students outside the School of Mines who wish a minor in Geology. Students may not receive credit in both G 100 and G 306.

Third term; 3 credits; 3 lectures. Fee \$1.00.

G 311. Lithology. A study of the occurrence, characteristics, and origin of the common rocks in each of the three groups: sedimentary, igneous, metamorphic.

Prerequisites: G 211, 212, 301. First term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$3.00.

G 312. Structural Geology. A study of the processes and results of rock deformation. Rock structure; its causes and significance. Applications to mining and economic geology problems.

Prerequisite: G 311. Second term; 3 credits; 1 recitation; 3 two-hour laboratory periods. Fee \$4.00.

G 323. Geologic Surveying and Mapping. Principles and field methods of geologic mapping. Detailed field work on small area. May include a two-week trip to some mining district with detailed work and report on some assigned problem.

Prerequisites: G 303, 311, 312. Third term; 3 credits; 1 recitation; 6 hours in field and laboratory. Fee \$4.00.

G 411. Petrography. Advanced course in Petrology. Special attention to optical properties of the rock-forming minerals and principal characteristics of the more important rock types. Study of rocks in thin sections.

Prerequisite: G 311, 312. First or third term; 3 credits; 1 recitation; 3 two-hour laboratory periods. Fee \$5.00. (g)

G 422. Interpretation of Topographic Maps. A critical analysis of topographic and geologic maps with special reference to physiographic, stratigraphic, and structural features shown.

Prerequisite: G 303 or equivalent. Second term; 2 credits; 3 two-hour laboratory periods. Fee \$3.00.

G 431, 432. Economic Geology. General considerations of the origin, distribution and occurrences of our more important mineral resources. Materials considered are fuels, non-metallic and metallic minerals.

Prerequisite: G 311, 312. First and second terms; 3 credits each term; 3 recitations. (g)

G 433. Economic Geology. Advanced economic geology. Principles of ore deposition. Detailed study of mineral occurrences in certain mining districts with special reference to mode of origin, subsequent alteration and other economic considerations; laboratory work on rock and ore types; may include field work on specified problems.

Prerequisite: G 432. Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$5.00. (g)

G 611. Geology of Igneous Rocks. Characteristics, occurrences, and probable origin of the igneous rock types. Consideration of vulcanism, magmatic differentiation, contact phenomena.

Prerequisite: G 411. Third term; 2 credits; 2 recitations. Fee \$3.00. (g)

G 622. Oil Geology. A study of the known occurrences of petroleum and natural gas with special reference to their stratigraphy, structure, geologic history and probable mode of origin; methods of exploration and development.

Prerequisite: G 431. Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$3.00. (g)

G 632. Problems in Economic Geology. Special problems in mining and economic geology. Emphasis on economic considerations.

Prerequisite: G 432. Third term; 2 credits; 2 three-hour laboratory periods. Fee \$3.00. (g)

Metallurgy

METALLURGY courses are designed especially to acquaint the student with the general problems involved in a beneficiation of our non-metallic and metallic products. Methods of concentration, smelting, and other means of extraction and refining are studied, along with the efficient use of fuels and refractories. Enough laboratory work is

included to enable the student to apply the theories discussed in the classroom. Emphasis is laid on fundamental principles and economics of operation.

DESCRIPTION OF COURSES

Met 163. Mineral Industry Survey. An introductory course including engineering problems and constituting an integral part of a general survey of our mineral resources. Planned with special reference to freshmen in the School of Mines.

Prerequisite: G 101, MiE 142. Third term; $\frac{1}{2}$ credit; 1 lecture.

Met 263. Assaying. Commercial methods of wet and dry assay of ores, metallurgical products.

Prerequisite: Ch 244 or equivalent. Third term; 3 credits; 1 recitation; 2 three-hour laboratory periods. Fee \$5.00.

Met 361, 362. Fire Assaying. Testing reagents; sampling ores; fire assay methods for precious and base metals; bullion assays.

Prerequisite: Ch 244 or equivalent. First and second terms; 2 credits each term; 2 three-hour laboratory periods. Deposit \$15.00 each term.

Met 381, 382. Ore Dressing. The principles of crushing and concentrating ore minerals; various treatment processes.

Prerequisites: G 301, 302, 303, or their equivalent. First and second terms; 3 credits each term; 3 recitations.

Met 383. Ore Dressing. (Advanced course.) Continuation of Met 382 for students taking the Metallurgy option.

Prerequisites: Met 381, 382; Ch 212, 244. Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$3.00.

Met 461. General Metallurgy. An introduction to general metallurgy. Properties of metals, alloys, fuels, refractories; pyrometallurgy, hydrometallurgy, electrometallurgy; general operations.

Prerequisite: Ch 244; G 301, 302, 303 or equivalents. First term; 3 credits; 3 recitations. (g $\frac{3}{4}$)

Met 462. Metallurgy of the Base and Precious Metals. Metallurgy of gold, silver, copper, lead, and zinc. Short course in iron and steel included.

Prerequisite: Met 461. Second term; 4 credits; 4 recitations. (g $\frac{3}{4}$)

Met 463. Hydrometallurgy. Theory and practice in leaching of ores and the precipitation of metals from solution.

Prerequisite: Met 462. Third term; 2 credits; 1 recitation; 1 three-hour laboratory period. Fee \$5.00. (g $\frac{3}{4}$)

Met 473. Metallurgy of Iron and Steel. (Advanced course.)

Prerequisite: Met 462. Third term; 2 credits; 1 recitation; 1 three-hour laboratory period. Fee \$3.00. (g $\frac{3}{4}$)

Met 481. Metallurgy of the Minor Metals. Metallurgy of mercury, aluminum, chromium, tin, nickel, cobalt, arsenic, antimony, bismuth, tungsten, manganese, vanadium, and molybdenum.

Prerequisites: Ch 244 or equivalent; G 301, 302, 303; Met 381, 382. First term; 3 credits; 2 recitations; 1 three-hour laboratory period. Deposit \$5.00. (g)

Met 482. Metallurgical Design. Detailed study of metallurgical practice and operation. Laboratory work on flowsheets, design problems.

Prerequisites: Met 462, 481. Second term; 3 credits; 2 recitations; 1 three-hour laboratory period. Deposit \$5.00. (g)

Met 483. Electrometallurgy. Study of electrolytic and electrothermic practice; recovery and purification of metals by electrical methods.

Prerequisites: EE 251, 252, 253; Met 462, 482. Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Deposit \$7.00. (g)

Met 491, 492. Ore Dressing Laboratory. Laboratory work in connection with Met 381, 382, 462.

Prerequisites: Met 263, 361, 362, 381, 382. First and second terms; 3 credits each term; 1 seminar period; 4 two-hour laboratory periods. Fee \$5.00 each term. Deposit \$5.00 each term. (g $\frac{2}{3}$)

Mining Engineering

COURSES in mining engineering are designed to give the student a knowledge of the fundamental principles involved in the exploitation of mineral deposits. A study is made of types of machinery used, plant design, details of operation, management and the economic aspects involved.

DESCRIPTION OF COURSES

MiE 142. Mineral Industry Survey. An introductory course including engineering problems and constituting an integral part of a general survey of our mineral resources. Planned with special reference to freshmen in the School of Mines.

Prerequisite: G 101. Second term; $\frac{1}{2}$ credit; 1 lecture.

MiE 243. Excavation, Explosives and Blasting. A course dealing with special methods of surface excavations.

Third term; 3 credits; 3 recitations. Fee \$2.00.

MiE 343. Mining Machinery, General Mining Operations. A study of machinery and equipment required in mining operations and their application to specific field uses. Students should consult with the staff before registering.

Prerequisites: GE 111, 112, 113. Third term; 3 credits; 3 recitations.

MiE 353. Mine Surveying. Thorough consideration of surveying problems met with in mining engineering practice. Determination of true meridian. Includes two weeks of field work at end of term in actual mining survey work.

Prerequisites: CE 221; GE 111, 112, 113. Third term; 3 credits; 2 recitations; 1 three-hour laboratory period. Fee \$4.00.

MiE 441. Mining Methods. General considerations involved in choice of methods used to develop and mine mineral deposits. Open only to junior or senior Mines students on approval of staff.

Prerequisites: GE 111, 112, 113. First term; 4 credits; 4 recitations. (g§)

MiE 442. Mining Engineering. Continuation of MiE 441 with reference to correlation of various operations involved, ventilation, transportation, drainage, power plant design, mining law, etc.

Prerequisite: MiE 441 or equivalent. Second term; 3 credits; 3 recitations. (g§)

MiE 443. Mining Engineering. Continuation of MiE 442. Detailed consideration of problems in mine management and operation. Problem analysis.

Prerequisite: MiE 442 or equivalent. Third term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$3.00. (g§)

MiE 481, 482, 483. Mining Engineering Seminar. For senior students in the School of Mines. Discussion of current problems, practices, developments, trends.

Three terms; 1 credit each term; 1 period.

MiE 641. Mine Economics and Mining Law. Special attention is given to mining costs and legal phases. Students should consult with the staff before registering.

First term; 3 credits; 3 recitations. (g)

MiE 642. Mine and Power Equipment. A study of mining machinery, power installation, their correlation. Students should consult with the staff before registering.

Prerequisite: MiE 343. Second term; 3 credits; 3 recitations. (g)

MiE 643. Mine Plant Design. Advanced problem study. Students should consult with the staff before registering.

Prerequisites: MiE 343, 442. Third term; 2 credits; 2 three-hour laboratory periods. Fee \$2.00. (g)

Department of Music

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

PAUL PETRI, Director of Music; Professor of Singing and Conductor of Choruses.

LILLIAN JEFFREYS PETRI, Professor of Piano and Music Theory.

ALBERT CREITZ, B.M., Professor of Stringed Instruments and Conductor of Orchestras.

HARRY LYNDEN BEARD, M.A., Professor of Band Instruments and Conductor of Band.

FLORENCE BOWDEN, B.A., Instructor in Cello, Violin and Small Strings; Conductor of Mandolin and Guitar Club.

BYRON ARNOLD, A.B., Instructor in Organ, Piano, Music History, and Theory.

CORAL EVELYN AUSVE, Assistant Instructor in Piano.

WILLIAM HARRISON WRIGHT, A.B., Assistant Instructor in Singing.

THE courses in Music are service courses for students in the various major curricula of the College. No degrees or diplomas are conferred in Music.

Music is recognized at the College as of fundamental value in the development of personality, enriching the life of every man or woman who learns to appreciate it. In the training of every young woman preparing for homemaking, in supplementing the resources of the teacher and others, music is regarded as of special importance. In order that music may contribute its full share in the education of the students attending the College, the institution maintains a noteworthy program of musical activities, together with exceptional opportunities for music study. The faculty in Theory, Piano, Organ, Singing, Violin, and Band Instruments has been selected with great care, numbering among its members musicians of the highest rank, who, through study and concert work in the large musical centers of this country and Europe, bring to their students the highest ideals prevailing in these centers. The assistant instructors employ the same methods as their superiors, thus preparing the less advanced students for effective study under the principal instructors when they later enter upon more advanced study.

Training and experience in performance before the microphone of radio station KOAC are a valuable feature in all phases of the work.

Music constitutes a self-sustaining division of the College.

Scholarships. A number of free scholarships for private study are available to worthy, talented pupils. Examinations for these are held during the first week of any term. Application must be made to the Director.

Musical Organizations. Musical organizations at the College, including the R. O. T. C. Band, the Orchestra, the Glee Club, the Madrigal Club, and the Mandolin Club, are directed and coached by members of the Music faculty. These organizations contribute vitally to the life of the institution and constitute a popular and valuable field of activity for students with musical interest and talent. Details concerning musical organizations are given elsewhere in the catalogue.

Concerts. Under the direction of the faculty in Music a series of Sunday afternoon Vesper Concerts is presented throughout the college year. The College Orchestra, Glee Club, and Madrigal Club give programs both entertaining and educational in character. Recitals by members of the faculty and by the more advanced students are also given. These Vesper Concerts contribute materially to the spiritual and cultural life of the entire student body of the College.

Arrangements are also made for the appearance of some of the great artists of international fame during the year, for which a reduced charge is made to the students of the College.

Courses. Instruction in Music is intended for students pursuing one of the degree curricula who take Music courses as electives. A maximum of six credits in Piano, Organ, Singing, Violin, Band Instruments, or other applied music work, may be counted toward a degree in the several degree-granting schools. Credits in Theory may be elected subject to the approval of the dean of the school in which the student is registered.

Students who have had sufficient preparation may pursue advanced study in Music under one of the principal instructors. So far as their music work is concerned such students are artist students of the Music faculty; they are registered in the College only in so far as they may be pursuing regular courses, either as carrying a full major curriculum in one of the degree-granting schools or as optional or special students, not candidates for a degree. In addition, instruction in Music is available, by arrangement, to students who take no other instruction and are not registered in the College, being subject only to such fees and regulations as apply especially to Music.

Regulations. Any student in Oregon State Agricultural College with a satisfactory record in scholarship in his major curriculum may elect study in music, by arrangement with the Director. The authority to assign all applicants for music instruction is vested solely in the Director, who must be consulted for the arrangement of details of registration, or at any time when information is required that pertains to study in Music.

Students may enter at any time, but it is advantageous to register at the opening of a term.

No student taking Music will be permitted to play or sing in public without the consent of the instructor.

No student is permitted to omit lessons or practice without sufficient excuse and no refund will be made for absence from lessons or practice or for discontinuance, except in cases of severe personal illness; for such unavoidable absence lessons may be made up only by appointment, and before the expiration of the term. Students missing lessons by reason of severe

illness attested by the official Medical Adviser or other acceptable medical authority, are strongly advised immediately to notify all instructors concerned. Loss of instruction time caused by failure to give such notification will be charged against the lesson account of the student.

Lessons falling on legal holidays, or on special holidays petitioned for by the student body or by special student organizations, which may be granted by the College authorities, will not be made up unless arranged for with the instructor before such holiday, and duly approved by the Director.

The college year in Music, as in other departments of the College, is divided into terms of approximately twelve weeks each. The Summer Session offers special opportunities for intensive study in Music. Announcement of the summer courses offered is made in connection with the other announcements concerning the Summer Session.

Equipment. The entire top floor of the Administration Building is devoted to studios, offices, and other needs of the work in music. Ample facilities for teaching and practicing are provided.

Tuition. Private lessons are one-half hour in length. Class lessons are fifty minutes in length. All fees are payable strictly in advance.

	Per term—	
	One lesson a week	Two lessons a week
Piano		
Mrs. Petri	\$30.00	\$60.00
Mr. Arnold	18.00	36.00
Miss Ausve	15.00	30.00
Organ		
Mr. Arnold	24.00	48.00
Singing		
Mr. Petri	30.00	60.00
Mr. Wright	18.00	36.00
Violin, Viola, Cello		
Mr. Creitz	30.00	60.00
Miss Bowden	15.00	30.00
Banjo, Guitar and other Small Strings		
Miss Bowden	15.00	30.00
Band Instruments		
Mr. Beard	15.00	30.00
Theory and Allied Subjects		
Private Instruction	30.00	60.00
Class Instruction, not less than four in a class accepted:		
3 hours a week, a term		\$15.00
2 hours a week, a term		12.50

Piano, Organ, and Orchestra Instrument Rental.

Piano	
$\frac{1}{2}$ hour a day, a term (for Singing students only).....	\$ 3.00
1 hour a day, a term	5.00
1 hour a day, a term (without use of piano)	2.50
2 hours a day, a term	7.50
3 hours a day, a term	10.00
4 hours a day, a term	12.50
Orchestra Instruments. Violas, cello, bassoon, and oboe are available for practice purposes for \$3.00 per term for one hour weekly. Bassoon and oboe players must furnish their own reeds, and viola and cello students must replace broken strings with new ones. Any damage done to the instruments through carelessness or negligence of student must be repaired at student's expense.	
Organ	
1 hour a day, a term	\$15.00
2 hours a day, a term	30.00
3 hours a day, a term	45.00

For further information address Director PAUL PETRI, Oregon State Agricultural College, Corvallis, Oregon.

Courses in Music

The following courses are suggested for students who desire to elect credits in Music.

	Term credits—		
	1st	2d	3d
THEORY			
Harmony I, II, III (T 111, 112, 113).....	3	3	3
Appreciation of Music (T 120).....	1	1	1
Harmony IV, V, VI (T 211, 212, 213).....	1	1	1
History of Music (T 221, 222, 223).....	3	3	3
Sightsinging and Ear-Training (T 147, 148, 149).....	1	1	1
PIANO			
Piano (P 131a, 132a, 133a).....	2	2	2
Piano (P 231a, 232a, 233a).....	2	2	2
Piano (P 331a, 332a, 333a).....	2	2	2
Piano (P 431a, 432a, 433a).....	2	2	2
ORGAN			
Organ (Or 134, 135, 136).....	2	2	2
Organ (Or 234, 235, 236).....	2	2	2
Organ (Or 334, 335, 336).....	2	2	2
Organ (Or 434, 435, 436).....	2	2	2
SINGING			
Singing (S 141a, 142a, 143a), 1 credit each term, or.....	2	2	2
Singing (S 241a, 242a, 243a), 1 credit each term, or.....	2	2	2
Singing (S 341a, 342a, 343a), 1 credit each term, or.....	2	2	2
Singing (S 441a, 442a, 443a), 1 credit each term, or.....	2	2	2
VIOLIN, VIOLA, VIOLONCELLO			
Violin (V 151a, 152a, 153a).....	2	2	2
Violin (V 251a, 252a, 253a).....	2	2	2
BAND INSTRUMENTS			
Cornet (BI 101, 102, 103).....	2	2	2
Cornet (BI 201, 202, 203).....	2	2	2
Cornet (BI 301, 302, 303).....	2	2	2
Cornet (BI 401, 402, 403).....	2	2	2
Trombone (BI 111, 112, 113).....	2	2	2
Trombone (BI 211, 212, 213).....	2	2	2
Trombone (BI 311, 312, 313).....	2	2	2
Trombone (BI 411, 412, 413).....	2	2	2
Clarinet (BI 121, 122, 123).....	2	2	2
Clarinet (BI 221, 222, 223).....	2	2	2
Clarinet (BI 321, 322, 323).....	2	2	2
Clarinet (BI 421, 422, 423).....	2	2	2
Other Instruments.....	2	2	2

COURSES FOR OPTIONAL STUDENTS

From the courses listed optional students, upon approval of the Director as determined by their previous preparation, may choose the more comprehensive courses, such as P 131, 132, 133, S 141, 142, 143, V 151, 152, 153.

COURSES FOR ARTIST STUDENTS

Artist students may register in the advanced courses in Piano (P 331, 332, 333, 431, 432, 433), Singing (S 341, 342, 343, 441, 442, 443), and Violin (V 351, 352, 353, 451, 452, 453). Violin or Voice students are expected to take, or to have had, at least one year of piano instruction.

Theory

At all stages of instruction in applied music, training is given in analysis of material.

DESCRIPTION OF COURSES

T 111, 112, 113. **Harmony I, II, III.** Laws of overtone; origin and history of diatonic scale system; scale drills; melodic principles developed from tetrachord relations, and awakening of harmonic consciousness; triads, dominant and diminished seventh chords; recognition of by-tones; keyboard drills; ear drills; free harmonization of melodies; original melody writing; simple transposition and modulation.

Three terms; 3 credits each term; 3 periods.

T 120. **Appreciation of Music.** Illustrated lectures, using the phonograph and other means, on how to listen to music, instrumental and vocal; how to instruct a child in the appreciation of good music. Required in Home Economics; elective to others.

Second term; 1 credit; 1 lecture. Fee \$0.50.

T 124, 125, 126. **Theory of Music.** Musical terminology and embellishments; acoustics; Pythagorean, mean tone, and well-tempered systems of tuning; elements of musical form; song form, suite, sonata, symphony, oratorio, opera, etc.

Three terms; 1 credit each term; 1 period.

T 147, 148, 149. **Sightsinging and Ear-Training.** Writing from tonal dictation, singing melodies, rhythmic problems; rhythmic dictation.

Three terms; 1 credit each term; 1 recitation.

T 211, 212, 213. **Harmony IV, V, VI.** Continuation of T 113. Use of secondary chords in free harmonization of melodies; ear-perception of these as substitutes for primary chords; four-voice treatment of original melodies. Free harmonization of melodies that modulate; ear drills in recognition of key changes; keyboard modulation from chord-patterns.

Three terms; 3 credits each term; 2 periods.

T 221, 222, 223. **History of Music.** Evolution of music from the ancient and medieval systems; the Gregorian Chant; the classical period through Bach and Beethoven; the classical musical forms; the romantic and modern periods; the opera. The lectures are liberally supplemented through the use of the phonograph and other means.

Prerequisites: T 124, 125, 126. Three terms; 2 credits each term; 2 lectures.

T 311. **Strict Counterpoint.** Analysis of Bach fugues continued.

Prerequisite: T 213. First term; 3 credits; 2 periods.

T 312. Canon and Fugue.

Prerequisite: T 311. Second term; 3 credits; 2 periods.

T 313. Modern Harmony. Modern interval successions; modern chord structure and resolution; scales other than diatonic; free harmonization of melodies with contrapuntal voice written in.

Prerequisite: T 312. Third term; 3 credits; 2 periods.

T 411. Modern Harmony. Continuation of T 313. Dual chord structure; lack of tonality; lack of melody and definite form traced and analyzed.

Prerequisite: T 313. First term; 3 credits; 2 periods.

T 412, 413. Composition. Setting of poems chosen at first by the teacher, later by the student; original composition in old dance forms. Original sonata and any other creative work suitable to the powers of self-expression of the student, particularly for his own chosen instrument.

Second and third terms; 3 credits each term; 2 periods.

T 421. Pedagogy. For students in Piano or Violin. Upbuilding of comprehensive musicianship; teaching to memorize consciously in form; psychology of cultivating earnest effort in pupils; inculcating a sense of joy in earnest effort; weighing and sifting teaching material.

Second term; 1 credit; 1 period either private or class instruction, as arranged.

T 422. Orchestration. Course offered to enable the student to understand the tonal compass, proper grouping of all instruments employed in the present symphony orchestras. Practice in reading scores. Practical arranging of music for varied instrumental combinations.

Prerequisites: T 124, 125, 126; T 221, 222, 223; T 411, 412, 413. Any term; 2 credits; 1 private or class instruction period, as arranged.

Piano

DESCRIPTION OF COURSES

P 131, 132, 133. Piano. Thorough foundation in technique developed upon highly scientific basis of mental control of pianistic movements; Hanon, Lejeal, Czerny, and Bach two-part inventions, Haydn sonatas, according to the individual need of the student. All pieces to be played from memory. Tests given to accustom the student to play before others.

Three terms; 6 credits each term; 2 private lessons; 3 hours daily practice.

P 131a, 132a, 133a. Piano. Similar to P 131, 132, 133, but curtailed to meet the individual needs of students desiring a briefer course.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 to 2 hours daily practice.

P 231, 232, 233. **Piano.** Continuation of fundamental training, using as text Petri's "Mind Over Muscle." Hanon, Cramer, Kullak, Bach three-part inventions, English and French suites, Mozart and Beethoven sonatas.

Prerequisite: P 133. Three terms; 6 credits each term; 2 private lessons; 3 to 4 hours daily practice.

P 231a, 232a, 233a. **Piano.** Continuation of P 133a. Advanced technical training and composition selected to suit the talents and needs of the student.

Prerequisite: P 133a. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

P 331, 332, 333. **Piano.** Continuation of fundamental technical training; Clementi, Henselt, Liszt studies, Bach well-tempered clavier, Beethoven sonatas and repertoire pieces of all periods suitable to the needs of the student.

Prerequisite: P 233 or equivalent. Three terms; 6 credits each term; 2 private lessons; 3 to 4 hours daily practice.

P 331a, 332a, 333a. **Piano.** Continuation of P 233a.

Prerequisite: P 233a. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

P 431, 432, 433. **Piano.** Continuation of technical training. Beethoven sonatas of the later period; Liszt and Busoni arrangements of Bach; Bach in the original; Chopin studies; compositions of all periods best suited to the need and ability of the student; a standard concerto, played with orchestra, required for recital; or program including a Beethoven sonata and other compositions from the Master, as prescribed by the instructor.

Prerequisite: P 333. Three terms; 6 credits each term; 2 private lessons; 3 to 4 hours daily practice.

P 431a, 432a, 433a. **Piano.** Continuation of P 333a.

Prerequisite: P 333a. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

Organ

An excellent Kimball, two manual pipe-organ is available for practice purposes at reasonable rates.

DESCRIPTION OF COURSES

Or 134, 135, 136. **Organ.** Exercises with particular emphasis on pedal technique and the development of independence of the hands and the feet on manuals; registration and tone color of various stops; easy pieces to suit individual needs; a reasonable piano technique required.

Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

Or 234, 235, 236. **Organ.** Continuation of Or 136. Advanced technical training and pieces to suit the individual student.

Prerequisite: Or 136 or satisfactory piano technique. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

Or 334, 335, 336. **Organ.** Continuation of Or 236.

Prerequisite: Or 236. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

Or 434, 435, 436. **Organ.** Continuation of Or 336.

Prerequisite: Or 336. Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

Singing

DESCRIPTION OF COURSES

S 141, 142, 143. **Singing.** Fundamentals of correct breathing and control of the breath; tone emission and support of the tone; simple exercises, vocalises, and songs to suit the needs of the individual student.

Three terms; 4 credits each term; 2 private lessons; 2 hours daily practice.

S 141a, 142a, 143a. **Singing.** Similar to S 141, 142, 143, but adapted to the personal needs and talents of the student.

Three terms; 1 or 2 credits each term according to the number of lessons taken per week; 1 or 2 private lessons; $\frac{1}{2}$ or 1 hour daily practice.

S 241, 242, 243. **Singing.** Further development of the breath and tone support; relaxation and coordination of the singing apparatus; more advanced exercises, vocalises, and songs.

Prerequisite: S 143. Three terms; 4 credits each term; 2 private lessons; 2 hours daily practice.

S 241a, 242a, 243a. **Singing.** Continuation of S 143a. The work is arranged according to the talents and advancement of the individual student.

Prerequisite: S 141a or equivalent. One or 2 credits each term according to the number of lessons taken per week; 1 or 2 private lessons; $\frac{1}{2}$ or 1 hour daily practice.

S 341, 342, 343. **Singing.** More advanced exercises and vocalises; arias from the standard oratorios and operas in English, French, Italian and German.

Prerequisite: S 243. Three terms; 4 credits each term; 2 private lessons; 2 hours daily practice.

S 341a, 342a, 343a. **Singing.** Continuation of S 243a.

Prerequisite: S 243a or equivalent. Three terms; 1 or 2 credits each term according to the number of lessons taken per week; 1 or 2 private lessons; $\frac{1}{2}$ or 1 hour daily practice.

S 441, 442, 443. **Singing.** Advanced exercises and vocalises; songs and arias selected from the modern composers.

Prerequisite: S 343. Three terms; 4 credits each term; 2 private lessons; 2 hours daily practice.

S 441a, 442a, 443a. **Singing.** Continuation of S 343a.

Prerequisite: S 343a or equivalent. Three terms; 1 or 2 credits each term according to the number of lessons taken per week; 1 or 2 private lessons; $\frac{1}{2}$ or 1 hour daily practice.

Violin

DESCRIPTION OF COURSES

V 151, 152, 153. **Violin.** Proper handling and care of the instrument and bow; selection of strings and placing on instrument; how to tune instrument; thorough and correct application of the important principles fundamental to correct use of bow and fingers; exercises and pieces selected in relation to the needs and temperament of individual students. Maia Bang and Leopold Auer methods. First position and half position.

Three terms; 6 credits each term; 2 private lessons; 3 hours daily practice.

V 151a, 152a, 153a. **Violin.** Similar to V 151, 152, 153, but modified to suit the needs of individual students.

Three terms; 2 credits each term; 1 or 2 lessons; 1 or 2 hours daily practice.

V 251, 252, 253. **Violin.** Maia Bang and Leopold Auer methods. Schradeck finger exercises; Kreutzer and Mazas etudes; work in second, third, and fourth position.

Prerequisite: V 153. Three terms; 6 credits each term; 2 private lessons; 3 hours daily practice.

V 251a, 252a, 253a. **Violin.** Continuation of V 153a.

Three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

V 351, 352, 353. **Violin.** Continuation of Maia Bang and Leopold Auer methods; continuation of Mazas etudes; Fiorillo etudes; concertos and standard pieces.

Prerequisite: V 253. Three terms; 6 credits each term; 2 private lessons; 3 hours daily practice.

V 451, 452, 453. **Violin.** Continuation of Maia Bang and Leopold Auer methods. Kreutzer, Rode, and Dont etudes. Concertos suitable to advancement and musical intelligence; standard pieces; experience in sonata playing; ensemble and orchestra participation.

Prerequisite: V 353. Three terms; 6 credits each term; 2 private lessons; 3 hours daily practice.

Band Instruments

DESCRIPTION OF COURSES

CORNET

BI 101, 102, 103. **Cornet.** Exercises on the proper vibrations of the lips, and proper use of the breath. Attack; simple exercises by Clarke, Goldman, and others. Elementary solos and duets.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 201, 202, 203. **Cornet.** Exercises in single tonguing studies on the slur; scales; chords; intervals; solos and duets.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 301, 302, 303. **Cornet.** Scales and chords; exercises in double and triple tonguing; ornamentation; sight reading; studies by Arban, Clarke, Weldon, St. Jacome, and others.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 401, 402, 403. **Cornet.** Characteristic studies by Arban and Clarke; duets by St. Jacome; the art of phrasing; solos approved by the instructor. Non-pressure system emphasized.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

TROMBONE

BI 111, 112, 113. **Trombone.** Exercises on the proper vibrations of the lips without the instrument; exercises in the use of the breath; attack; producing the tone; simple exercises in the use of the slide.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 211, 212, 213. **Trombone.** Short shifts and direct shifts; the use of the wind; tone development; scales and chords; simple melodies.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 311, 312, 313. **Trombone.** Exercises on the slur; the development of the legato on the trombone; tonguing; studies by Vaubaron, Arban, Dieppo, and others.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 411, 412, 413. **Trombone.** Studies in tonguing, sight reading, phrasing, breath control; advanced studies by Vaubaron, Manna, Rauda, Clodomir and others; solos approved by the instructor. Non-pressure system emphasized throughout.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

CLARINET

BI 121, 122, 123. **Clarinet.** Instructions in the proper handling and care of the instrument, selection of reeds, placing the reed on the mouthpiece; methods of producing the tone; exercises in sustained tones; the correct use of the tongue and the breath; exercises in mechanism; simple exercises in duet form.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 221, 222, 223. **Clarinet.** Exercises in scales and chords; tonguing; the development of the staccato; special exercises for the lips and tongue; elementary studies by Klose, Lazarus, De Ville, Staats, and others.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 321, 322, 323. **Clarinet.** Intervals; advanced studies in duet form; technical exercises; sight reading; characteristic studies by Klose, Toll, Langenus, Baermann, and others.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

BI 421, 422, 423. **Clarinet.** Advanced technical studies; phrasing; transposition; solo playing.

Any three terms; 2 credits each term; 1 or 2 private lessons; 1 or 2 hours daily practice.

OTHER INSTRUMENTS

Courses similar in scope to those outlined above are offered for all other band instruments, including:

Oboe (BI 131, 132, 133; 231, 232, 233; 331, 332, 333; 431, 432, 433).

Bassoon (BI 134, 135, 136; 234, 235, 236; 334, 335, 336; 434, 435, 436).

Band Conducting (BI 141, 142, 143; 241, 242, 243; 341, 342, 343; 441, 442, 443).

Baritone (BI 144, 145, 146; 244, 245, 246; 344, 345, 346; 444, 445, 446).

Saxophone (BI 151, 152, 153; 251, 252, 253; 351, 352, 353; 451, 452, 453).

Flute (BI 154, 155, 156; 254, 255, 256; 354, 355, 356; 454, 455, 456).

BBb Bass (BI 161, 162, 163; 261, 262, 263; 361, 362, 363; 461, 462, 463).

Eb Bass (BI 164, 165, 166; 264, 265, 266; 364, 365, 366; 464, 465, 466).

Drums (BI 171, 172, 173; 271, 272, 273; 371, 372, 373; 471, 472, 473).

French Horn (BI 174, 175, 176; 274, 275, 276; 374, 375, 376; 474, 475, 476).

Bells (BI 181, 182, 183; 281, 282, 283; 381, 382, 383; 481, 482, 483).

Xylophone (BI 184, 185, 186; 284, 285, 286; 384, 385, 386; 484, 485, 486).

School of Pharmacy

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

ADOLPHE ZIEFLE, Phar.D., Dean of the School of Pharmacy; Professor of Pharmacy.

MYRTLE RUTH BURNAF, B.S., Secretary to the Dean.

Practical Pharmacy

FRANCOIS ARCHIBALD GILFILLAN, Ph.D., Professor of Pharmacy.

ERNEST LESLIE BEALS, B.S., Teaching Fellow in Pharmacy.

Pharmaceutical Analysis

LEWIS CLEMENCE BRITT, M.S., Assistant Professor of Pharmaceutical Analysis; Director of the Drug Laboratory of the Oregon State Board of Pharmacy.

Pharmacology and Pharmacognosy

ERNST THEODORE STUHR, M.S., Associate Professor of Pharmacology and Pharmacognosy.

IN 1898 on petition of the druggists of Oregon a department of Pharmacy was established by the Board of Regents of the College to meet the growing demand for thorough practical and technical training in pharmacy and related branches. The work in Pharmacy was organized as a School in 1917. From its inception the School has grown steadily and has always had a place in the front rank of the profession.

The School of Pharmacy aims to prepare students for the intelligent practice of all branches of pharmacy. Its equipment, methods of instruction, courses of study, and other resources are arranged to meet the demands of the present day. Requirements for entrance and graduation exceed those of the Oregon State Pharmacy Law.

Class instruction, entrance requirements, and scientific standards are the same as in the other schools of the College, as well as in other Class A schools and colleges of pharmacy. Students share all of the advantages and enjoy the spirit of a great educational institution.

Curriculum. The curriculum of the School of Pharmacy meets the needs of two groups of students: (1) those desiring professional training for the practice of pharmacy, such students proceeding to the B.S. degree; and (2) those students desiring the training which a modern school of pharmacy affords as preparation for later study in some related profession, such as medicine, dentistry, or nursing. The freshman and sophomore years are the same for all students in the School of Pharmacy, but choice of elective

groups in the junior and senior years permits special training in any one of several fields. In the case of students not planning to take a degree in pharmacy options in the election of courses are permitted, according to the student's interest or needs.

Graduates of this curriculum are eligible to take the examinations of any state board of pharmacy, and are prepared for any position requiring a knowledge of drugs and chemicals. Aside from a thorough training in pharmacy and chemistry, students in this curriculum are also instructed in bacteriology, zoology, physics, English, modern languages, business administration, and military science and tactics.

Minimum Four-Year Curriculum. Effective in July, 1930, the four-year curriculum has been adopted as the minimum course of study in Pharmacy. In discontinuing the three-year curriculum at this time, the schools of Pharmacy in Oregon and Washington have anticipated by two years the requirement of the American Association of Colleges of Pharmacy that the three-year curriculum be dropped in 1932. Students who began the three-year curriculum in this School before July, 1930, will be allowed until June, 1933, to complete their work and receive the Ph.C. degree.

Graduate Work. Graduate work leading to the degree of Master of Science (M.S. in Phar.) is offered in the School of Pharmacy. Candidates for the master's degree must hold a bachelor's degree in Pharmacy from the College or its equivalent from an institution of equal rank. In addition, candidates must have attained a creditable scholastic average in their undergraduate work and must have determined upon a definite objective to be attained through the advanced work. Institutional requirements for the degree of Master of Science will be found in the section on Graduate Study in this catalogue.

In all cases, a minimum of one entire academic year of three terms in residence is necessary when full time is devoted to the fulfillment of the requirements of the degree. If a candidate devotes part time to instructional work, for which compensation is received, a period longer than three terms is required.

Fulfillment of the requirements of the major is based primarily upon original work completed along some line of experimental investigation. A thesis must be prepared, incorporating the results of the investigation. An oral examination, given by the instructors in the department in which the candidate majored, is required.

The School of Pharmacy is well equipped with apparatus and facilities for scientific investigation. Where special apparatus is required, arrangement has been made to use that belonging to the Laboratory of the Oregon State Board of Pharmacy, located in the Pharmacy Building.

Pharmacy as Preparation for Other Professional Study. The American Medical Association has recognized the College as a Class A institution. Any course pursued in the school is evaluated on the same basis as a similar course in any other accredited college or university. It is of interest to note that many graduates of the School of Pharmacy who have later pursued courses in other professional schools such as medicine or dentistry declare that their pharmaceutical training has been of great value to them, especial-

ly in their work as internes and in general practice. Graduates in pharmacy may also practice pharmacy as part-time relief clerks as a means of self-support while pursuing a professional course. Students contemplating such professional study may utilize the advantages of the School of Pharmacy in either of the following ways: (1) They may complete the curriculum in Pharmacy for the bachelor's degree. This curriculum includes all subjects required for clear entrance into any Class A medical school. (2) They may select such subjects as are required in the particular professional school in which they expect to matriculate.*

Purpose of Training. Consistent endeavor has been made to provide well-balanced courses that will prepare students not only for practical drug-store work but for a variety of positions in pharmaceutical, analytical, and medical chemistry. Students are trained not only in technique, power of observation, and the principles of pharmacy, but also in resourcefulness, initiative, and individual responsibility.

Standard of Work. All work offered in the School of Pharmacy meets the highest requirements of pharmaceutical instruction in this country. The College is on the accredited list of the Association of American Uni-

*While the Dean of the School of Pharmacy is glad to advise with students contemplating later professional study to the end that they may elect the subjects required for clear entrance into any particular school, it is believed that the following information will cover the questions usually asked.

Two-Year Requirement. The American Medical Association specifies two years of college work as prerequisite to clear entrance into medical school. The schedule of required subjects, expressed in term credits, is as follows: *Required subjects:* chemistry, 18; physics, 12; biology, 12; English composition and literature, 9; other non-science subjects, 18. *Subjects strongly urged:* a modern foreign language, 9-18; advanced botany or advanced zoology, 4½-9; psychology and logic, 4½-9; advanced mathematics, including algebra and trigonometry, 4½-9; additional courses in chemistry, 4½-9. *Other suggested electives:* English (additional), economics, history, sociology, political science, mathematics, Latin, Greek, drawing.

Three-Year Requirement. For entrance into medical schools requiring three years of college work the following work is specified: At least 135 term credits (90 semester credits) of college work, including chemistry, 23 credits, 8 of which shall be organic; biology, 20 credits; physics, 12 credits; English, 9 credits; French or German, 20 credits (or reading knowledge); the remaining credits to include if possible at least 36 credits in psychology, history, economics, and literature. Credits received in military science or physical education shall not be included in the 135-credit minimum.

Graduation Not Required. For admission into a medical school the applicant must submit a transcript of all credits which he has earned in high school or college. Even though he has earned a bachelor's degree he must submit a transcript. Applicants entering medical school without a bachelor's degree must meet certain additional requirements during the first two years of the medical curriculum.

Approved Courses. Courses given at the College which are acceptable toward entrance into medical schools are as follows, the term credits being indicated in each case: *Required courses:* English Composition (Eng 101, 102, 103), 9; General Chemistry (Ch 104, 105, 106), 15; General Physics (Ph 111, 112, 113, 314), 12; General Zoology (Z 101, 102, 103), 9; Organic Chemistry (Ch 226, 227), 10; Quantitative Analysis (Ch 244), 5; Mammalian Anatomy (Z 211, 212, 213), 9; General Bacteriology (Bac 204), 3; Pathogenic Bacteriology (Bac 332), 3; seven terms of French or German, 21. *Elective courses:* Economic Development of the United States (ES 105), 4; Introduction to Economics (ES 391), 3; General Sociology (ES 305), 4; Immunity and Serum Therapy (Bac 333), 3; General Botany (Bot 101, 102, 103), 9; Physical Chemistry (Ch 381), 3; English or American Literature (Eng 221, 222, 223, or 331, 332, 333), 9; History of Western Civilization I, II, III (Hst 211, 212, 213), 9; Genetics (Z 351), 3; Extempore Speaking (PSp 254, 255, 256), 9; Introduction to Business Law (PS 263), 3; National Government (PS 301), 3; International Relations (PS 401), 4; General Psychology (Psy 201), 5; Ethics (Eth 482), 3; Advanced English Composition (Eng 201, 202), 6.

Admission to Dental Schools. In accordance with the rulings of the Dental Educational Council of America and the American Association of Dental Schools, beginning with the session of 1926, all dental schools with Class A rating must exact as a requirement for admission to the first or freshman year of the course not less than one year of college pre-dental training, which should include one year's credit in English, biology (zoology), physics, chemistry (inorganic and qualitative). To this may be added an elective, preferably technical drawing and shop work.

versities. The School of Pharmacy is a member of the American Association of Colleges of Pharmacy, and its curricula are registered by the New York Board of Higher Education. Oregon State Agricultural College is listed by the American Medical Association in its "Tentative List of Approved Colleges of Arts and Sciences and Junior Colleges." The facilities for theoretical and practical instruction are excellent. Laboratory work has been made a special feature of the School. Diplomas, as well as the work of students in this School, are recognized by all state boards of pharmacy requiring attendance in a school of pharmacy as a prerequisite for examination and registration.

Model Drug Store. Donations from wholesale and jobbing firms, from manufacturers of drug store fixtures, and from other sources have made it possible for the School of Pharmacy to equip in a corner room, 23 by 35 feet on the second floor of the Pharmacy Building, a complete model drug store. The fixtures consist of Stedman's rubberoid flooring, 32 feet of mahogany English wall cases, 18 feet of plate-glass marble-base show-cases, a 10-foot wrapping counter, a 10-foot mahogany prescription case, 25 feet of cross partition, Coty display case, a cash register, an intercommunicating telephone, Waterman pen case, and similar displays. These fixtures, together with a complete stock, are used for instruction in salesmanship, show-case and window trimming, inventory, the keeping of poison and narcotic records, taking copies of prescriptions over a telephone, systematizing a drug stock and store management. As the stock and fixtures were donated for instructional purposes, nothing is actually sold or dispensed.

Drug Trade Conference. To provide an opportunity whereby the druggists of Oregon can discuss the problems confronting the drug business, the School of Pharmacy, cooperating with the Oregon Retail Merchants' Association, holds an annual Drug Trade Conference. Discussions are conducted by the round-table method and the proceedings published in a bulletin, a copy of which is mailed to each drug store in the state.

The topic of the first conference (1927) was, "Retail Methods and Practices;" for 1928, "Operating Costs in Oregon Drug Stores." Similar topics are selected for each conference. These conferences are of interest not only to druggists but also to the junior and senior students of the School of Pharmacy, who are permitted to attend the meetings.

American Association of Colleges of Pharmacy. The purpose of this association is to promote the interest of pharmaceutical instruction in the United States. Institutions holding membership must maintain certain minimum requirements for entrance and graduation. The influence of the Association has been so great that many states either by law or by ruling of the state board of pharmacy recognize its standards.

Schedule of Instruction. Lecture periods are fifty minutes each, laboratory periods two or three hours, depending upon the character of the work. Some of the advanced courses require a large amount of collateral reading. Courses continue through the regular college year of nine months.

Breakage Card. At the beginning of each term, every student registered in one or more laboratory courses in pharmacy purchases a three-

dollar breakage card. At the end of the term, any unexpended balance on the card is refunded to the student.

Requirements of the Pharmaceutical Profession. Public sentiment demands high requirements for the practice of pharmacy through the enactment of stringent State and Federal laws. It is now a necessity that pharmacists have a scientific training such as cannot be obtained by merely working in a drug store. The minimum college requirement of the Oregon State Board of Pharmacy is completion of a Class A four-year curriculum in pharmacy as a prerequisite for examination and registration.

Oregon Law Relating to the Practice of Pharmacy. The Oregon Pharmacy Law is enforced by the Oregon State Board of Pharmacy. This Board recognizes two classes of pharmacists; namely, registered pharmacists and registered assistant pharmacists. The State law outlines the scope and duties of each class with regard to the dispensing of prescriptions, sale of poisons, and the manufacture of medicines. Before a candidate is eligible to take the State pharmacy examination either as registered pharmacist or as registered assistant pharmacist he must be eighteen years of age, or over, and have had a definite amount of theoretical and practical training. A registered pharmacist can operate a drug store, compound medicinal preparations, dispense prescriptions, sell poisons, and train registered assistant pharmacists. A registered assistant pharmacist must meet certain requirements of the State Board, including the passing of an examination. His duties are to assist the registered pharmacist, but he cannot compound medicines, operate a drug store, sell poisons, or dispense prescriptions. A resumé of the Oregon Pharmacy Law passed in 1921 and amended in 1925 is as follows:

"Registered Assistant Pharmacist. A candidate for examination as a Registered Assistant Pharmacist must be over eighteen years of age, and have had three years' experience in a pharmacy where the prescriptions of physicians are compounded and dispensed; provided, that the time actually spent in attendance at a college accredited by the Oregon Board of Pharmacy shall be considered equivalent to the same period of practical experience, but in no case shall more than two years be credited for college attendance.

"Registered Pharmacist. Beginning July 1, 1925, all candidates for examination as Registered Pharmacists must be graduates of a college of pharmacy accredited by the Oregon Board of Pharmacy; provided, further, that the Board of Pharmacy may issue a certificate of registration to any person residing in this state and who has had at least twenty years' experience under the supervision of a Registered Pharmacist in a pharmacy where prescriptions of physicians are compounded and who shall satisfy said Board of his or her competent qualification and skill as a pharmacist."

Eligibility for Examination. Graduates in Pharmacy are eligible to take the examinations of the Oregon State Board of Pharmacy. Those graduates who make a passing grade in all subjects and by means of an affidavit can show that they have had one year of practical drug-store experience receive the certificate of registered pharmacist. The certificate of graduates who passed in all subjects but have not had the required amount of practical experience is withheld until they have had one year of practical drug-store experience.

Reciprocity. Since the Oregon Board of Pharmacy is a member of the National Association of State Boards of Pharmacy, students who are registered by this Board are privileged to reciprocate with forty-four other states in the Union, without further examination.

Registered pharmacists from other states in which standards with regard to educational requirements, practical experience, and other requisites are lower than those exacted by the Oregon State Board of Pharmacy are not eligible to reciprocate with Oregon.

Demand for Graduates. The demand for the thoroughly trained pharmacist was never so great as at the present time. The demand, however, is for those having business ability, industry, integrity, and a thorough pharmaceutical education. Because of the great responsibility of the profession of pharmacy, in no field of work is expert knowledge more necessary.

Opportunity for Graduates. The curriculum in Pharmacy provides for such varied and extensive training that graduates can take up several different lines of work. They can matriculate in any standard school or college of medicine or dentistry without condition; they can qualify as analytical chemists, prescription dispensers, bacteriologists, traveling salesmen, manufacturing pharmacists and chemists, science instructors in high schools, physicians' assistants, and in other positions requiring a knowledge of chemistry, medicine, and pharmacy. Those graduates who have had good experience in practical drug-store work are in demand as managers of drug stores. Students who have completed advanced work in pharmacy and who have received the M.S. degree are in demand as instructors in schools of pharmacy; chemists for wholesale drug firms and other manufacturing firms; experts with the Bureau of Chemistry of the United States Department of Agriculture; with state and city health departments; as Federal food and drug chemists; as technicians in hospitals; and in a number of other branches of science requiring a knowledge of drugs, chemicals, clinical specimens and technical materials.

Pharmacy as a Profession for Women. There is no field of work that offers more desirable opportunities for women than pharmacy. The work is clean, pleasant, agreeable, and women are peculiarly adapted to it. The technical work of manufacturing and dispensing drugs involves the traits of neatness and accuracy that, generally speaking, are more predominant in women than in men. In store arrangement, window trimming, and other work requiring a knowledge of color harmony and display, a woman is naturally more adept than a man. More than seventy-five percent of all drugs and druggists' sundries are purchased by women, and it is natural that those patrons should prefer to deal with women.

Correspondence. Inquiries regarding the School of Pharmacy may be addressed to the Dean. Students desiring to enter will be provided with proper blanks for filing credentials. These may be obtained from the Registrar's office.

O. S. P. A. Educational Fund. Oregon druggists assembled at the thirty-sixth annual convention of the Oregon State Pharmaceutical Association held in the Pharmacy Building July, 1925, established an Educational Fund. The chief purpose of the fund is to assist worthy students of the School of Pharmacy who have a reasonable amount of means to complete their course. Oregon druggists are donating an average of \$100 each, payable on demand or in ten installments. Wholesale drug firms doing an extensive business with the drug trade of Oregon are also contributing gen-

erously. A fund adequate for the needs of the School of Pharmacy is assured. The operation of the Fund is under the direction of a Board of Trustees elected from membership in the O. S. P. A. As a basis for granting loans students are required to submit on the application form a budget, references, the name of a guarantor, and other information regarding their assets and liabilities. The average loan per student per year is \$100. The Educational Fund notes bear four percent interest.

Equipment. The Pharmacy Building affords modern facilities, including a model drug store, a complete sign-card and window-trimming department, special laboratories, museum, library and study room. All laboratories and lecture rooms are equipped with all apparatus necessary for practical pharmaceutical instruction. Students have individual desks which are supplied with the materials necessary for the specific course. Students can borrow as much additional apparatus as they may need from the three pharmacy stockrooms. In order to conserve students' time in laboratory courses, all stock is placed on side shelves. Students are thus enabled to repeat an experiment as many times as are necessary to get accurate results.

In addition to the usual permanent fixtures and apparatus for individual students, the School is supplied with a number of pieces of special apparatus such as pharmaceutical stills, tablet and pill machines, filter presses, hand and power drug mills, special percolators, gas and electric drying ovens, and such other apparatus as is necessary for modern pharmaceutical instruction. The pharmacognosy room contains several hundred samples of crude drugs, official and unofficial preparations, and active principles of drugs used for study and identification purposes. There is also a collection of authentic crude drugs and their preparation donated by Eli Lilly company. This collection is used as a standard for all new supplies of drugs received. The special laboratory for commercial pharmacy is very well equipped for sign-card painting and display material. In addition to brushes, pens, paints, and other apparatus used in show-card work, each desk is provided with an air-brush outfit useful in shading of letters and drawings.

Drug Laboratory. For the purpose of determining the purity and regulating the sale of medicinal substances in the State of Oregon, the Oregon State Board of Pharmacy, in October, 1927, established in the Pharmacy Building a State Drug Laboratory, which is under the supervision of trained chemists.

The object of the laboratory is to enforce Section 8646 of the Oregon laws fixing the responsibility for the purity of drugs upon the pharmacist. Realizing that druggists are not equipped to assay pharmaceutical preparations, the Board of Pharmacy established the laboratory primarily to assist them to dispense pure drugs. By means of the laboratory it is also the object of the Board to prevent dishonest practice and gross adulteration of medicinal substances sold by individuals other than pharmacists, and to make it a legal necessity that all drugs sold in the state shall be true to label.

The funds required to equip and maintain the laboratory are furnished by the Oregon State Board of Pharmacy. The room, permanent laboratory furniture, and other requisites are furnished by the College. The director

of the laboratory is also a member of the faculty of the School of Pharmacy, and in addition to teaching undergraduate courses directs advanced students in their research work to qualify for the degree of Master of Science.

Because of the superior equipment in the drug laboratory together with the excellent facilities for original work provided by the College, it is possible for advanced students to do creditable work on the natural drug resources of Oregon and the Pacific Northwest; on the perfection in the manufacture of pharmaceuticals; to determine the stability and the best methods of preserving drug preparations; to collaborate with the Bureau of Chemistry of the United States Department of Agriculture, in the revision of the U. S. P. and N. F., and in fact along all lines of drug analysis.

Entrance Without Drug-Store Experience. Students are not required to have had drug-store experience upon entering the College. Such experience is very desirable, however, and students are advised to acquire one or preferably two years before taking up the courses in Pharmacy. No secondary or advanced credits are allowed for drug-store experience, but the State Board of Pharmacy requires one year of practical experience before registration can be granted.

Requirements for Graduation. The degree of Bachelor of Science in Pharmacy is conferred upon those who have satisfactorily completed the subjects as outlined in the four-year curriculum. This in the aggregate comprises 192 credits of collegiate work in the case of women, and 207 in the case of men, of which latter 11 are taken in military science and tactics.

Until July, 1933, the degree of Pharmaceutical Chemist will be conferred upon those who have completed satisfactorily the subjects of the three-year curriculum as outlined in the College Catalogue of 1929-30. This in the aggregate comprises 144 credits of collegiate work in the case of women, and 155 in the case of men, including physical education and military science and tactics.

The general requirements for the M.S. degree are outlined in the section of the catalogue devoted to Graduate Study.

Curriculum in Pharmacy

B.S. Degree

	Freshman Year		
	1st	2d	3d
English Composition (Eng 101, 102, 103).....	3	3	3
General Chemistry (Ch 104, 105, 106).....	5	5	5
¹ German or French.....	3	3	3
Theoretical Pharmacy (Phr 121, 122).....	3	3	3
Pharmaceutical Processes (Phr 123).....	.....	.....	3
Commercial Pharmacy (Phr 221, 222).....	.....	2	2
Physical Education, General Hygiene, Military Science (Men).....	2½	2½	2½
Physical Education (Women).....	(1)	(1)	(1)
Social Ethics (PE 121), General Hygiene (H 110) (Women).....	(½)	(½)	.....
	16½	18½	18½

¹Medical schools require a reading knowledge of French or German. To meet this requirement, it is necessary to have twenty term credits in one of the languages.

	Term credits		
	1st	2d	3d
Sophomore Year			
Organic Chemistry (Ch 226, 227).....	5	5	5
Quantitative Analysis (Ch 244).....	3	3	3
General Zoology (Z 101, 102, 103).....	3	3	3
Principles of Accounting (BO 101).....	3	3	3
Introduction to Economics (ES 391).....	2	2	2
Introduction to Business Law (PS 263).....	2	2	2
Principles of Dietetics (FN 200) (Women), or elective (Men).....	2	2	2
Physical Education (Men).....	1 ³ / ₈	1 ³ / ₈	1 ³ / ₈
Physical Education (Women).....	(1)	(1)	(1)
Military Science and Tactics.....	2	2	2
¹ Approved electives.....	2	4	4
	17 ³ / ₈	17 ³ / ₈	17 ³ / ₈
Junior Year			
Mammalian Anatomy (Z 211, 212, 213).....	3	3	3
General Bacteriology (Bac 204).....	3	3	3
Pathogenic Bacteriology (Bac 332).....	3	3	3
Immunity and Serum Therapy (Bac 333).....	3	3	3
Practical Pharmacognosy (PhP 351, 352).....	2	4	3
Natural Products and Drug Principles (PhA 334).....	3	3	3
Pharmacopoeial Testing (PhA 363).....	3	3	3
Inorganic Pharmacy (Phr 353).....	4	4	4
Pharmaceutical Calculations (Phr 321).....	3	3	3
Galenical Pharmacy (Phr 333).....	3	3	3
Galenical Preparations (Phr 343).....	3	3	3
¹ Approved electives.....	3	3	3
	18	16	18
Senior Year			
Practical Pharmacology (PhP 451, 452).....	3	3	3
Experimental Pharmacology (PhP 453).....	3	3	3
Proprietary Remedies (Phr 421).....	3	3	3
U. S. Pharmacopoeia and National Formulary (Phr 432, 433).....	3	3	3
Drug Store Practices (Phr 423).....	3	3	3
Prescription Lectures (Phr 461), Prescription Incompatibilities (Phr 462), Prescription Compounding (Phr 463).....	4	4	3
Manufacturing Pharmacy (Phr 441).....	3	3	3
Physiological Chemistry (Ch 464).....	3	3	3
Approved electives.....	4	4	4
	17	17	16

ELECTIVE GROUPS

Specialization in various fields of pharmacy is made possible by selection of electives in the junior and senior years. Students with special interest in retail pharmacy, pharmaceutical chemistry, pharmacology-pharmacognosy, or some other well-defined objective, will be aided in their choice of elective subjects if they will consult with the Pharmacy faculty.

Practical Pharmacy

In the department of Practical Pharmacy are included elementary, basic, and advanced courses in pharmacy, together with advanced courses in commercial pharmacy.

DESCRIPTION OF COURSES

Phr 120. **Theoretical Pharmacy.** An abbreviated course identical with Phr 121, 122 except that no laboratory work is offered. Admission to this course is restricted to students transferring from other institutions having advanced standing credit for one year of general chemistry and other

¹All medical and dental schools require twelve credits in physics for entrance.

science courses. This course is designed to complete Theoretical Pharmacy in one term.

Any term; 4 credits; 3 lectures; 2 recitations.

Phr 121, 122. **Theoretical Pharmacy.** A systematic study of the official standards, processes and apparatus used in pharmacy. Part I of Arny's Principles of Pharmacy, together with mimeographed lecture and laboratory outlines, is used. The laboratory work is designed to illustrate each topic taken up in lecture, such as weights and measures, specific gravity, uses of heat, solution, the grinding and extraction of drugs and other processes.

First and second terms; 3 credits each term; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$3.00 each term. Deposit \$1.00 each term.

Phr 123. **Pharmaceutical Processes.** The fundamental manipulation used in the manufacture of simple galenical preparations. The manufacturing processes discussed in lecture are employed in the laboratory in compounding the simpler preparations of the U. S. P. and N. F.; also a few common unofficial preparations.

Prerequisite: Phr 120 or 122. Third term; 3 credits; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$4.00. Deposit \$1.00.

Phr 221, 222. **Commercial Pharmacy.** The printing of labels, price tags, and simple display signs; preparation of display standards and backgrounds; and other practical display work. The model drug store and sign-card painting and window-trimming department are used as laboratories. Printed laboratory notes and assigned readings. Students are required to furnish brushes and pens.

Second and third terms; 2 credits each term; 3 two-hour laboratory periods. Fee \$3.50 each term. Assistant Professor Britt.

Phr 321. **Pharmaceutical Calculations.** Study of calculations common to pharmacy; weights and measures; percentage solution; alligations; specific gravity; thermometers; etc.

Prerequisites: Phr 121, Ch 104. Third term; 3 credits; 2 lectures; 1 recitation. Professor Gilfillan.

Phr 333. **Galenical Pharmacy.** A study of the various types of galenical preparations as outlined in Part II of Arny's Principles of Pharmacy and in the U. S. Pharmacopoeia and National Formulary.

Prerequisites: PhP 351, Ch 226. Third term; 3 credits; 2 lectures; 1 recitation. Professor Gilfillan.

Phr 343. **Galenical Preparations.** Laboratory work in the preparation of simple galenicals, such as waters, pills, emulsions, suppositories, ointments, troches. Frequent identification examinations are held to familiarize students with the characteristics of the drugs they use, as well as of the preparations they make.

Prerequisites or parallel: PhP 351, Ch 226. Third term; 3 credits; 3 three-hour laboratory periods. Fee \$8.50. Deposit \$1.50.

Professor Gilfillan.

Phr 344. **Household Preparations.** Study of the more common medicinal remedies, technical preparations, toilet requisites, and druggists' sundries used in the home. In the laboratory students prepare representative samples of each class of preparations and study the mode of application and specific use. Stain removers. Equipping and proper labeling of a medicine cabinet. Representative samples of stock and sundries are used for demonstration. Elective without prerequisites.

Any term; 3 credits; 1 lecture; 1 recitation; 1 three-hour laboratory period. Fee \$3.00. Deposit \$1.00.
Dean Ziefle and assistants.

Phr 353. **Inorganic Pharmacy.** Inorganic chemicals and their preparations used in medicine. Part III of Arny's Principles of Pharmacy is used as a lecture outline. In the laboratory students make representative samples of certain types of chemicals, as well as tests for impurities, such as arsenic, lead, antimony, etc.

Prerequisite: Ch 105. First term; 4 credits; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$5.00. Deposit \$1.00. Professor Gilfillan.

Phr 421. **Proprietary Remedies.** A brief descriptive survey of the more important preparations of various pharmaceutical manufacturers; a consideration of their composition, use, and therapeutic value. The text "New and Non-official Remedies" is supplemented by current literature and laboratory reports. Demonstration material includes most of the remedies considered.

Prerequisites: Phr 343, PhP 352, Ch 227. First term; 3 credits; 2 lectures; 1 recitation.
Professor Gilfillan.

Phr 423. **Drug Store Practices.** The stock and equipment of the model drug store are used for instruction in practical drug store technique, including salesmanship, store arrangement, show-case and window trimming, inventory, keeping of narcotic and poison records, taking prescriptions over telephone, systematizing drug stock, and store arrangement. Since the stock of the model drug store consists of donated material, nothing is actually sold or dispensed. This course is designed for seniors who have not had practical drug-store experience.

Any term; 3 credits; 1 lecture; 1 recitation; 1 three-hour laboratory period. Fee \$3.00.
Dean Ziefle.

Phr 424. **Drug Store Practices.** Designed for seniors in Pharmacy who have had at least one year of practical experience in a drug store. In addition to stressing salesmanship and show-case and window trimming as applied to the drug business, students are instructed in the more advanced phases of the business management of a drug store. Not open to students having credit in Phr 423.

Any term; 3 credits; 1 lecture; 1 recitation; 1 three-hour laboratory period. Fee \$3.00.
Dean Ziefle.

Phr 432, 433. **U. S. Pharmacopoeia and National Formulary.** All drugs in United States Pharmacopoeia and National Formulary, as well as all important unofficial drugs and preparations in the dispensaries studied with emphasis on composition, uses, methods of manufacture, reasons for

each step in process of manufacture, and all other important data. Complete review of all pharmacy subjects; study of typical state board questions; grounding in pharmaceutical legislation, identification of drugs and preparations, as well as other subjects which will prepare students for both state pharmacy examinations and efficient service in practical drug-store work.

Prerequisites: Phr 343, PhP 352, Ch 227. Second and third terms; 3 credits each term; 2 lectures; 1 recitation. Professor Gilfillan.

Phr 441. **Manufacturing Pharmacy.** This course deals with the manufacture of the more complex pharmaceuticals involving chemical reactions in their preparation. The aim of the course is to familiarize students with the accepted methods of manufacture of drugs in order that they may prepare small amounts of chemicals often required in compounding special prescriptions.

Prerequisites: Phr 333, 343; Ch 106, 227. First term; 3 credits; 3 three-hour laboratory periods. Fee \$8.50. Deposit \$1.50.

Associate Professor Stuhr.

Phr 461. **Prescription Lectures.** The theory of prescription compounding as outlined in Scoville, *Art of Compounding*, is made the basis of the course. The aim is to familiarize students with the approved methods of compounding prescriptions containing ordinary remedies, as well as proprietaries and the newer remedies.

Prerequisites: Phr 343; PhP 352; Ch 106, 227. First term; 4 credits; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$4.00. Deposit \$1.00.

Associate Professor Stuhr.

Phr 462. **Prescription Incompatibilities.** Several hundred incompatibilities in prescriptions studied from the point of view of the cause of the incompatibility, and the best method of overcoming it. Practical druggists throughout the state send in incompatible prescriptions for advice as to the best method of compounding, and these together with the regular type prescriptions as outlined in Ruddiman's *Incompatibilities in Prescription* and in current pharmaceutical literature are made the basis of the course.

Prerequisites: Phr 461, Ch 226. Second term; 4 credits; 2 lectures; 1 recitation; 1 three-hour laboratory period. Fee \$4.00. Deposit \$1.00.

Associate Professor Stuhr.

Phr 463. **Prescription Compounding.** In this course the students apply the principles learned in Phr 462 to the actual compounding of prescriptions. More than one hundred prescriptions representing the general types met with in actual practice are compounded. The latter part of the course deals with the management of a prescription department, the compounding of toilet and domestic preparations, as well as many other methods common to a pharmacy. In preparation for the state pharmacy examination students study the physical characteristics of all common drugs, chemicals, preparations, and synthetics, and are examined in identification.

Prerequisites: Phr 462, Ch 227. Third term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$7.50. Deposit \$1.50.

Associate Professor Stuhr.

NOTE: For graduate courses in Pharmacy see page 379.

Pharmaceutical Analysis

COMPRISED in the department of Pharmaceutical Analysis are all courses in Drug Analysis, qualitative and quantitative. These courses are open only to juniors, seniors, and graduate students. The department is under the supervision of the Director of the Drug Laboratory of the Oregon State Board of Pharmacy.

DESCRIPTION OF COURSES

PhA 334. Natural Products and Drug Principles. A combined lecture and laboratory course on the natural products, active constituents of drugs, synthetic drugs, and newer remedies. The purpose of the course is to study all official and unofficial drugs in these classes in groups, the methods of isolation and manufacture, physical characteristics, incompatibility, medicinal and technical uses, confirmatory tests, and tests for adulteration and deterioration.

Prerequisites: Ch 106, 227. First or third term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$7.50. Deposit \$1.00. (g $\frac{3}{2}$)

Assistant Professor Britt, Mr. Beals.

PhA 363. Pharmacopoeial Testing. The quantitative testing of the more common official and unofficial drugs for their purity and strength. Students analyze the preparations made in the laboratory, as well as other substances used in dispensing practice.

Prerequisites: PhA 334, Ch 227. Second term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$7.50. Deposit \$1.00. (g $\frac{3}{2}$)

Assistant Professor Britt, Mr. Beals.

PhA 481. Toxicology. Detection of the common inorganic and organic poisons, with emphasis on alkaloids and synthetics. Tests used are those commonly accepted as evidence in medico-legal cases. Pharmacological action of each poison and antidotal treatment.

Prerequisites: PhP 352; PhA 334; Ch 106, 227. Any term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$7.50. Deposit \$1.00. (G)

Professor Gilfillan.

PhA 484, 485, 486. Quantitative Drug Analysis. Quantitative analysis of crude drugs and drug preparations by physical means or chemical methods. Polariscopes, refractometers, and other special apparatus are used. Students showing proficiency in this course are permitted to do special work in the State Drug Laboratory.

Prerequisites: PhA 334, 363; Ch 227. Three terms; 3 credits each term; 1 lecture; 2 three-hour laboratory periods. Fee \$7.50 each term. Deposit \$1.00 each term. (G)

Professor Gilfillan.

Pharmacology and Pharmacognosy

COURSES in the culture and identification of medicinal plants, together with all courses dealing with the physiological action of drugs and their therapeutic value, are included in the department of Pharmacology and Pharmacognosy.

DESCRIPTION OF COURSES

PhP 351. Practical Pharmacognosy. Study of animal and vegetable drugs with reference to their habitat, botanical classification, official titles, synonyms, constituents, uses, identification, and standardization.

Prerequisites: Phr 123; Ch 106, 227. First term; 2 credits; 2 lectures; 1 recitation. Fee \$2.50. Associate Professor Stuhr.

PhP 352. Practical Pharmacognosy. A continuation of PhP 351.

Second term; 4 credits; 3 lectures; 2 recitations. Fee \$3.50. Associate Professor Stuhr.

PhP 356. Microscopy of Drugs. Microscopic structure and characteristics of drugs; methods of identifying powdered drugs and of detecting adulterations.

Prerequisites: PhP 352, Ch 226. Any term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$5.00. Deposit \$1.00.

Associate Professor Stuhr.

PhP 451, 452. Practical Pharmacology. Physiological action and medicinal uses of drugs on the human organism. Drugs classified according to the arrangement in Cushny's Pharmacology, the subjects treated in the following order: factors influencing the use of remedies; definitions of medical terms; dose and action; official definitions and constituents. Preparation for the state board examinations in this subject. State and national laws regarding the sale of poisons and narcotics receive special attention.

Prerequisites: Phr 343; PhP 352; Ch 106, 226. First and second terms; 3 credits each term; 2 lectures; 1 recitation. Associate Professor Stuhr.

PhP 453. Experimental Pharmacology. A continuation of PhP 451, 452, but with the introduction of laboratory work and demonstration. Biological tests are made of some of the more important drugs of the U. S. P. and N. F.

Prerequisite: PhP 452. Third term; 3 credits; 2 lectures; 1 three-hour laboratory period. Fee \$4.00. Deposit \$1.00. Associate Professor Stuhr.

PhP 454. Pharmacological Standardization. Biological assaying, employing the methods of the U. S. P., together with certain unofficial but well-recognized procedures.

Prerequisites: PhP 453, Ch 227, Bac 332, Z 213. Any term; 3 credits; 1 lecture; 2 three-hour laboratory periods. Fee \$6.00. Deposit \$1.00. (G)

Associate Professor Stuhr.

Graduate Courses in Pharmacy

ALL three departments in the School of Pharmacy offer their graduate work conjointly. The course designations below apply to any graduate work in the School.

DESCRIPTION OF COURSES

Phr 601, 602, 603. **Seminar.** Instruction and practice in the method of attack of a scientific problem, the use of pharmaceutical literature, and the preparation of written reports on scientific investigations.

Three terms; 1 credit each term; 1 period. (G)

Phr 691, 692, 693. **Graduate Study and Research.** Under this designation are registered all investigations in Toxicology, Drug Synthesis, Pharmacognosy, Commercial Pharmacy, Pharmaceutical Analysis, or Pharmacology, which may be in support of the major investigation, but which are not to be included in the thesis presented for the degree.

Three terms; credits and hours to be arranged. (G)

Phr 694, 695, 696. **Graduate Thesis.** The thesis presented for the master's degree must cover a major investigation in one of the three departments of the School.

Three terms; credits and hours to be arranged. Fees and deposits to be arranged. (G) Dean Zieffle, Professor Gilfillan, Associate Professor Stuhr, Assistant Professor Britt.

Department of Religion

ERNEST WILLIAM WARRINGTON, M.A., Professor of Religion.

ESTABLISHMENT of a chair of Religion at the College was authorized in 1928, and the first courses were offered in the fall term of 1928-29. During the first year the registration was as follows: first term 27, second term 83, third term 110; total for the year 220.

While the College has given cordial encouragement to the inauguration of instruction in Religion open to all the students of the institution, the department of Religion is sponsored and financed entirely by private auspices and is administered by a board of control composed of College leaders and representatives of the religious interests of the state. The department of Religion is non-sectarian in spirit and organization. The instruction is organized according to the same standards of authoritative scholarship demanded in the other departments throughout the institution.

The purpose of the department of Religion is threefold:

(1) The courses in Religion seek to develop an appreciation of the nature and processes of religion in the light of conditions affecting life today, thus enabling students to make such adjustments as will vitalize religion for them.

(2) The courses are therefore determined for the most part by the needs of the larger group of students at the College who are preparing for service in the fields of engineering, agriculture, home economics, teaching, business, etc.

(3) Special attention is given to the religious training of those students who anticipate lay-leadership in the churches of their local communities, as well as to those who plan to enter social service or the religious vocations, such as missionary work, the ministry, directors of religious education, pastor's assistant, professional leadership of religious organizations, etc.

DESCRIPTION OF COURSES

R 211, 212. **The New Testament and Its Historical Background.** First term: the life of Jesus. Second term: the early Christian church. Special attention is given to the times and conditions out of which the New Testament writings came.

First and second terms; 2 credits each term; 2 recitations.

Professor Warrington.

R 220. **The Sermon on the Mount.** An intensive study of a limited New Testament passage. Consideration is given to the content of Jesus'

teaching as embodied in the selected passage, and to the non-technical method of Bible study.

Any term; 1 credit; 1 recitation.

Professor Warrington.

R 225. **The Prophets and Their Messages.** The early Hebrew prophets as heralds of a new day, spokesmen of a new idealism; significance of the prophets and the value of their messages for the present day.

Second or third term; 1 credit; 1 recitation.

Professor Warrington.

R 320 (Hst 320). **Historical Background of the Bible.** This course is given by the department of History. A study of Hebrew history and civilization with particular reference to its Oriental and Graeco-Roman background.

First term; 3 credits; 3 lectures or recitations.

Associate Professor Vaughn.

R 370. **Principles of Religious Leadership.** The class is open only to those on the campus or in the local community who are engaged, during the term, in some religious activity. In the theory work consideration is given to the psychology of human nature, work with individuals, group thinking, social conditions determining program, value of social activities, place of the Bible in religious education, and similar topics.

First or second term; 2 credits; 2 recitations.

Professor Warrington.

R 461. **Orientation in Religious Thinking.** An introduction to the nature and function of religion in the light of new scientific discoveries and significant trends in present-day life and thought; the present status of religion; essential attitudes for a fruitful study of religion; basis of authority; evaluation of the idea of God; significance of religion in a world of change; and other topics.

First term; 3 credits; 3 lectures. (g)

Professor Warrington.

R 462. **The Great Religions of the World.** A comparative study of the religions that command a large following today, such as Hinduism, Buddhism, Confucianism, Judaism, Christianity and Islam. It is intended to introduce the student to the essential facts about each religion studied.

Second term; 3 credits; 3 lectures. (g)

Professor Warrington.

R 463. **The Methods of Religion.** A study of the spiritual energy in human personality, dealing with such subjects as the meaning and function of prayer and worship, the significance of church fellowship, benevolence and faith, the belief in immortality, and related subjects.

Third term; 3 credits; 3 lectures. (g)

Professor Warrington.

School of Vocational Education

WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.

JAMES RALPH JEWELL, Ph.D., LL.D., Dean of the School of Vocational Education.

CARL WALTER SALSER, Ed.M., Head of Personnel and Placement Service.

CLYTIE MAY WORKINGER, Personnel and Placement Secretary.

RUTH LANO, Secretary to the Dean.

Agricultural Education

HEBER HOWARD GIBSON, M.A., Professor of Agricultural Education.

OLIVER KENNETH BEALS, B.S., Critic Teacher in Agricultural Education.

Commercial Education

LEE CLEVELAND BALL, M.B.A., Associate Professor of Accounting and Commercial Education.

BERTHA WHILLOCK STUTZ, M.S., Associate Professor of Secretarial Training and Commercial Education.

MIRIAM EGAN SIMONS, M.A., Critic Teacher in Commercial Education.

Education

JAMES RALPH JEWELL, Ph.D., LL.D., Professor of Education.

CARL WALTER SALSER, Ed.M., Professor of Education.

ERNEST WILLIAM WARRINGTON, M.A., Professor of Religion.

FRANK WINTHROP PARR, Ph.D., Professor of Education.

RILEY JENKINS CLINTON, A.M., Associate Professor of Education.

LESTON LEWIS LOVE, M.S., Assistant Professor of Education.

Home Economics Education

*FLORENCE BLAZIER, M.A., Professor of Home Economics Education.

MERLE BONNEY DAVIS, B.S., Critic Teacher in Home Economics Education;
Acting Head, Home Economics Education.

FRANCES MAURINE WRIGHT, B.S., State Supervisor and Teacher Trainer in
Vocational Home Economics.

LURA AMELIA KEISER, B.S., Critic Teacher in Home Economics Education.

*On leave of absence.

Industrial Education

GEORGE BRYAN COX, B.S., Professor of Industrial Education; Professor of Industrial Arts; Director of Engineering Shops.

ORVILLE DANIEL ADAMS, Associate Professor of Trade and Industrial Education.

FRANK LLOYD FRANCE, B.S., Instructor in Industrial Education; Critic Teacher in Industrial Education.

Psychology

JESSE FRANKLIN BRUMBAUGH, M.A., Professor of Psychology.

HERBERT REYNOLDS LASLETT, Ph.D., Professor of Educational Psychology; Director of Training.

OTHNIEL ROBERT CHAMBERS, Ph.D., Professor of Vocational Psychology.

THE School of Vocational Education affords preparation for educational leaders in the various vocational fields, both teaching and administrative, in elementary and secondary schools. A department of Industrial Pedagogy was first established at the College in 1909 for the purpose of giving instruction to prospective teachers of industrial subjects in common and high schools. Following the enactment of the Federal Smith-Hughes Act in 1917, the State Board for Vocational Education, appointed by the Governor to administer the Smith-Hughes funds in Oregon, designated the College as the institution to train teachers of vocational subjects as provided in the Federal Act. In the expansion and development of the work incident to the acceptance by the College of this responsibility, the School of Vocational Education was organized in 1918, comprising six departments of instruction. The purpose of the School has remained essentially that of the original department: the training of teachers of the vocations of agriculture, commerce, home economics, and the trades and industries. Students receive their technical training in the different schools in which their major interest lies, such as Agriculture, Commerce, Home Economics, or Engineering and Mechanic Arts.

In 1921, in further development of the work of the School in meeting the increasing demand throughout the state for teachers of vocational subjects, a degree curriculum in Vocational Education was established permitting a range of technical electives according to the type of service in the vocational education field which the student may be preparing to enter. This curriculum affords training for supervisory and administrative positions demanding knowledge of a number of vocations, rather than of only one, together with a grasp of general problems in the vocational education field; for teaching combinations of vocational subjects, such as agriculture and manual training, home economics and commerce; and for teaching a vocational subject in combination with related subjects, such as agriculture with science, manual training with shop mathematics, etc. In small school systems where specialists cannot be employed for all the vocational subjects, there is a demand for teachers of such combinations of subjects.

In planning the courses three principles have been observed: first of all, every teacher should be a master of the subject-matter which he is to teach; second, every teacher should understand the minds of the pupils to be taught and the professional problems to be met; third, every teacher should have a broad and liberal education so that he may fill his proper place in the citizenship of community, state, and nation.

Curricula. The courses of the School of Vocational Education afford training for two classes of students:

(1) Those who are majoring in Agriculture, Commerce, Home Economics, or Industrial Arts and who carry a minor in Education, which is the minimum professional preparation for teaching. (For the requirements for teacher's certificate in Oregon see below.) Students in this group are registered in the school in which they take their major.

(2) Those who are majoring in Vocational Education and carrying minors in one or more of the other schools. Students in this group are registered in the School of Vocational Education. Candidates for a degree in Vocational Education will present 36 credits in education and psychology including the required 23 credits in education, 36 credits in a chosen combination of teaching fields, and 36 credits in degree-granting schools other than Vocational Education.

Students majoring in Vocational Education include those preparing for administrative and supervisory positions in the vocational education field as well as those preparing for teaching in small high schools where they will teach two or more different subjects.

All students preparing for teaching are expected to advise with the Dean of the School of Vocational Education in selecting their Education subjects. All students preparing to teach a technical subject must meet the subject-matter requirements of the respective technical schools.

Teacher's Certificate. Students in either of the foregoing groups are eligible on graduation to certification for teaching in Oregon high schools, as provided in the following Oregon School laws:

Certificates shall be issued to graduates from standard colleges or universities who have completed 120 semester hours (180 term hours) including 15 semester hours (23 term hours) in education as follows:

1. One-year state certificates shall be issued without examination, upon application to such graduates of standard colleges and universities, authorizing them to teach only in the high schools of this state.

2. The holder of a one-year state certificate, issued in accordance with the provisions of this section shall, after six months' successful teaching experience in this state and upon the recommendation of the county superintendent of the county in which the applicant last taught, receive, without examination, a five-year state certificate authorizing him to teach only in the high schools of this state.

3. The holder of a five-year certificate issued in accordance with the provisions of this section shall, after thirty months' successful teaching experience in this state and upon the recommendation of the county superintendent of the county in which the applicant last taught, receive, without examination, a state life certificate authorizing him to teach only in the high schools of this state.

4. The holder of a one-year certificate, or a five-year state certificate, or a life certificate, secured in accordance with the provisions of this section, is hereby authorized to act as city superintendent of schools of any city.

Fees are as follows, payable to the state superintendent of public instruction:

One-year certificate	\$1.00
Five-year certificate (after 6 months teaching)....	\$2.00

For certification in Oregon high schools it is necessary to offer three term hours each in Principles of Teaching, Educational Psychology, and Secondary Education, and after June, 1931, in Supervised Teaching.

Personnel and Placement Service. *Personnel.* The purpose of the personnel service is to be of assistance to individual students of all schools and departments of the College. Students are invited and encouraged to make use of this service from the time they enter as freshmen until they leave college and are happily and effectively employed in some phase of the world's work. Full data accumulated concerning the interests, abilities, and accomplishments of each student are regarded as strictly confidential and are used only in his behalf. Personnel methods and vocational guidance assistance are also offered to such high schools of the state as may care to make use of the service.

Placement. The personnel service also cooperates in every way possible with the various schools and departments of the campus in helping both graduates and undergraduates to find suitable employment opportunities when they leave college. Contact with employers in the various fields of business, industry, and the professions is encouraged and facilitated, and information is collected and filed for the use of students.

Information concerning students is collected and made available to employers who may be considering students for temporary or permanent positions.

Teacher Placement. Full information is collected concerning the preparation and experience of graduates of the College who are prepared and qualified to teach. This information is available at any time to superintendents and boards of education. Certification requirements and school laws of other states are made available to students. Graduates of the College elected to teach in other states are recommended for certificates when endorsed by the Dean of Vocational Education and the Registrar. To pay in part for preparing credentials, a fee of one percent of the first year's salary is charged all who are placed in teaching positions through this office.

Required Education Courses. The courses for those registered in the School of Vocational Education are shown in the Curriculum in Vocational Education. The sequence given must be followed, prerequisites being observed. Students registered in the schools of Agriculture, Commerce, Engineering, or Home Economics, who are preparing for teaching, will find their required Education courses listed under the appropriate department in the School of Vocational Education.

All students planning to teach will note that the 23 term credits in professional work necessary for certification should include the following requirements: Educational Psychology, Secondary Education, Measurement in Education, Principles of Teaching, History of Education, Special Methods, and Supervised Teaching. The number of credits in the last two

varies. Where the total of required courses is less than 23 credits, the deficit will be made up from elective courses in Education, chosen with the approval of the Dean. Civic Education (Ed 422) is necessary for certification in certain states. Students should, in every case, read the description of the courses and note prerequisites before registering.

Equipment. The technical courses of the School of Vocational Education are given in the schools of Agriculture, Commerce, Engineering, and Home Economics. The prescribed courses, except those in Education and Psychology, are given in the School of Basic Arts and Sciences and other departments. The equipment in these schools and departments is available to the students in the School of Vocational Education. The instructors to the professional courses in Education also use this equipment. For the courses in supervised teaching, there is available, in addition, the equipment maintained by the Corvallis Board of Education and the College.

Fees. A fee of \$5.00 a term, or \$15.00 a year, is required of all students in Vocational Education, this fee covering all course and laboratory fees in Vocational Education subjects. Students registered in other schools who pursue courses in the School of Vocational Education pay fees as indicated in connection with the various courses.

Curriculum in Vocational Education¹

B.S. Degree

	Term credits		
	1st	2d	3d
Freshman Year			
English Composition (Eng 101, 102, 103).....	3	3	3
Physical or Biological Science.....	3	3	3
Methods of Study (Ed 101).....	3	---	---
The Nature of the World (Ed 100).....	---	3	---
Social Orientation (Ed 121).....	---	---	3
Physical Education (Women).....	(1)	(1)	(1)
Social Ethics (PE 121).....	($\frac{1}{2}$)	---	---
General Hygiene (H 110) (Women).....	---	($\frac{1}{2}$)	---
Physical Education, General Hygiene, Military Science (Men).....	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
² Electives	6	6	6
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$
Sophomore Year			
General Psychology (Psy 201).....	5	---	---
History of Western Civilization II, III (Hst 212, 213).....	---	3	3
Elementary Industrial Journalism (IJ 200).....	---	---	3
Extempore Speaking (PSp 254).....	3	---	---
Educational Psychology (Psy 222).....	---	3	---
Secondary Education (Ed 212).....	---	---	3
Physical Education (Women).....	(1)	(1)	(1)
Physical Education (Men).....	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Military Science and Tactics.....	2	2	2
² Electives	7	9	6
	17 $\frac{1}{2}$	17 $\frac{1}{2}$	17 $\frac{1}{2}$

¹To count for credit toward graduation, any elementary year-courses in the sciences, foreign languages, stenography or typing must be completed (e.g., Ch 101, 102, 103) before credit is allowed. If an elementary foreign language course is undertaken in this College two years of it must be completed if it is to be counted toward graduation.

Students who intend to teach commercial subjects must take two years of accounting and one year of typing, or two years of stenography and typing and one year of accounting. For curriculum in Commercial Education see page 229.

²These electives should be chosen in consultation with the Dean, with requirements of certification kept in mind. At least 36 credits of the total elective work of the student must be in technical schools of the College. It is recommended that all students not carrying heavy science programs register for Z 353 during the junior or senior year.

	Term credits		
	1st	2d	3d
Junior Year			
General Sociology (ES 305).....	4	---	---
Outlines of Economics (ES 203).....	---	4	---
National Government (PS 301).....	---	---	3
Principles of Teaching (Ed 311).....	---	3	---
Special Methods.....	---	---	3
English (Literature).....	3	3	3
Physical Education (Women).....	($\frac{1}{2}$)	($\frac{1}{2}$)	($\frac{1}{2}$)
¹ Electives.....	10	7	8
	17	17	17
Senior Year			
History of Education (Ed 241).....	3	---	---
Measurement in Education (Ed 433).....	---	3	---
Supervised Teaching (Ed 401).....	---	---	5
Physical Education (Women).....	($\frac{1}{2}$)	($\frac{1}{2}$)	($\frac{1}{2}$)
¹ Electives.....	14	14	12
	17	17	17

Agricultural Education

THIS department is responsible for the training of teachers and supervisors of agriculture in elementary and secondary schools, and the training for leadership in rural life and education. Special attention is given to the training of directors, supervisors, and teachers of agriculture as provided for by the Federal law for vocational education known as the Smith-Hughes Act. Certain field studies and extension activities are included within the scope of this department's work.

The department of Agricultural Education is a joint department within both the School of Agriculture and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

Preparation for Teaching Agriculture. Teachers of agriculture need to have a fundamental knowledge and a high level of doing ability in most of the departmental fields of the School of Agriculture. On account of requirements very little provision can be made in the Agricultural Education curriculum for electives. In order to increase the number of electives that can be taken during a four-year period, courses in Psychology and Education may be taken in the Summer Session prior to the junior or senior year.

Former graduates of the School of Agriculture may prepare themselves very satisfactorily for teaching agriculture by returning for a fifth year of work during which they can elect certain courses in Agriculture that are fundamental for teaching and also complete the required courses in Education.

Requirements in Agriculture.

- (1) Graduation from a college of agriculture of standard rank.
- (2) The course requirements in Agriculture can be met in either of two ways. First, by selecting a curriculum in Agricultural Education including requirements in both Agriculture and Education. Such a curricu-

¹See footnote ² on page 386.

lum should be arranged in conference with the head of the department of Agricultural Education and in keeping with the student's special needs, previous training, and experience. Second, by majoring in some department of the School of Agriculture and minoring in Education. This plan is recommended provided sufficient electives are available for meeting the course requirements in Agriculture as well as the 23 credits in Education required for state certification.

(3) Depending on the student's previous training and experience and his choice of subjects, 75 to 85 term credits of special work in Agriculture are desirable. The minimum credits required in the various departments of the School of Agriculture follow:

- (a) 11 credits in Agricultural Engineering
- (b) 11 credits in Animal Husbandry
- (c) 7 credits in Dairy Husbandry
- (d) 7 credits in Horticulture
- (e) 9 credits in Farm Crops
- (f) 8 credits in Farm Management and Agricultural Economics
- (g) 6 credits in Soils
- (h) 3 credits in Poultry Husbandry
- (i) 4 credits in Veterinary Medicine

(4) Former Smith-Hughes students in high school agriculture are advised to take advantage of the special provision described on page 114. This arrangement may make it possible for such students to obtain intensive training in more than one agriculture department.

As early as possible in his college course and as soon as he has decided on teaching agriculture, the prospective teacher should advise with the head of the department of Agricultural Education regarding the studies he should select in each of the fields in Agriculture mentioned above.

Requirements in Education. Not fewer than 23 credits in Education and Psychology, distributed as follows, the order of listing indicating the sequence by years and terms: *Junior year*, Educational Psychology (Psy 321) 5 credits, Secondary Education (Ed 212) 3 credits, Principles of Teaching (Ed 311) 3 credits. *Senior year*, Special Methods in Agriculture (AEd 411) 5 credits, Supervised Teaching (Ed 401, 402) 3 to 5 credits, Rural Survey Methods (AEd 533) 2 credits. Sufficient electives are to be chosen in consultation with the department head to make a total of 23 credits required for state certification in Agricultural Education.

Curriculum in Agricultural Education for Teachers of Agriculture in City Schools. In cooperation with the department of Landscape Architecture a special curriculum is arranged to meet the growing demands for teachers of agriculture and related sciences in the city schools of Oregon and elsewhere.

General Electives. Certain courses are open to all students in Agriculture and others who are interested in training for leadership in rural life. Special attention is called to AEd 431, Rural Education.

Graduate Study in Agricultural Education. Since the demands on teachers of agriculture the country over are becoming more exacting each year, graduate work in the fields of agriculture and education is desirable, and usually necessary for those who desire to enter the fields of supervision or teacher training. Programs of work leading to the degree of Master of Science are outlined by this department for students and teachers with approved standing.

DESCRIPTION OF COURSES

AEd 411. Special Methods in Agriculture. An analysis of problems and methods in teaching agriculture in secondary schools. Curriculum building and the teaching process; place and relationships of the teacher of Agriculture in the public school system and in a system of State and Federal supervision; community and extension activities; up-to-date methods in teaching agriculture with special attention to the use of local farm and community resources; the place and use of the farm project and other forms of supervised farm practice.

Prerequisites: Psy 321, Ed 212. First or second term; 5 credits; 5 recitations. Fee \$0.50. Professor Gibson.

AEd 421. Agriculture in Secondary Schools. A study of the organization, administration, and methods of teaching agriculture. This course is based largely on the use of materials obtained from records and reports and by means of excursions and field studies which are required for the work.

Prerequisite: Psy 321, Ed 212. First or second term; 5 credits; 5 recitations. Fee \$0.50. (G) Professor Gibson.

AEd 431. Rural Education. Elements in the development of leadership and of a community program in rural education based on an analysis of the conditions and structure of rural society and the psychology of farm life; needs of the elementary and rural high school; principles and methods of extension teaching including club work and forms of adult education. For teachers, school administrators, and others interested in problems of rural education.

Third term; 3 credits; 3 recitations. Professor Gibson.

AEd 432. Club Work and Agriculture in the Elementary School. Aims, materials, and methods of teaching and supervising elementary agriculture in upper elementary grades and junior high school. Stress is given to club work, covering its history, scope, organization, supervision, and administration. For prospective agriculture teachers, county agents, and club leaders.

Second term; 3 credits; 3 recitations.

AEd 482, 483. Seminar in Agricultural Education. A discussion of special problems in the teaching of agriculture and in the administration of agricultural education.

Prerequisites: Psy 321, Ed 311, AEd 411. Any two terms; hours and credits to be arranged. (G) Professor Gibson.

AEd 533. Rural Survey Methods. Principles and practice of making agricultural and rural education surveys as a basis for organizing programs for agricultural education. The technique of making such surveys and methods of analyzing, interpreting, and using the material and results of surveys already made are emphasized. Individual practice in making a survey is required as a part of the course. Open to graduates with teaching experience and seniors by special permission.

Prerequisites: Psy 321, Ed 311, AEd 411. Third term; 2 credits. (G)
Professor Gibson.

AEd 534. Extension Course in Teacher Training. This course is designed primarily for teachers of vocational agriculture in service who cannot be relieved of their professional duties to pursue courses that are offered in the Summer Session, but who wish to continue their professional improvement. Personal conferences, follow-up instruction, and supervision, supplemented by correspondence and reports.

Prerequisites: Psy 321, Ed 212. Any term; credits to be arranged.
Professor Gibson.

AEd 691, 692, 693. Graduate Study and Research. Advanced or graduate students qualified by previous training or experience may register for extended investigation of some specific problem in agricultural education. These studies are assigned and outlined by the instructor and stated reports are made by the student.

Three terms; credits to be arranged. Fee \$2.00 each term. (G)

AEd 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G)

Commercial Education

THE department of Commercial Education has been organized to meet the steadily growing demand for well-prepared teachers of commercial branches in secondary schools. Such teachers are prepared in cooperation with the School of Commerce. The curriculum in the School of Commerce leading to the degree of Bachelor of Science makes possible satisfactory preparation for commercial teaching. In the selection of their collegiate courses in both Commerce and Education, students should advise with the head of the department of Commercial Education. This department provides an equipment for teachers of commercial science in secondary schools that will place them and their work on a parity with those of other longer established and more fully developed departments of the high school.

This department is a joint department within both the School of Commerce and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

The 23 credits in Education required for a certificate to teach in four-year high schools, issued without examination, may be earned during the

college course, preferably in the junior and senior years. Educational Psychology and Principles of Teaching should be taken before any methods course. The required Education courses must include Psy 222, Ed 311, Ed 212, one course in Secondary Education in Commerce, and one course in Supervised Teaching in Commerce, the last in the senior year. Supervised teaching is done in a public high school where conditions are normal and the experience real. For the curriculum in Commercial Education, see page 229.

DESCRIPTION OF COURSES

CEd 451. Special Methods in Commerce. Principles of education as applied to the teaching of shorthand, typewriting, business English, and bookkeeping in high schools; rapid review of subject-matter with model lessons in each subject; lectures covering aims, materials, methods of presentation, organization of courses, and arrangement of curriculum. Required of students preparing to teach stenographic subjects.

Prerequisites: ST 203; BO 103; Psy 222; Ed 212, 311. First or third term; 3 credits; 3 lectures. Associate Professors Ball and Stutz.

CEd 452. Special Methods in Commerce. Same as CEd 451, with special methods in teaching accounting, business law, economics, and commercial geography. Required of students preparing to teach accounting subjects.

Prerequisites: BO 203, PS 202, ES 203, Psy 201 or 312, Ed 311. First or third term; 3 credits; 3 lectures. Associate Professor Ball.

CEd 470. Organization and Administration of Commercial Education. This course is planned for individuals who aspire to attain administrative positions in the field of commercial education. Elective to seniors only. In 1931-32 given in connection with Ed 452.

Prerequisite: CEd 451 or 452. Third term; 3 credits; 3 lectures. Associate Professor Clinton.

CEd 691, 692, 693. Graduate Study and Research. Advanced and specialized problems in commercial education, selected by the student subject to approval of head of department, investigation being carried on under direction of professor in charge. A thesis is required covering entire field of investigation (see CEd 694, 695, 696). Open to qualified senior or graduate students.

Prerequisites: Ed 401, 402, or their equivalent. Three terms; credits and hours to be arranged. (G)

CEd 694, 695, 696. Graduate Thesis.

Prerequisites: Ed 401, 402 or their equivalent. Three terms; credits and hours to be arranged. (G)

Education

GENERAL courses in Education upon which courses in special methods are based are offered in the department of Education. The courses are open to all students prepared to take them.

DESCRIPTION OF COURSES

Ed 100 (G 100). **The Nature of the World.** A brief review of our present knowledge regarding matter, the universe, the earth, and the history of life on the earth; shows the kinship of all science. Lectures and assigned readings.

Any term; 3 credits; 3 lectures. Fee \$0.50.

Ed 101. **Methods of Study.** Specific methods of study as applied to various fields of subject-matter, together with the more important principles of mental hygiene. This course, one of the series for the orientation of freshmen, helps them find themselves with as little loss of time and energy as possible.

Any term; 3 credits; 3 recitations. Fee \$0.50.

Ed 121 (ES 121). **Social Orientation.** Designed to show how the elements of civilization, as we know it, originated and developed; how man's environment and inherent capacities contribute to a development of his social relationships and responsibilities.

Any term; 3 credits; 3 recitations.

Ed 201. **Introduction to Education.** Brief discussion of the meaning, function, and scope of education; organization and function of each division of the American system; school and class management; general method; all with particular reference to the vocational teacher.

Any term; 3 credits; 3 recitations. Fee \$0.50.

Professor Brumbaugh.

Ed 212. **Secondary Education.** Analysis of the purposes, functions, methods, materials, and students of the high school; high school subjects are analyzed as to their value and interrelations. Designed especially to give vocational teachers the basic information necessary to an understanding of the general situation in secondary education.

Any term; 3 credits; 3 recitations. Fee \$0.50.

Professor Parr.

Ed 215. **Oregon School Law.** A brief course dealing with the essentials of the school laws of Oregon, stressing particularly those parts of the code dealing with the relations of teacher to pupils, administrators.

Third term; 2 credits; 2 recitations.

Professor Brumbaugh.

Ed 241. **History of Education.** A general review of the growth and development of education and its relation to the civilization of the times; particular attention given to the rise of industrial education in Europe and America, and its place in the social and political life of the country.

Any term; 3 credits; 3 recitations.

Professor Brumbaugh.

Ed 305. Character Education. A study of the nature of Character, how it grows, the nature of its traits, to what extent it can be tested and how; the effect on character of moral standards, codes, and ideals; the determination of right from wrong; the elements that underlie intelligent choices; the place of the school in the process of character development.

Prerequisite: Psy 201. Any term; 3 credits; 3 recitations. Fee \$0.50. (G)
Professor Warrington.

Ed 307 (ES 307). Educational Sociology. A study of the field of sociology from the educational point of view; social institutions in their origin and development; social activities in their relation to institutions and the individual; social control or the molding of social institutions and the directing of social activities; different methods of social investigation and their comparative results.

First term; 3 credits; 3 recitations. Assistant Professor Dann.

Ed 311. Principles of Teaching. Application of the laws of psychology to teaching; the significance of individual differences; the types of learning; aims and functions of secondary education; socialization; supervised study; measuring results; special application of foregoing to the teaching of vocational and related subjects.

Prerequisites: Psy 222, Ed 212. Any term; 3 credits; 3 recitations. Fee \$0.50.
Associate Professor Clinton.

Ed 323. Vocational Education. The place and need of vocational education in a democracy; brief history, comparison, and contrast of such in the United States and other countries; characteristics common to vocations and professions considered from both individual and social points of view; points of identity in aims, organization and methods of teaching of cultural and vocational education. This course is prepared as much for citizens who will sooner or later have to consider the problems of education with which every community is confronted, as it is for teachers.

First term; 3 credits; 3 recitations. Fee \$0.50. Professor Parr.

Ed 401, 402. Supervised Teaching. For prospective teachers of vocational subjects. The subjects of major interest are Agriculture, Commerce, Home Economics, Industrial Arts, Trades and Industries, together with related subjects which Smith-Hughes and other teachers of vocational subjects are expected to teach. Teaching under supervision. Lesson plans. Experience in classroom administration and supervision along line of student's teaching interest.

Prerequisites: Ed 311, Psy 222. Special Methods course in particular subject to be taught. Any two terms; 3 to 5 credits each term. Fee \$0.50.
Professor Laslett.

Ed 422. Civic Education. A study of the school as an instrument of society for transmitting its social inheritance; analysis of school organization, administration, school subjects, methods of instruction, extra-school activities, and methods of discipline with reference to their contribution to training for citizenship.

Prerequisites: Psy 222; Ed 201 or equivalent. First or third term; 3 credits; 3 recitations. Fee \$0.50. (G)
Professors Parr and Salser.

Ed 431. **Vocational Guidance.** An investigation of the means and methods of assisting pupils of upper grammar grades and high school in studying the problems of their future vocations; studies of occupations with essential qualifications for success in leading types; value of "life career" motive in education; survey of state and local resources as guides to choice, etc.

Prerequisites: Psy 201, 222; Ed 212, 311. First or second term; 3 credits; 3 recitations. Fee \$0.50. (G) Professor Salser.

Ed 432. **Vocational Counseling.** More advanced and technical than Ed 431. Aims to give prospective counselors, administrators, and parents an acquaintance with mental, achievement, and trade tests, together with some practice in the administration of such tests. Problems of classification; methods used in educational and vocational counseling.

Prerequisite: Ed 431. Third term; 3 credits; 3 recitations. Fee \$0.50. (G) Professor Salser.

Ed 433. **Measurement in Education.** A survey of standardized education, mental, trade, and special ability tests of proved value in the public schools; history and theory of standard test construction; special attention to mental tests and tests of industrial and vocational fitness. Elective to advanced students.

Prerequisites: Psy 201, 222; Ed 311, 212. Any term; 3 credits; 3 recitations. Fee \$2.00. (G) Associate Professor Clinton.

Ed 434. **Statistical Methods in Education.** The elements of statistical methods designed to furnish the basis for a scientific procedure in vocational education; methods of treating collective facts, average facts, and correlated facts applied to marking, giving and scoring tests in vocational education, finding costs, etc.

Prerequisite: Psy 222, Ed 433. Third term; 3 credits; 3 recitations. Fee \$1.50. (G) Associate Professor Clinton.

Ed 442. **Occupational Information.** Primarily a course in the collection, analysis, and organization of valuable material having to do with American occupations; recent facts from Government census and other authentic sources as to the rapidly changing conditions in the six hundred to eight hundred major occupational fields; methods of analyzing vocations and also specific job analysis; first-hand acquaintance and evaluation of books and other important publications in the field of vocations; systematic consideration of the factors playing a part in vocational choices.

Prerequisites: Psy 201, Ed 431. Second term; 3 credits; 3 recitations.

Ed 452. **School Administration.** A discussion and analysis of the American system of education, with an interpretation of the purpose and spirit of each division; problems of administration and teaching; correlation of the vocational branches with other subjects in the curriculum.

Prerequisites: Ed 311, 433. Third term; 3 credits; 3 recitations. Fee \$1.00. (G) Associate Professor Clinton.

Ed 461 (H 461). **School Hygiene.** A course in the health provisions requisite for the hygienic conduct of education. Oregon laws, regulations of the State Board of Health, and other state and local authorities explained in detail.

Prerequisites: Ed 433; also one or more courses each in biologic and physical science. Third term; 2 credits; 2 recitations. (G)

Assistant Professor Heagen.

Ed 462 (H 462). **School Sanitation.** General sanitation of school yard and arrangement of buildings; toilets; plumbing; water supply; heat; light; ventilation; seats; blackboards and cleanliness.

Second term; 2 credits; 2 periods. (G) Assistant Professor Heagen.

Ed 473. **Principles of Education.** This course expounds the general problems of education and the merits and demerits of the various theories of education as they have succeeded each other, together with the numerous principles which have sprung from such doctrines and the modern reinterpretations of aims and practices connected therewith.

Prerequisites: Psy 201; Ed 201, 311. Third term; 3 credits; 3 recitations. (G) Dean Jewell.

Ed 491, 492, 493. **Investigation.** Advanced undergraduate students qualified by previous training or experience may register for extended investigation of some specific problem in vocational education. These studies are assigned and outlined by the instructor and stated reports are made from time to time by the student.

Three terms; credits to be arranged. Fee \$2.00.

Ed 571, 572. **Methods of Teaching Related Science.** Selection and organization of subject-matter in the sciences in their application to vocational courses authorized under the Smith-Hughes Act; laboratory equipment and procedure; special methods in teaching related science. Open to advanced and graduate students.

Prerequisites: Ed 311; one year in biologic and physical science. Second and third terms; 3 credits each term; 3 recitations. Professor Gibson.

Ed 691, 692, 693. **Graduate Study and Research.** Advanced or graduate students qualified by previous training or experience may register for extended investigation of some specific problem in vocational education. These studies are assigned and outlined by the instructor and stated reports are made by the student.

Three terms; credits to be arranged. Fee \$2.00 each term. (G)

Ed 694, 695, 696. **Graduate Thesis.** The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G)

Home Economics Education

PROFESSIONAL training to prospective teachers of home economics is afforded by the department of Home Economics Education. Any student having a scholarship record below average should confer with the Dean of the School of Home Economics before registering for teacher training work.

This department is a joint department within both the School of Home Economics and the School of Vocational Education. For convenience of users of the catalogue the courses are printed under both schools.

In addition to the prerequisite course in General Psychology (Psy 201), required courses in Education for students registered in the Professional Curriculum in the School of Home Economics who are planning to teach are Educational Psychology (Psy 222), Secondary Education (Ed 212), Principles of Teaching (Ed 311), Special Methods in Home Economics (HEd 304, 305), Supervised Teaching (Ed 401). For elective courses in Education to complete requirement of 23 credits, confer with head of department of Home Economics Education.

DESCRIPTION OF COURSES

HEd 304. Special Methods in Home Economics. A brief history of home economics instruction and of the development of elementary and secondary home economics; equipment and organization of home economics departments; study of Smith-Hughes problems in home economics.

Prerequisites: Psy 201; Ed 311; CT 200, 212; FN 213. Junior year (second term) or senior year (first term); 3 credits; 3 recitations. Fee \$0.50.
Professor Blazier.

HEd 305. Special Methods in Home Economics. Making of lesson plans; study of special problems; the preparation and collection of illustrative material; making of courses of study. Observation of teaching.

Prerequisite: HEd 304. Junior year (third term) or senior year (second term); 3 credits; 3 recitations. Fee \$0.50. Professor Blazier.

HEd 691, 692, 693. Graduate Study and Research. Advanced or graduate students qualified by previous training or experience may register for extended investigation of some specific problem in home economics education. These studies are assigned and outlined by the instructor and stated reports are made by the student.

Three terms; credits to be arranged. Fee \$2.00 each term. (G)

HEd 694, 695, 696. Graduate Thesis. The preparation of a thesis for an advanced degree.

Three terms; credits to be arranged. (G)

Industrial Education

THIS department is responsible, jointly with the department of Industrial Arts, for the training of teachers and supervisors in industrial arts education and in trade and industrial (Smith-Hughes vocational) education.

While the department is organized as a part of the School of Vocational Education and offers no technical courses or curricula of its own, it makes use of such courses in other schools and departments as serve its needs. Special attention is called to the joint administration of curricula for teacher training in industrial arts education and in vocational trade and industrial education. The department of Industrial Arts (see School of Engineering) is responsible for the general curricula and technical training, while the department of Industrial Education (School of Vocational Education) is responsible for the professional teacher-training courses and applied pedagogy. See page 263 for the curriculum in Industrial Arts Education and pages 278-282 for descriptions of courses in shop technology.

Graduate Study in Industrial Education. Many school systems, and some state departments of education, now require teachers of Industrial Education subjects to present graduate study or a master's degree as a principal part of their credentials. Since the demands upon teachers the country over are becoming increasingly more exacting each year, graduate work in industrial education brings its proportional rewards and is usually necessary for those who desire to enter the fields of teacher training or supervision. This department is prepared to outline programs of study leading to the degree of Master of Science for students and teachers with approved graduate standing. For information with reference to admission to graduate study, see the section of this catalogue devoted to Graduate Study.

Special Certificate for Two-Year Vocational Teacher Training. Provision is also made for the issuance of special certificates upon the completion of a special two-year curriculum by those who are graduates of an accredited high school or who are past 21 years of age. These special certificates fall under two classifications, as follows:

1. To journeymen of the various trades who can meet the foregoing requirements and who desire to prepare themselves as trade teachers in accordance with the provisions of the Smith-Hughes Vocational Education Act.
2. To others, whether tradesmen or not, who can meet the foregoing requirements and who desire preparation for the teaching of related or general continuation subjects or both.

Extramural Courses. Through cooperation with the State Board for Vocational Education and through the establishment of extension centers, provision is made whereby certain courses of this department are offered as extramural courses. Several classes are at present taught in Portland, and other extension centers will be established as need warrants. This is especially true of those courses for the training of journeymen as voca-

tional shop teachers, for the training of teachers for general continuation subjects in trade and industrial education, and for graduate or undergraduate courses adaptable to the professional advancement of the teacher in service. For further information concerning extramural courses consult the head of the department of Industrial Education.

DESCRIPTION OF COURSES

IEd 370. History of Manual and Industrial Arts. Historical sketch of the development of manual arts in Europe and in America. A study of the stages of development leading to the present interpretation of the aims and purposes of the industrial arts.

Prerequisite: Junior standing. Second term; 3 credits; 3 recitations.

IEd 373. Organization and Special Methods. Analysis of type jobs in shop work and drawing and the organization of this material into courses of study suitable for elementary and secondary schools or for vocational schools. Special methods for effective presentation of organized materials and the management of shop classes.

Prerequisites: Ed 311 and full junior standing. First or third term; 5 credits; 5 recitations.

IEd 472. Trade Analysis. Intended for all teachers of shop subjects vocational or non-vocational. The careful analysis of a trade into its unit operations and the formulation of definite plans for teaching.

Prerequisite: Ed 401 either prerequisite or parallel. First term; 3 credits; 3 recitations. Fee \$1.00. (G)

IEd 473. The General Shop and Its Problems. A study of the general shop and its organization; the reasons for its existence; its advantages and limitations; its probable future. Content and organization of subject-matter and methods of presentation and class control for general shop teaching.

Prerequisite: Ed 401 or 402 must precede or accompany this course. Second term; 3 credits; 3 recitations. Fee \$1.00. (G)

IEd 474. Project Analysis and the Contract Plan. Selection and analysis of projects suitable for various types of shop teaching; study of the contract plan, with practice in the technique of preparing contracts and with suggestions for their use in industrial arts classes.

Prerequisite: IEd 473 or equivalent. Two credits; 2 recitations. Fee \$1.00. (G)

IEd 480. Foreman Training. A course for journeymen in preparation for vocational teaching and for students training for junior executive positions in industry. Deals with the foreman and his job as a minor executive; with plant practice; equipment organization and management; supervision of production; the handling of men; routing; time study; production control.

Prerequisite: Full junior standing or consent of instructor. Second term; 3 credits; 3 recitations; 3 or more inspection trips to manufacturing plants. Fee \$1.00.

IED 484. Teaching Supplementary Subjects. Selection and organization of teachable content, in terms of mathematics, drawing, and science, obtained through careful trade analysis. Methods of organizing and presenting this subject-matter in trade and industrial classes.

Prerequisites: Suitable preparation in mathematics, drawing and science and consent of instructor. Any term; 3 credits; 3 recitations. Extramural or summer session. Fee \$1.00.

IED 488. The Part-Time School and Its Problems. A study of Federal and State laws affecting part-time schools; types of pupils; desirable characteristics of teachers; work of the coordinator; cooperation with outside organizations; planning and care of equipment; the use and place of the lesson plan, job sheet, demonstration, individual practice and follow-up, outside reading, checking and testing; use of pictures, charts, and diagrams; purchase of supplies.

Prerequisite: Ed 323 or consent of instructor. Any term; 3 credits; 3 recitations. Extramural or summer session. Fee \$1.00. (G)

IED 489. Evening and Continuation Schools. A study similar in nature to that of IED 488, but with reference to the problems of evening and continuation schools and classes.

Prerequisite: Ed 323 or consent of instructor. Any term; 2 credits; 2 recitations. Extramural or summer session. Fee \$1.00. (G)

IED 671, 672, 673. Seminar in Industrial Education. A discussion of special problems of organization and administration confronting the teacher of industrial arts education and of vocational trade and industrial education.

Prerequisite: Graduate registration. Three terms; 2 credits each term; 2 recitations. Time to be arranged. (G)

IED 681. Organization and Administration of Industrial Education. Study of the problems of organization and administration peculiar to the field of industrial education. Intended primarily for graduate students with extended teaching experience who are looking forward to service in the field of administration and supervision.

Prerequisites: Ed 323 and consent of instructor. Three credits; 3 recitations. Extramural or summer session. Fee \$1.00. (G)

IED 682. Supervision of Industrial Education. Specific problems of supervision in the field of industrial education, with reference to both the trade and industrial and the industrial arts education groups. Intended primarily for graduate students with extended teaching experience as a background for the discussion of these problems.

Prerequisites: Ed 323, IED 681. Two credits; 2 recitations. Extramural or summer session. Fee \$1.00. (G)

IED 691, 692, 693. Graduate Study and Research. Advanced and specialized problems in industrial education selected with the approval of the head of the department. Investigation to be carried on under the direction of the professor in charge.

Prerequisite: Graduate registration and consent of instructor. Time and credits to be arranged. (G)

IEd 694, 695, 696. **Graduate Thesis.** The thesis shall be written in accordance with standard thesis requirements and shall cover the entire field of the investigation.

Prerequisite: Graduate registration and consent of instructor. Time and credits to be arranged. (G)

Psychology

THIS department gives the courses in psychology upon which the studies in education are built and such other courses as directly affect human behavior. All courses are elective to students prepared to take them.

DESCRIPTION OF COURSES

Psy 100. **Mental Hygiene.** The student's problem of orientating himself as he progresses from high school to college; fundamental conditions of healthful mental development; the habits, attitudes, and inhibitions conditioning the functioning of the normal mind.

Any term; 3 credits; 3 recitations. Fee \$0.50.

Psy 201. **General Psychology.** A study of the fundamental facts of human equipment and behavior; instinct, emotion, sensation, feeling, memory, imagination, suggestion, will, reason, and personality. A prerequisite for all other courses in psychology.

Any term; 5 credits; 5 recitations. Fee \$0.50.

Dean Jewell, Professors Brumbaugh, Laslett, and Chambers.

Psy 222. **Educational Psychology.** A study of the laws of learning and their application to the classroom; motivation in learning, transfer of training, memory, forgetting, mental hygiene, and the psychology of secondary school subjects.

Prerequisite: Psy 201. Any term; 3 credits; 3 recitations. Fee \$0.50.
Professor Laslett.

Psy 312. **Vocational Psychology.** Application of psychological laws to the active pursuits of life; especially the psychology of commerce as it develops in the relation of man to man, of trust and faith in human affairs, modes of activity, etc.

Prerequisite: Psy 201. First or second term; 3 credits; 3 lectures.
Professor Brumbaugh.

Psy 313. **Psychology of Advertising and Selling.** Designed to analyze the problem of advertising and to explain the operation of the laws of the mind as related to its solution; to trace and explain the psychological processes involved in the business of merchandising and selling goods of all descriptions.

Prerequisites: BO 141, 142; Psy 201. Third term; 3 credits; 3 lectures.
 Fee \$0.50. Professor Chambers.

Psy 321. **Educational Psychology.** A study of human traits, equipment and behavior, both native and acquired, with special reference to the conditions and laws of learning, and with applications to problems in agricultural teaching. Special attention to the nature and causes of individual differences and methods of adjusting agricultural teaching to the varying capacities, abilities, and needs of individuals. This course combines subject-matter of both general and educational psychology. No prerequisite is required. Given only to students preparing to teach Smith-Hughes agriculture.

Second term; 5 credits; 5 recitations.

Psy 355. **Psychology of Adolescence.** The important physical, mental, and moral changes natural to adolescence. Attention is given to the laying of the foundation for the pedagogy of secondary instruction and to the elements of character education.

Prerequisites: Psy 201, 222. Second term; 3 credits; 3 recitations. (G)
 Dean Jewell.

Psy 376. **The Child Mind.** Consideration of the physical and mental development of the child in the various stages; aspects and interrelations, hygienic and moral sides receiving special attention.

Prerequisite: Psy 201. First or third term; 2 credits; 2 lectures. (G)
 Professor Brumbaugh.

Psy 416 (ES 416). **Social Psychology.** Analysis of group attitudes, social values, crowd behavior, fashion, custom, public opinion and forces forming it. Factors in personality, elements and types of racial and group consciousness.

Prerequisites: ES 305, Psy 201. Second term; 3 credits; 3 recitations.
 (G) Professor Moore.

Psy 425. **Educational Psychology.** The problems of education arising from instinct, adolescence, general endowment, transfer of training, learning, memory, rationalization, and the milder mental disorders found in the classroom.

Prerequisites: Psy 201, 222. Third term; 3 credits; 3 recitations. Fee \$0.50. (G)
 Professor Laslett.

Psy 434. **Mental Hygiene of the Infant and Small Child.** The neurological and psychological development of the infant and the young child and their relation to the later emotional, social, and personality developments of the child.

Prerequisites: Psy 201, 222 unless by special arrangement. Third term; 2 credits; 2 recitations. Fee \$0.50. Professor Laslett.

Eth 482. **Ethics.** Meaning of our moral conceptions and principles; why they are binding; whence they are derived; a consideration of everyday customs and practices in the light of these principles; study of professional codes.

Prerequisites: Psy 201; Ed 201, 311. Second term; 3 credits; 3 lectures.
 (g) Professor Brumbaugh.

Graduate Study

GRADUATE work leading to the degree of Master of Science is offered in the various technical fields of Oregon State Agricultural College. The facilities for pursuing graduate work are excellent and include well equipped laboratories, eight experiment stations in different parts of the state, a suitable reference library, and above all a technical faculty actively engaged in investigational and research work. The College will not permit a graduate student to undertake a thesis problem unless adequate facilities are available.

Graduate work is administered by the Committee on Graduate Study. This is one of the standing committees of the College and is composed of Professors Gordon V. Skelton, chairman, P. M. Brandt, M. N. Nelson, and W. Weniger. Correspondence relating to graduate study should be addressed to the Committee on Graduate Study, Room 201, Physics Building, Oregon State Agricultural College, Corvallis, Oregon.

Admission. The College permits its own graduates and those of other institutions of equal rank to register as graduate students. Graduate students present their credentials to the Registrar, obtain a registration permit from him, register with the Committee on Graduate Study, and pay their fees at the Business Office.

At the time of registration graduate students state whether or not they are candidates for an advanced degree. Degree candidates make out a curriculum in conformity with the rules hereinafter stated. Students who are not candidates for a degree may register for any courses they are prepared to take, adequacy of preparation being determined by the heads of the departments concerned. In permitting registration for such courses the College assumes no obligation to accept credits so earned as part of the requirements for a degree.

Rules and Requirements. Candidates for the master's degree are required to complete a certain minimum of residence work, to prepare a suitable thesis, and to pass an oral examination.

The residence work consists of a minimum of 48 credits completed with a grade of A or B in the case of subjects counted toward the major and of A, B or C in the case of subjects counted toward the minor. The work may be completed in a single year by a student who devotes full time to his studies. The candidate chooses a major and a minor line of study, and with the aid of the major professor makes out a curriculum in which the major consists of from 24 to 36 credits, and the minor of a sufficient number to make a total of at least 48. Of the major credits not less than 6 nor more than 12 must be devoted to the thesis. The major may be taken jointly in two departments; for example, a student majoring in Dairy Husbandry may take in conjunction with Dairy Husbandry, work in dairy bacteriology with the department of Bacteriology, or work in dairy chemistry with the department of Chemistry, etc. The minor should in general

consist of work supporting the major, but may consist in part of cultural subjects. This curriculum must be submitted to the Committee on Graduate Study for approval within two weeks from the date of registration, after which it cannot be changed except by joint consent of the major professor and the committee. Higher degrees are conferred only at the regular commencement exercises. If for any reason the degree has not been conferred at the end of three years from the date of registration, the candidate, if still desirous of receiving the degree, must reregister and conform to any changes in the rules and requirements that may have been made in the interim.

The thesis subject and a tentative outline of the proposed study must be filed with the chairman of the committee on or before the opening of the second term of the student's candidacy for the degree. The thesis must be neatly typewritten with black record ribbon on twenty-four-pound bond paper $8\frac{1}{2}$ by 11 inches in size, leaving a margin of $1\frac{1}{2}$ inches along the left-hand edge and of 1 inch along each of the other three edges. Attention to these rules in preparation of the final copy of the thesis is essential. Samples of the title page and of the approval sheet may be obtained from the chairman. The original and one black carbon copy must be deposited with the chairman, together with the Business Office receipt for the thesis binding fee, not later than three weeks prior to the date of the commencement at which the candidate expects to receive the degree.

The oral examination will be public and will, in general, be of two hours' duration. The oral examination does not exempt the candidate from the usual examinations in courses. The examining committee functions as a subcommittee of the Committee on Graduate Study, being appointed by the latter from among its own members and the members of the faculty in direct charge of the candidate's studies. The examining committee is presided over by a member of the Committee on Graduate Study.

Graduate Student Fees. The Graduate Student fee of \$20.00 each term includes registration, the privileges of the Student Assembly, the Health Service, and the Gymnasium, and is uniform for all graduate students whether residents of Oregon or non-residents. Graduate students are subject to laboratory fees and deposits according to courses pursued.

On becoming candidates for graduation, graduate students pay the Graduation fee of \$10.00.

Staff members, including fellows, register on the same basis as other graduate students but are exempt from all except laboratory fees. They do not, however, receive student body tickets nor do they have the privileges of the Health Service.

Graduate Courses. For descriptions of the various courses which may be pursued in qualifying for the master's degree, see the Index and the several instructional departments. All courses in this catalogue which have been approved by the Committee on Graduate Study for credit toward either the major or the minor are designated by the letter G, following the course description; courses which have been approved for credit toward the minor only are designated by a lower-case g. In cases of advanced undergraduate courses for which reduced credit may be accepted toward

an advanced degree, the proportion of credits is indicated by a fraction following the letter; for example, $\frac{2}{3}$ indicates that the course may be counted toward the minor at two-thirds of the normal undergraduate credit.

Seniors who have taken excess credits during their undergraduate years may, upon petition to the Committee on Graduate Study before the bachelor's degree is granted, have such credits reserved for possible use at some later date toward an advanced degree, provided that these subjects are of graduate rank and that grades of "A" or "B" have been earned.

Summer Session

June 22-July 31, 1931

- WILLIAM JASPER KERR, D.Sc., LL.D., President of the College.
M. ELLWOOD SMITH, Ph.D., Director of the Summer Session; Dean of the School of Basic Arts and Sciences.
ARTHUR BURTON CORDLEY, D.Sc., Dean of the School of Agriculture.
JOHN ANDREW BEXELL, A.M., Dean of the School of Commerce.
AVA BERTHA MILAM, A.M., Dean of the School of Home Economics.
KATE WETZEL JAMESON, Ph.D., Dean of Women.
ULYSSES GRANT DUBACH, Ph.D., Dean of Men.
JAMES RALPH JEWELL, Ph.D., LL.D., Dean of the School of Vocational Education.
ERWIN BERTRAN LEMON, B.S., Registrar.
PAUL PETRI, Director of Music; Professor of Singing and Conductor of Choruses.
CLAIR VAN NORMAN LANGTON, D.P.H., Dean of the School of Health and Physical Education.

*Professors**

- CHARLES DAVID BYRNE, M.S., Professor of Industrial Journalism; Director of News Service.
OTHNIEL ROBERT CHAMBERS, Ph.D., Professor of Vocational Psychology.
RALPH ORVAL COLEMAN, M.A., Professor of Physical Education; Coach of Baseball; Director of Intramural Sports.
NEWEL HOWLAND COMISH, Ph.D., Professor of Economics.
GEORGE BRYAN COX, B.S., Professor of Industrial Arts; Professor of Industrial Education; Director of Engineering Shops.
JOHN LEO FAIRBANKS, Professor of Art and Rural Architecture.
NATHAN FASTEN, Ph.D., Professor of Zoology.
ALMA CATHERINE FRITCHOFF, A.M., Professor of Clothing, Textiles, and Related Arts.
JOHN B HORNER, Litt.D., L.H.D., Professor of History; Director of Oregon Historical Research.
MELISSA HUNTER, A.M., Professor of Institution Economics; Director of Dormitories.
ALMA GRACE JOHNSON, M.A., Professor of Household Administration.

*Names are listed alphabetically in each group.

- HERBERT REYNOLDS LASLETT, Ph.D., Professor of Educational Psychology; Director of Teacher Training.
- CHARLES BUREN MITCHELL, M.A., Professor of Public Speaking and Dramatics.
- ELON HOWARD MOORE, Ph.D., Professor of Sociology.
- CLARIBEL NYE, M.A., Professor and State Leader of Home Economics Extension.
- FRANK WINTHROP PARR, Ph.D., Professor of Education.
- ARTHUR LEE PECK, B.S., B.A., Professor of Landscape Architecture and Floriculture; Superintendent of Campus and Greenhouses.
- LILLIAN JEFFREYS PETRI, Professor of Piano and Musical Theory.
- SARA WATT PRENTISS, M.A., Professor of Child Development and Parent Education.
- RUTH ROBINSON, M.S., Professor of Physical Education for Women.
- CARL WALTER SALSER, Ed.M., Professor of Education; Head of Personnel and Placement Service.
- PAUL JOHN SCHISSLER, JR., Director of Intercollegiate Athletics; Head Coach of Football; Instructor in Football Tactics.
- ERNEST WILLIAM WARRINGTON, M.A., Professor of Religion.
- JESSAMINE CHAPMAN WILLIAMS, M.A., Professor of Foods and Nutrition.

Associate and Assistant Professors

- ELIZABETH BARNES, B.L.I., Associate Professor of Public Speaking and Dramatics.
- GEORGIA CHAPMAN BIBEE, B.S., Assistant Professor of Institution Economics; Director of Memorial Union Dining Service.
- GUY SHIRK CLAIRE, Ph.D., Assistant Professor of Political Science.
- RALPH COLBY, Ph.D., Assistant Professor of English.
- RILEY JENKINS CLINTON, A.M., Associate Professor of Education.
- MINNIE DEMOTTE FRICK, B.S., Assistant Professor of Secretarial Training.
- RENA HEAGEN, B.A., R.N., C.P.H., Assistant Professor of Hygiene.
- CURTIS KELLEY, M.B.A., Assistant Professor of Accounting.
- JOHN M KIERZEK, Ph.D., Associate Professor of English.
- SIGURD HARLAN PETERSON, B.A., Associate Professor of English.
- WILBUR POWELSON RIDDLESBARGER, A.M., Assistant Professor of Political Science.
- AMBROSE ELLIOTT RIDENOUR, B.S., Assistant Professor of Industrial Arts.
- FRANK LESLIE ROBINSON, M.Acct., Associate Professor of Accounting.
- CLYDE WALKER, M.S., Assistant Professor of Agricultural Engineering.

Instructors and Assistants

- BYRON ARNOLD, A.B., Instructor in Organ, Piano, Musical History and Theory.
- FLORENCE BOWDEN, B.A., Instructor in Cello, Violin, and Small Strings; Conductor of Mandolin and Guitar Club.
- MARGARET LOUISE BREW, Ph.B., Instructor in Clothing and Related Arts.
- JAMES VICTOR DIXON, Instructor in Physical Education; Assistant Coach of Football.

- FRANK LLOYD FRANCE, B.S., Instructor in Industrial Education; Critic Teacher in Industrial Education.
- AMORY TINGLE GILL, B.S., Instructor in Physical Education; Head Coach of Basketball.
- MARTIN LOUIS GRANNING, Instructor in Machine Shop.
- WILLIAM HAMILTON HORNING, Instructor in Forging.
- ELSIE JACOBSEN, B.S., Instructor in Physical Education for Women.
- JOHN EDWARD KENNEY, B.A., Instructor in Physical Education; Head Coach of Swimming.
- ROY LAMB, B.S., Instructor in Physical Education; Assistant in Athletics.
- PHILIP W LLOYD, Pd.B., Instructor in Mathematics.
- RALPH NICHOLAS LUNDE, B.S., Instructor in Agricultural Engineering.
- JUANITA CHANEY MANNING, B.S., Teaching Fellow in Household Administration.
- EDWIN DAVID MEYER, B.S., Instructor in Industrial Arts.
- WILLETTA MOORE, M.S., Instructor in Foods and Nutrition.
- RICHARD WENRICK NEWMAN, A.B., LL.B., Instructor in Physical Education; Head Coach of Track.
- MAYBELLE RARDIN, A.B., Instructor in Secretarial Training.
- NATALIE REICHART, M.A., Instructor in Physical Education for Women.
- FRED MURIEL SHIDELER, B.S., Instructor in Industrial Journalism.
- ALONZO STINER, Instructor in Physical Education; Assistant Coach of Football.
- LILLIAN CATHERINE TAYLOR, M.A., Instructor in Foods and Nutrition.
- RICHARD HENRY WILSON, B.S., Assistant in Industrial Arts.

VISITING INSTRUCTORS

- O. D. ADAMS, Director of State Board for Vocational Education.
Who will give courses in Industrial Education of special interest to Smith-Hughes teachers of Trades and Industries, June 22-July 31.
- BENJAMIN R. ANDREWS, Ph.D., Household Economist, Teachers College, Columbia University, editor of Lippincott Series, author, and for past two summers leader of parties to England and the continent to study standards of living.
Who will give courses in the Economics of the Family, June 22-July 31.
- BEULAH BLACKMORE, M.A., Teachers College, Columbia, head of Clothing and Textile Department at the New York State College of Home Economics, Cornell University.
Who will give a course in Household Textiles, July 13-31.
- MRS. MARY DEGARMO BRYAN, A.M., Columbia University, in charge of Institution Economics at Columbia University, formerly editor of the *Journal of Home Economics*; dietitian, Presbyterian Hospital, New York.
Who will give courses in Institution Planning and Equipment, and Organization and Administration, June 22-July 11.
- NANCY ELLIOTT, B.S., Iowa State College, instructor in Clothing and Related Arts at North Dakota Agricultural College.
Who will give courses in Costume Design and Textile Design, June 22-July 31.

ROBERT GOETZ, Superintendent of Schools, Silverton, Oregon, Chairman of the State committee of the Oregon State Teachers Association on Junior High Schools.

Who will give courses in Junior High School Education and Principles of Teaching, June 22-July 31.

C. C. GROVER, B.S., Baker University; M.A., Denver University; with advanced work at Stanford University. Assistant Director Bureau of Curriculum Development, Research and Guidance, Oakland Public Schools, California.

Who will give courses in Statistical Methods, Educational Counseling, and Supervision, June 22-July 31.

JANE HINKLEY, Federal Agent for Vocational Home Economics.

Who will give courses for Smith-Hughes teachers of Home Economics, June 12-19.

LOUISE KELLER, M.S., University of Minnesota, Department of Home Economics Education, University of Minnesota.

Who will give courses in Measurements in Home Economics Education, and Home Economics Curriculum, June 22-July 31.

JAMES RUSSELL PATTERSON, formerly connected with Parsons' School of Fine and Applied Arts of New York and Paris; founder and managing vice-president of "Consulting Decorators, Inc." of New York City; special critic in Interior Decoration at Pratt Institute, Brooklyn.

Who will give courses in House Furnishing and Decoration, June 22-July 31.

HAZEL REX, B.S., Michigan State Normal College; M.A., Columbia University, with wide experience in the physical education field, Supervisor of Physical Education for Girls in Grades and High Schools, Toledo, Ohio.

Who will give courses in Organization and Administration, and Physical Education Curriculum for High School Girls, Golf and Swimming, June 22-July 31.

MARY A. ROKAHR, A.B., University of Nebraska, M.A., Teachers College, Columbia. Extension Economist, Home Management, with the Office of Cooperative Extension Work, U. S. Department of Agriculture.

Who will give a course in Extension Methods in Home Economics, June 22-July 11.

DORIS SCHUMAKER, A.M., Teachers College, Columbia, with training in the Merrill-Palmer School, Detroit. Assistant Professor, Home Economics, Cornell University.

Who will give courses in Parent Education and Problems of Human Adjustment, June 22-July 11.

HENRY C. SHERMAN, Ph.D., Columbia University, and Sc.D.; Mitchill Professor of Chemistry (recently Professor of Food Chemistry), Columbia University; Research Associate of the Carnegie Institute of Washington; DeLamar Lecturer on Food and Health, Johns Hopkins University; Chairman of the Committee on Vitamin Methods of the American Chemical Society; Chairman of the Committee on Nutritional Problems of the American Public Health Association; member of the Division of Biology and Medicine and recently Chairman of the Subcommittee on Human Nutrition of the National Research Council; past President of the Society of Biological Chemists; author of "Chemistry of Food and Nutrition," "Food

Products," "Methods of Organic Analysis," and joint author of "The Vitamins" (American Chemical Society monograph).

Who will give courses in Nutrition, July 13-31.

ELLA EHNSEN WILSON, A.M., Dean of Girls, Franklin High School, Portland.

Who will give courses for Deans or Advisers of High School Girls, June 22-July 31.

FRANCES MAURINE WRIGHT, B.S., State Supervisor of Home Economics Education.

Who will give courses in Special Problems in Home Economics, and Adult Education in Home Making, June 22-July 31.

INSTRUCTORS IN SHORT COURSE IN VOCATIONAL AGRICULTURE

GEORGE ROBERT HYSLOP, B.S., Professor of Farm Crops.

ORAN MILTON NELSON, M.S., Professor of Animal Husbandry.

BENNETT THOMAS SIMMS, D.V.M., Professor of Veterinary Medicine.

WALTER THEODORE JOHNSON, D.V.M., Professor of Veterinary Medicine.

HENRY DESBOROUGH SCUDDER, B.S., Professor of Farm Management.

HOWARD PHILLIPS BARSS, S.M., Professor of Botany and Plant Pathology.

DON CARLOS MOTE, Ph.D., Professor of Entomology.

GEORGE OURY GATLIN, LL.B., Extension Economist (Marketing).

HEBER HOWARD GIBSON, M.A., Professor of Agricultural Education.

WALTER SHELDON BROWN, M.S., Professor of Horticulture.

ALFRED WEAVER OLIVER, M.S., Assistant Professor of Animal Husbandry.

CLYDE WALKER, M.S., Assistant Professor of Agricultural Engineering.

Cooperating Agencies and Instructors

J. K. WALLACE, Bureau of Agricultural Economics, Marketing Specialist, United States Department of Agriculture.

JAMES H. PEARSON, Specialist in Part-time and Evening Classes. Federal Board of Vocational Education, Washington, D. C.

EARL R. COOLEY, State Supervisor of Agricultural Education for Oregon, Salem, Oregon.

General Information

GENERAL facts concerning the Summer Session, such as scope, admission, expenses, credits, etc., are given below. Further information of any kind, as well as any assistance that can be rendered students to plan their work in advance, or to make arrangements for coming, will be gladly furnished by the Director's office.

SCOPE

The Summer Session offers courses to meet the needs of a wide range of students and teachers with much or little previous preparation. Teachers, extension workers, students desiring graduate, undergraduate, or entrance credit, will find a variety of courses taught by experts.

Vocational Education, the Junior High School, Remedial Teaching, and Guidance. Courses in the School of Vocational Education aim to give practical help in dealing with practical situations. Superintendent Robert Goetz who gives the work in Junior High School Education is Chairman of the State Teachers Association Committee on this work. Remedial Teaching by Dr. F. W. Parr, and Mental Hygiene and Pupil Motivation by Dr. O. R. Chambers of the resident staff stress phases of education emphasized as never before. In recognition of the increasing responsibility resting upon school administrators, teachers, and coaches for counseling students as to vocation and the more personal aspects of education, expert guidance in this work is provided in a group of courses including Counseling, by C. C. Grover, Assistant Director of the Bureau of Research of the Oakland (California) Public Schools; Vocational Guidance, by Professor Carl W. Salsler; and courses for Advisers or Deans of Girls in High Schools, by Dean Ella E. Wilson, Franklin High School, Portland.

A comprehensive program in general and technical education has been arranged by Dean J. R. Jewell with particular regard to the problems which arise in the small as well as the large school.

Commercial Education. Special courses for teachers of commercial subjects have been arranged with Mrs. Minnie D. Frick, author of a widely used text, giving special work in methods of teaching stenography.

Home Economics. The list of outstanding visitors in the various phases of Home Economics is so inclusive that reference should be made to the list of visiting instructors on pages 407-409, and departmental programs on pages 420-424.

Physical Education. Full provision is made in the Summer Session for a wide choice on the part of coaches and teachers, both men and women, wishing to take Physical Education. It is possible for teachers without previous training in this field to acquire sufficient proficiency in the six weeks of the Summer Session to handle the most necessary courses in the schools during the year. Work of particular interest to women will be given by Miss Hazel Rex, Supervisor of Physical Education for Girls in Grades and High School, Toledo, Ohio, a widely known leader in her field.

A Two-Week Intensive Course for Athletic Coaches under the direction of Coach P. J. Schissler includes a full program: Football, 8:00-11:00, P. J. Schissler; Boxing and Wrestling, 11:00-12:00, J. V. Dixon and A. L. Stiner; Basketball, 1:00-3:00, A. T. Gill; Track and Field Athletics, 4:00-6:00, R. W. Newman.

Assisting Head Coach Schissler in football will be J. V. Dixon, former all-Coast tackle, and A. L. Stiner, all-American tackle and former captain of the University of Nebraska football team. Mr. Gill is a former all-Coast forward.

Smith-Hughes Teaching. Attention is called to special courses and conferences arranged for Smith-Hughes Teachers of Agriculture, Trades and Industries, and Home Economics, outlined on pages 419-420.

Extension Work. Extension Methods in Home Management is the subject of a special course taught by Miss Mary A. Rokahr, Extension Economist in Home Management, United States Department of Agriculture. Other work in Extension Methods will be taught by Claribel Nye, M.A., Professor and State Leader of Home Economics Extension, formerly of Cornell. Courses in Art, Community Drama and Public Speaking, Industrial Journalism, Games, and other allied subjects offer special opportunities for those engaged or expecting to engage in Extension activities.

College Credit. Courses also will be offered for students who wish to make up college work which they have missed, or for those who wish to shorten the time of residence by carrying some of their required subjects during the vacation period. Students who have not been graduated from high school, but who wish to obtain additional credits which will count toward *college entrance*, will find courses to meet this need.

Other Opportunities. Others, whether with or without high school or technical training of any kind, will find courses open to them in all the practical fields of *Homemaking* or *Business*, with elementary work for those who need it and advanced work for those already proficient.

ADMISSION

All students who believe that they can profit by the instruction offered will be admitted without examination or the presentation of credentials. It is presumed that all who apply for admission have a serious purpose and are of good moral character. College credit will be granted to those qualified by entrance credit to receive it (see Credit for Work, page 412).

EXPENSES AND ACCOMMODATIONS

The amount of money required for six weeks' attendance naturally varies with the individual. Some allowance must be made for incidental and personal expenses not included in the usual estimate.

Allowing \$54.00 for board and room, \$10.00 registration fee, \$1.00 for drayage on baggage, and \$10.00 for laundry and incidentals, the minimum cost for the entire six weeks may be estimated at \$75.00, exclusive of railroad fare. Those who take courses requiring text-books or laboratory fees must make some additional allowance.

Registration Fee. The regular College registration fee of \$10.00,* collectable at the time of registration, admits to all regular classes. *This fee is not refundable.* Laboratory and shop fees are listed under each course.

*For the 1932 Summer Session this fee will be \$20.00 for Oregon residents and \$25.00 for non-residents.

Board and Room. Margaret Snell Hall will be the hall of residence for women. All women are expected to live in this hall and take their meals there, unless given special permission by the Dean of Women. A charge for the term of twelve dollars a person for a double room will be made to cover cost of heat, light, use of laundry, etc. The rooms are fully provided with bed, bedding, table, and chairs. Each student in the hall must provide her own towels. A well-equipped laundry room will be open for the use of students without extra charge. Each student is expected to care for her own room. The Y. M. C. A. assists men students to find desirable accommodations in private homes adjacent to the campus.

Regular meals will be served in Margaret Snell Hall at a charge of \$42.00 for the session; that is, at the rate of approximately \$7.00 a week. Students, both men and women, not residing in the hall may arrange for meals at the same rate. No deductions will be made for absence of less than one full week. Meals may be procured also at moderate rates at the Kampus Kavern in the Memorial Union.

The residence hall for women will be open for lodging Sunday, June 21. Meal service will begin Sunday evening. Room charge for part of a week will be the same as for a full week.

Since students registered for the Home Management House course (HAD 450) will live in one of the Home Management houses throughout the Summer Session, they need make no other provisions for room and board.

REGISTRATION AND CREDIT

Registration. Students are requested to file a preliminary registration by filling out the Informal Registration Blank and mailing it as early as possible in order that arrangements may be made more completely for handling the work in the different departments. This application is not binding either as to attendance or choice of studies. Final registration should be made at the Director's office in the Library Building as early as possible on Monday, June 22. The Committee on Registration will be in session from 9:00 until 12:00 and from 2:00 until 5:00 in the main reading room, Library Building. Students should consult this Committee in making out courses and schedules. Because of the shortness of the session, students should arrive in time to complete registration on Monday in order to attend the first meeting of all their classes on Tuesday. Full credit cannot be given for students entering more than one week late. No course will be offered for less than seven students, but if difficulty is experienced in arranging work, the student should consult the Director.

Withdrawal. The term is short and the fees are so low that no refund of the regular registration fee can be made because of withdrawal. A refund on laboratory fees and deposits may be adjusted proportionately to time and materials consumed.

Credit for work. Students whose preparatory work qualifies them may receive college credit for the work taken to the extent indicated in the descriptions of the several courses. In general, the credit for Summer Session work is approximated to that of the regular college year on the basis of three credits for five recitations a week throughout the session. A

maximum of nine credits exclusive of Physical Education may be earned during the Summer Session as against sixteen and one-half credits in one term of the regular year. Credit in excess of the approved maximum may be allowed only for unusual cause, on approval of the Scholarship Committee, and with the provision that the student's general average for all subjects taken during the session shall be at least 2.00 (an average of B).

Auditing. Regularly registered students in the Summer Session may audit without additional charge lectures in other courses, but such auditors may not participate in the discussions or submit work produced in connection with the courses for the examination of the instructor. Students will be granted the privilege of auditing on presenting to the Registrar a formal petition approved by the instructor who gives the course and the Director of the Summer Session, but no record will be preserved nor may the fact of auditing be made the basis for request for examination or the obtaining of credit in any way.

Graduate credit. Graduate credit is to be by special arrangement with departments concerned and approval of the Committee on Graduate Study. Plans of work should be submitted in advance to the Director. Courses carrying graduate credit are marked "G" if acceptable toward the graduate major and "g" if acceptable toward the graduate minor, while in the case of advanced undergraduate courses for which reduced credit may be counted toward an advanced degree, the proportion of credit acceptable is indicated by a fraction following the letter; for example, "g $\frac{3}{4}$."

Students taking courses for graduate credit should consult with a representative of the Committee on Graduate Study at the time of registration.

POSITIONS FOR TEACHERS

Students and teachers attending the Summer Session will be assisted wherever possible in finding teaching positions for the following year. Those desiring positions should file complete credentials with the Personnel and Placement Secretary at the beginning of the Summer Session in Room 207 Shepard Hall.

SOCIAL, SPORTS, AND OTHER FEATURES

Valuable as a background for productive work in summer is the spirit of friendliness and comradeship carefully developed as part of the Summer Session life. Five o'clock Wednesday afternoon classes in social dancing for men and women held weekly in the Women's Building will make for acquaintanceship. Besides week-end social affairs on the campus, hikes, trips to shore and mountains, and an excursion to Mary's Peak (Mount Chintimini) will be arranged. *Students would do well to bring sport clothes and hiking shoes.* Assistance will be given in the formation of parties to visit Crater Lake, the Columbia Highway, Mt. Hood, the Oregon Caves, and the beaches. Golf is available on the beautiful Country Club course, open to Summer Session students at special rates.

Popular lectures. An "out-of-hours" program of lectures, readings, and music will be a noteworthy part of the Summer Session. The full program will be announced later.

Summer Climate. Corvallis is pleasantly situated for summer study. The average summer temperature is 77° F. A prevailing breeze from the Pacific coming through a gap in the Coast Range to the west is characteristic of the afternoon and evening, affording a stimulating atmosphere for work and recreation. The city water system supplies pure mountain water.

ARRANGEMENT AND SCHEDULE OF COURSES

The Summer Session courses are arranged in two major groups, the first consisting of the more strictly technical or vocational departments, and the second comprising those subjects which constitute a part of any complete education and which are indispensable as foundation courses in technical education. To these are added miscellaneous or special courses.

The schools or departments in the first, or Vocational group, are arranged as follows: I. Vocational Education. II. Home Economics. III. Commerce. IV. Agricultural Engineering. V. Industrial Arts. VI. Industrial Journalism. VII. Landscape Architecture. VIII. Health and Physical Education. IX. Religion.

The second, or General group, consists of: X. Basic Arts and Sciences, under which head the different departments are arranged in alphabetic order. XI. Music. XII. Courses for Removal of High School (i.e., College Entrance) deficiencies. XIII. Short Course for Members of 4-H Clubs.

The scope of the Summer Session courses is indicated by the lists of courses below. More detailed descriptions of the content of the courses for the 1931 Summer Session are given in the Summer Session catalogue, issued separately. Place and time of meeting are indicated in the case of each course; in addition, in the separate Summer Session catalogue, formal schedules for all courses, including the Short Course in Agricultural Education, are given.

Course numbers conform in general to the 1930-31 General Catalogue.

Except in special cases, classes are not scheduled to meet on Saturday.

I. Vocational Education

COURSES in education, psychology, commercial education, industrial education, and home economics include fundamental and special courses to meet various needs and interests. A special group of courses will be concerned with the moral and civic aspects of education.

EDUCATION AND PSYCHOLOGY

1. **Methods of Study** (Ed 101).

No prerequisites; 3 credits; 9:00 daily. C 113.

Professor Parr.

2. Principles of Teaching (Ed 211).

Prerequisites: Psy 222, Ed 212. Three credits; 8:00 daily. C 109.
 Fee \$0.50. Superintendent Goetz.

3. Educational Psychology (Psy 222s).

Three credits; 10:00 daily. C 211. Professor Laslett.

4. Educational Sociology. See Economics and Sociology, page 425.**5. Secondary Education (Ed 212).**

Prerequisites: Ed 201, 211, or equivalent. Three credits; 2:00 daily.
 C 110. Professor Parr.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

6. Mental Hygiene (Psy 1s).

Three credits; 8:00 daily. C 211. (g) Professor Chambers.

7. Mental Measurement (Psy 323).

Prerequisite: General Psychology. Three credits; 11:00 daily. C 311.
 Fee \$0.50. (G) Professor Laslett.

8. Mental Measurements Laboratory (Psy 324).

Prerequisite: Psy 323. Two credits; 3:00 daily. SH 210. Fee \$2.00. (G)

9. Psychology of Adolescence (Psy 355).

Prerequisite: Psy 301. Three credits; 9:00 daily. C 311. (G)
 Dean Jewell.

10. Abnormal Psychology (Psy 2s).

Prerequisites: General Psychology, Educational Psychology, and
 Mental Hygiene. Three credits; 3:00 daily. C 211. (G) Professor Chambers.

11. Pupil Motivation (Ed 13s).

Prerequisites: General Psychology, Educational Psychology, and
 Mental Hygiene. Three credits; 10:00 daily. C 9. (G)
 Professor Chambers.

12. Remedial Teaching in the High School (Ed 1s).

Prerequisites: Psy 201, 222, Ed 211, and teaching experience. Three
 credits; 8:00 daily. C 9. Fee \$0.50. (G) Professor Parr.

13. Measurement in Education (Ed 433).

Three credits; 3:00 daily. C 7. Fee \$2.00. (G)
 Associate Professor Clinton.

14. Elementary Statistical Methods (Ed 332).

Three credits; 10:00 daily. C 311. Fee \$1.50. (G) Director Grover.

15. School Administration (Ed 452s).

Three credits; 11:00 daily. C 211. (G) Associate Professor Clinton.

16. Supervision of Instruction (Ed 2s).

Open to seniors, graduate students, and teachers with considerable experience. Prerequisites: Psy 201, 222; Ed 211, 222, and 433 or equivalent. Three credits; 2:00 daily. C 311. (G) Director Grover.

17. Extra-Curricular Activities (Ed 3s).

Prerequisite: Principles of Teaching or teaching experience. Three credits; 8:00 daily. C 110. (G) Associate Professor Clinton.

18. Principles of Education (Ed 473).

Prerequisites: 9 credits of Education, and junior standing. Three credits; 2:00 daily. C 211. (G) Dean Jewell.

19. Junior High School Education (Ed 4s).

Prerequisites: Ed 211, 212. Three credits; 1:00 daily. C 109. (G) Superintendent Goetz.

20. Investigation (Ed 491s).

Credits and hours to be arranged. Fee \$2.00.

21. Graduate Seminar (Ed 691s).

To be arranged; 3 credits. SH 206A. Fee \$2.00. (G) Department.

COURSES CONCERNED WITH THE MORAL AND CIVIC ASPECTS OF EDUCATION

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

Especially for advisers for girls:

22.* Problems of Advisers or Deans of Girls in High Schools I. Beginning Course (Ed 6s).

Three credits; 10:00 daily. C 307. (G) Dean Ella E. Wilson.

23.* Problems of Advisers or Deans of Girls in High Schools II. Advanced Course (Ed 7s).

Three credits; 11:00 daily. C 307. (G) Dean Ella E. Wilson.

24.* Outlines of Social Hygiene Education (Ed 8s).

One credit; 1:00 TTh. Other hours may be arranged after the class has been organized. C 307. (G) Dean Ella E. Wilson.

General:

25. Vocational Guidance (Ed 431s).

Three credits; 3:00 daily. C 307. Fee \$0.50. (G) Professor Salser.

*These classes will be addressed by outstanding specialists in the fields with which a dean's work is concerned.

26. Occupational Information (Ed 12s).

Prerequisites: Psy 201, 222; Education 211, 212, 433. Three credits;
9:00 daily. C 307. (G) Professor Salser.

27. Educational Counseling (Ed 9s).

Three credits; 1:00 daily. C 311. Fee \$1.00. (G) Director Grover.

28. Character Education (Ed 10s).

Three credits; 8:00 daily. C 206. (G) Professor Warrington.

29. School Hygiene (H 461s or Ed 461s). (See Hygiene, page 431.)

30. Organization and Administration of Health Education (H 472s or Ed 11s). (See Hygiene, page 431.)

Note: The following subjects may be of interest to teachers for subject-matter and methods: Art, pages 431-432; Corrective English, Eng K, or English Grammar, Eng 1s, page 432; and Courses for entrance credit, page 434.

AGRICULTURAL EDUCATION

For intensive three-week short course program see Courses of Special Interest to Smith-Hughes Teachers, pages 419-420.

COMMERCIAL EDUCATION

Special Courses for Teachers of Commercial Subjects. For courses in Secretarial Training see page 426.

31. Teachers' Course in Stenography (CEd 1s).

Three credits; 9:00 daily. C 109. Assistant Professor Frick.

32. Teachers' Course in Bookkeeping (CEd 3s).

Three credits; 1:00 daily. C 304. Fee \$0.50. Associate Professor Robinson.

HOME ECONOMICS EDUCATION

For regular courses see pages 420-424. For One-week Short Course for Smith-Hughes Teachers see pages 419-420.

INDUSTRIAL EDUCATION

For laboratory courses in Industrial Arts, see pages 426-427.

The following courses are intended to be helpful in organizing and formulating instructional material for public school teaching in either the Industrial Arts or Vocational Trade and Industrial fields. The two courses dealing with Part-Time Schools and Teaching Supplementary Subjects will also prove interesting and valuable to superintendents, principals, and others desiring a broader view and more intimate knowledge of Smith-Hughes Trade and Industrial Education. Most of these courses count as graduate credit for those with graduate standing. By a proper selection of courses from this group, supplemented by additional courses of graduate

grade from the department of Education, the student may plan a curriculum through successive summers leading to the master's degree. The instructor in Courses IEd 484, IEd 488, and IEd 680 is furnished in co-operation with the State Board for Vocational Education.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

33. **Organization and Special Methods** (IEd 373s).

Prerequisites: Ed 211 and at least 12 credits in shop work. Three credits; 7:00 daily. C 7. Fee \$1.00. Mr. France.

34. **Teaching Farm Mechanics** (IEd 1s).

Prerequisites: At least 8 credits in agricultural engineering courses or equivalent. Three credits; 8:00 daily. C 7. Fee \$2.00. Assistant Professor Walker.

35. **The General Shop and Its Problems** (IEd 473).

Prerequisite: Supervised teaching or actual teaching experience. Three credits; 7:00 daily. MA 23. Fee \$1.00. (G) Professor Cox.

36. **Teaching Supplementary Subjects** (IEd 484).

Prerequisite: Suitable preparation in mathematics, drawing and science and consent of instructor. Three credits; 9:00 daily. C 306. Fee \$1.00. (G) Mr. O. D. Adams, Director of State Board for Vocational Education.

37. **The Part-Time School and Its Problems** (IEd 488).

Prerequisite: Ed 323 or consent of instructor. Three credits; 8:00 daily. C 306. Fee \$1.00. (G) Director Adams.

38. **Seminar in Industrial Education** (IEd 671, 672, 673).

Prerequisites: Graduate registration and consent of instructor. Two credits; 9:00 MWF. MA 23. (G) Professor Cox.

39. **Organization and Administration of Industrial Education** (IEd 680).

Prerequisite: Ed 323 and consent of instructor. Three credits; 10:00 daily. C 306. Fee \$1.00. (G) Director Adams.

40. **Graduate Study and Research** (IEd 691, 692).

Prerequisites: Graduate registration and consent of instructor. Three credits; hours to be arranged. MA 23. (G) Professor Cox.

41. **Graduate Thesis** (IEd 694).

Prerequisite: Graduate registration and consent of instructor. Credits and hours to be arranged. MA 23. (G) Professor Cox.

COURSES OF SPECIAL INTEREST TO SMITH-HUGHES TEACHERS

AGRICULTURAL EDUCATION

First Three Weeks Only

42. **Agricultural Education I** (AEd 1s).
One credit; 8:00 daily. First three weeks. Ag. (G) Professor Gibson.
43. **Agricultural Education II** (AEd 2s).
One credit; 1:00 daily. Ag. (G) Mr. Pearson and Mr. Cooley.
44. **Agricultural Education III** (AEd 691s).
Credits to be arranged. 7:00-9:00 p.m. daily. Ag. (G) Professor Gibson.

AGRICULTURE

First Three Weeks Only

45. **Agriculture I** (FMg 1s).
One credit; 9:00 daily. C 7. (G) Professor Scudder.
46. **Agriculture II** (Ag 1s).
Students may take all six units or a combination of any three. One or two credits; 10:00-12:00 daily. C 7. (G)

AGRICULTURAL ENGINEERING

First Three Weeks Only

(For regular courses in Agricultural Engineering, see page 428.)

47. **Rural Engineering in Vocational Agriculture** (AE 1s).
Prerequisite: Teaching experience in vocational agriculture. Two credits; 2:00-4:00 daily. C 113. Fee \$1.00. Assistant Professor Walker.

TRADES AND INDUSTRIES

See *Industrial Education*, pages 417-418, especially courses by O. D. Adams,
Director of the State Board for Vocational Education.

ONE-WEEK CONFERENCE FOR SMITH-HUGHES TEACHERS OF HOME ECONOMICS

This conference is to be held in lieu of the usual state conference for vocational homemaking teachers. Open to others. Registration Friday, June 12, 8:00-11:00, Home Economics Building.

Registration fee of \$10 covers this and regular six-week session immediately following, June 22-July 31.

For courses in Home Economics Education see page 420. For courses in Home Economics see pages 420-424.

48. Use of Problems in Teaching Homemaking (HEd 3s).

Three credits; HE 207. Jane S. Hinkley, Federal Agent for Vocational Home Economics.

HOME ECONOMICS EDUCATION

The department of Home Economics Education offers two lines of work for this summer—first, for the teacher in service desiring up-to-date methods or the student who needs summer work to aid in completing undergraduate work; and second, for the teacher in service or administrator who wishes to prepare for supervisory work. All the courses offered will count toward a major or minor for the master's degree.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY**49. Special Problems of the Home Economics Department (HEd 305s).**

Three credits; 8:00 daily. HE 207. (G)
Frances M. Wright, State Supervisor of Home Economics.

50. Measurements in Home Economics Education (HEd 2s).

Three credits; 3:00 daily. HE 322. (G)
Louise Keller, Department of Home Economics Education, University of Minnesota.

51. Home Economics Curriculum (HEd 3s).

Three credits; 8:00 daily. HE 322. (G) Miss Keller.

52. Adult Education in Homemaking (HEd 4s).

Three credits; 3:00 daily. HE 100. (G) Miss Wright.

53. Use of Problems in Teaching Homemaking (HEd 5s).

Three credits. HE 123. (G) Miss Hinkley.

II. Home Economics

For Methods of Teaching Home Economics in the High School see Home Economics Education above.

THE work in Home Economics aims to meet a wide range of needs. Courses are offered for: (1) Teachers seeking further professional development, whether in foods and nutrition, clothing and textiles, applied art, scientific home management, child care, or allied subjects, in elementary, advanced, or graduate courses. Special training is offered for those wishing to engage in Smith-Hughes work.

(2) Home demonstration agents who desire to strengthen their training and home economics teachers who wish to enter the field of extension

work. The following group of courses is suggested: Special Methods in Home Economics Extension (HEX 410); Economics of the Household; Special Methods in Household Management.

(3) Those who desire to enter commercial or institutional fields, such as hospital dietetics; home service work with public utilities companies; institutional management in high schools, colleges, or commercial establishments; and house furnishing.

(4) Regular Home Economics students seeking to complete requirements for a degree in less than four years or who wish to take special courses outside the regular curriculum.

(5) Special students, not candidates for a degree, who are prepared to take certain courses for their practical value.

One Home Management House, the Nursery School, and laboratories for household equipment classes, textile studies, and animal experiments are available. The School is prepared to give training in the newer phases of home economics.

Equipment. The Oregon State School of Home Economics is classed with the leading schools of its kind in the United States. Its spacious building is well equipped with laboratories, home kitchens, dining-rooms, living-rooms, etc. The laboratories are large and airy, and electric ranges insure the comfort of those taking foods work during the Summer Session.

Graduate Work. Sequences of courses for Summer Session students desiring to fulfill the requirements for a master's degree during summer sessions have been planned by the School of Home Economics. These sequences have been planned for general teachers of Home Economics; extension workers; teachers of foods and nutrition, clothing and textiles and related arts, and home management; cafeteria directors in schools or commercial establishments; dietitians in hospitals; nutrition social service workers; budget advisers; nursery school workers; directors of home management houses; and educational directors in commercial fields. Visiting national leaders in these fields will supplement the courses of the college staff.

HOUSEHOLD ADMINISTRATION

1. **Child Development** (HAd 420).

Three credits; 8:00 daily. HE 122. Fee \$0.50. Professor Prentiss.

2. **Home Management House** (HAd 450).

Prerequisite: HAd 340. Three hours daily housework; 4 credits. Fee \$7.00 a week for living expenses. Professor Johnson.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

3. **Nursery School Education** (HAd 425).

Three credits; 9:00-12:00 three days a week in laboratory; 2:00-4:00 F. HE 122. Fee \$3.00. (G) Professor Prentiss.

4. **Home Management House Supervision** (HAd 455). Confer with the department. (G)

5. **Economics of the Household** (HAd 1as, 1bs).

Prerequisite: ES 391 or equivalent. Three credits, or 1½ credits each three weeks; 9:00 daily. HE 207. Fee \$1.00. (G) Dr. Andrews.

6. **Seminar in Economics of the Family** (HAd 2as, 2bs).

Prerequisites: ES 391 or equivalent and some special interest in economics of the household. Three credits, or 1½ credits each three weeks; 1:00-3:00 MW. HE 123. Fee \$1.00. (G) Dr. Andrews.

7. **Methods of Leadership in Parent Education** (HAd 3s).

Three credits; 2:00-4:00 MTWTh. June 22-July 11. HE 122. Fee \$1.00. (G) Miss Schumaker.

8. **Basic Factors in Human Adjustment** (HAd 4s).

One and one-half credits; 4:00 daily. June 22-July 11. HE 122. Fee \$1.00. (G) Miss Schumaker.

9. **Graduate Study and Research** (HAd 691, 692, 693).

Prerequisite: HAd 440. Credits and hours to be arranged. Fee \$1.00. (G)

10. **Graduate Thesis** (HAd 694, 695, 696).

Credits and hours to be arranged. Fee \$1.00. (G)

CLOTHING, TEXTILES, AND RELATED ARTS

1. **Costume Design and Clothing Selection** (CT 300).

Three credits; 1:00-3:00 daily. HE 215. Fee \$1.00. Miss Elliott.

2. **Tailoring** (CT 416).

Prerequisites: CT 200, 212. Three credits; 3:00-6:00 daily. HE 215. Fee \$2.00. Miss Brew.

3. **Household Textiles** (CT 2s).

Prerequisites: CT 200, 212. One and one-half credits; 2:00 MWF, 2:00-4:00 TTh. July 13-31. HE 203. Fee \$2.00. (G) Miss Blackmore.

4. **House Furnishing and House Decoration** (CT 431).

Three credits; 1:00-3:00 daily. HE 218. Fee \$2.00. James Russell Patterson.

5. **Advanced Textile Design** (CT 438).

Prerequisite: CT 435 or equivalent. Three credits; 8:00-10:00 daily. HE 16. Fee \$2.00. (G) Miss Elliott.

6. Dress Design (CT 411).

Prerequisites: CT 300, 311. Three credits; 10:00-12:00 daily. HE 219.
 Fee \$2.00. (G) Professor Fritchoff.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

7. Advanced House Furnishing (CT 432).

Prerequisite: CT 431 or equivalent. Three credits. 10:00-12:00 daily.
 (10:00 HE 122; 11:00 HE 218.) Fee \$2.00. (G) James Russell Patterson.

8. Graduate Study and Research (CT 691, 692, 693). Confer with department. Credits and hours to be arranged. (G)

9. Graduate Thesis (CT 694, 695, 696). Confer with department. HE 302. (G)

FOODS AND NUTRITION**1. Meal Planning and Serving (FN 1s).**

Three credits; 10:00-1:00 daily. HE 107. (HE 100 F, lecture.) Fee \$6.00.
 Miss Taylor.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

2. Food Economics (FN 410s).

Prerequisite: FN 213 or equivalent. Three credits; 10:00-12:00 daily.
 HE 102B. 10:00 WF. HE 100. Fee \$4.00. (g) Miss Moore.

3. Seminar in Nutrition—Readings in Nutrition (FN 481s).

Prerequisite: FN 321 or equivalent. Three credits; 2:00-4:00 TTh. HE 123. Fee \$2.00. (G) Dr. Sherman, Professor Williams.

4. Nutrition Lectures (FN 8s).

One and one-half credits; 4:00 daily. July 13-31. HE 207. Fee \$1.00. (G)
 Dr. Sherman.

5. Graduate Study and Research (FN 691, 692, 693). Credits and hours to be arranged. Fee \$1.00. (G) Professor Williams.

6. Graduate Thesis (FN 694, 695, 696). Credits and hours to be arranged. (G) Professor Williams.

INSTITUTION ECONOMICS**1. Cafeteria Management (IEc 400).**

Three credits; 9:00 daily. HE 100. Fee \$1.00.
 Assistant Professor Bibee.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

2. Institutional Marketing (IEc 440s).

Prerequisite: FN 213 or equivalent. Two credits; 10:00-12:00 MTWTh.
July 13-31. HE 207. Fee \$1.00. (G) Professor Hunter.

3. Organization and Administration (IEc 1s).

One and one-half credits; 10:00 daily. June 22-July 11. HE 207. Fee
\$1.00. (G) Professor Bryan.

4. Institution Planning and Equipment (IEc 2s).

One and one-half credits; 11:00 daily. June 22-July 11. HE 207. Fee
\$1.00. (G) Professor Bryan.

5. Graduate Study and Research (IEc 691, 692, 693). Credits and hours
to be arranged. Fee \$1.00. (G)

6. Graduate Thesis (IEc 694, 695, 696). Credits and hours to be
arranged. (G)

HOME ECONOMICS EXTENSION

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

1. Methods in Home Economics Extension (HEX 410).

One and one-half credits; 8:00 daily, first three weeks. HE 100. Fee
\$1.00. (G) Professor Nye.

2. Extension Methods in Home Management (HEX 1s).

One and one-half credits; 1:00 daily, June 22-July 11. HE 100. Fee
\$1.00. (G) Miss Rokahr.

III. Commerce

For special courses for Teachers of Commercial Subjects see Commercial Education,
page 417, and Secretarial Training, page 426.

EACH of the regular departments of the School of Commerce offers
courses both for teachers and for general students. As indicated
below, several of the courses are designed primarily for elementary
and high school teachers.

The departments of Finance and Administration and Secretarial Train-
ing offer work emphasizing methods in teaching, as well as practical in-
struction in the respective subjects. The Government and Business Law
courses will also appeal to both teachers and general students. The courses
in Economics and Sociology are offered with the expectation that they will
appeal to any or all of the following classes:

(1) The citizen of Oregon. (2) The college student. (3) Farmers and
those interested in farming. (4) Teachers in public schools. (5) Those
interested in Secretarial Training.

ECONOMICS AND SOCIOLOGY

1. **Principles of Economics** (ES 203).
Four credits; 10:00 daily. C 113. Professor Comish.
2. **General Sociology** (ES 305).
Four credits; 10:00 daily. C 110. Professor Moore.
3. **Educational Sociology** (ES 307).
Four credits; 9:00 daily. C 110. Professor Moore.
4. **Markets and Marketing** (ES 402).
Four credits; 8:00 daily. C 113. Professor Comish.

FOR GRADUATES ONLY

5. **Graduate Study and Research** (ES 691, 692, 693).
Credits and hours to be arranged. (G) Professors Comish and Moore.

FINANCE AND ADMINISTRATION

For special course in Methods for Teachers of Bookkeeping and other commercial subjects see page 417.

1. **Principles of Accounting** (FA 101).
Three credits; 2:00 daily. C 304. Associate Professor Robinson.
2. **Business Organization and Management** (FA 331).
Three credits; 11:00 daily. C 206. Assistant Professor Kelley.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

3. **Investments** (FA 432).
Four credits; 10:00 daily. C 206. (g) Assistant Professor Kelley.

POLITICAL SCIENCE

1. **Business Law** (PS 201).
Four credits; 11:00 daily. C 209. Assistant Professor Riddlesbarger.
2. **National Government** (PS 301).
Three credits; 9:00 daily. C 209. Assistant Professor Riddlesbarger.
3. **Municipal Government** (PS 303).
Three credits; 2:00 daily. C 209. Assistant Professor Claire.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

4. **International Relations** (PS 401).
Four credits; 10:00 daily. C 209. (g) Assistant Professor Claire.

SECRETARIAL TRAINING

For special courses in methods for teachers of Commercial Subjects see page 417.

1. **Stenography (ST 101).**

Three credits; 11:00 and 2:00 daily. C 109. Assistant Professor Frick.

2. **Typing (ST 111).**

Two credits; 10:00 and 1:00 daily. C 217. Fee \$2.00. Miss Rardin.

3. **Office Methods and Appliances (ST 253).**

Prerequisite: ST 113. Two credits; 3:00-5:00 daily. C 311. Fee \$2.00.
Miss Rardin.

IV. Industrial Arts

For courses in Industrial Education see pages 417-418.

In addition to the technical undergraduate courses listed below several graduate courses of particular interest are scheduled under the department of Industrial Education (see pages 417-418). Other graduate courses will be found under Vocational Education. See also Agricultural Engineering, page 428.

1. **Mechanical Drawing (GE 112s).**

Two credits; 1:00-3:00 daily. MA 21. Fee \$1.00. Mr. France.

2. **Mechanical Drawing (GE 113s).**

Prerequisite: GE 112. Two credits; 1:00-3:00 daily. MA 21. Fee \$1.00.
Mr. France.

3. **Methods in Woodworking (IA 111s).**

Three credits; 7:00-10:00 daily. MA 4. Fee \$4.00. Mr. Wilson.

4. **Wood Turning (IA 123).**

Prerequisite: IA 112. Two credits; 10:00-12:00 daily. MA 4. Fee \$4.00.
Mr. France.

5. **Fiber Furniture Weaving (IA 124).**

Two credits; 10:00-12:00 daily. MA 4. Fee \$4.00. Mr. France.

6. **Wood and Metal Finishing (IA 222).**

Two credits; 10:00 TTh, 10:00-12:00 MWF. MA 7. Fee \$5.00.
Mr. Meyer.

7. **Upholstering and Seat Weaving (IA 224).**

Prerequisite: IA 111s or elementary cabinet making. Two credits;
8:00-10:00 daily. MA 4. Fee \$4.00. Mr. Meyer.

8. Foundry Practice (IA 240).

Two credits; 10 laboratory hours to be arranged. Foundry. Fee \$4.00.
Assistant Professor Ridenour.

9. Brass and Alloy Foundry (IA 243).

One or two credits; 6 or 10 hours to be arranged. Foundry. Fee \$2.00
or \$4.00. Assistant Professor Ridenour.

10. Forging and Welding (IA 250).

Two credits; 10:00-12:00 daily. MA 12. Fee \$4.00. Mr. Horning.

11. Ornamental Iron Work (IA 253).

Prerequisite: Elementary Forging. Two credits; 3:00-5:00 daily. MA
12. Fee \$4.00. Mr. Horning.

12. Forging and Heat Treating (IA 254).

Prerequisite: IA 250. Two credits; 1:00-3:00 daily. MA 12. Fee \$4.00.
Mr. Horning.

13. Machine Shop Practice (IA 260).

Two credits; 8:00-10:00 daily. MA 5. Fee \$4.00. Mr. Granning.

14. Machine Shop Practice (IA 261).

Prerequisite: IA 260 or equivalent. Two credits; 8:00-10:00 daily.
MA 5. Fee \$4.00. Mr. Granning.

15. Machine and Tool Maintenance (IA 265s).

Prerequisite: Teaching experience in either woodworking or machine
shop subjects. Two credits; 10:00 TTh, 10:00-12:00 MWF. MA 5. Fee \$2.00.
Mr. Granning.

16. Sheet Metal Work (IA 280).

Three credits; 2:00 TTh, 3:00-5:00 daily. MA 8. Fee \$4.00. Mr. Wilson.

17. Furniture Design and Construction (IA 312s).

Prerequisite: IA 111 or equivalent. Three credits; 7:00-10:00 daily.
MA 4. Fee \$6.00. Mr. Wilson.

18. Home Mechanics and General Shop (IA 325).

Prerequisite: IEd 473 parallel. Two credits; 1:00 TTh, 1:00-3:00
MWF. MA 7. Fee \$4.00. Mr. Meyer.

19. Welding Practice (Advanced) (IA 350).

Prerequisite: IA 151 or 250. One credit; 11:00 TTh and four hours
to be arranged. MA 12. Fee \$4.00. Mr. Horning.

20. Production Machine Work (IA 363s).

Prerequisite: IA 261. Two credits; 1:00 TTh, 1:00-3:00 MWF. MA 5.
Fee \$3.00. Mr. Granning.

V. Agricultural Engineering

AGRICULTURAL Engineering, involving the application of engineering principles in the industry of agriculture, is administered jointly by the Dean of the School of Agriculture and the Dean of the School of Engineering.

For additional courses in shop work and drawing see pages 426-427.

For methods courses in the teaching of shop work see pages 417-418.

1. Automobile Mechanics (AE 182).

Three credits; 1:00-4:00 daily. FM 104. Fee \$3.00. Mr. Lunde.

2. Automobile Mechanics (AE 183).

Three credits; 9:00-12:00 daily. FM 104. Fee \$4.00. Mr. Lunde.

3. Automobile Mechanics (AE 184).

Prerequisites: AE 111 or 182; AE 183. Three credits; 1:00-4:00 daily. FM 104. Fee \$4.00. Mr. Lunde.

4. Farm Shop I (AE 321).

Three credits; 2:00 TTh, 3:00-5:00 daily. FM 102. Fee \$3.00.
Assistant Professor Walker.

5. Farm Shop II (AE 322).

Prerequisite: AE 321. Three credits; 2:00 TTh, 3:00-5:00 daily. FM 102. Fee \$3.00. Assistant Professor Walker.

VI. Industrial Journalism

THREE courses in Industrial Journalism are offered in the Summer Session, meeting the needs of (1) teachers who are called upon to supervise the publication of school periodicals or take charge of the preparation of copy for the school news column of local newspapers; (2) county agents, home demonstration agents, and others desiring some journalistic training as part of their equipment.

1. Elementary Industrial Journalism (IJ 200).

Three credits; 8:00 daily. C 209. Fee \$1.25. Mr. Shideler.

2. Journalism Practice I (IJ 204).

Two credits; hours to be arranged. F 203. Fee \$1.25. Mr. Shideler.

3. High School Publications and Publicity Methods (IJ 1s).

Three credits; 9:00 daily. F 205. Fee \$1.25. Professor Byrne.

VII. Landscape Architecture

1. Landscape Architecture (Descriptive Course) (Hrt 130).

No prerequisites. Two credits; 3:00 T, 3:00-5:00 Th. C 9.

Professor Peck.

VIII. Health and Physical Education

USE of both men's and women's gymnasiums, with their large and modern swimming pools, and the varied program of courses for both men and women allow of expert training in physical education during the Summer Session under the most pleasant conditions.

Fees. Each student registering for work in physical education will be charged a general fee of \$2.00 to cover cost of soap, towels, showers, etc. An additional fee of \$1.00 will be charged students registered in swimming classes.

Social Dancing. A weekly, no-credit class open to men and women will meet at 5:00 on Wednesdays. Instruction is given in the fundamentals of social dancing and in elements of fox trot, one-step, and waltz. A fee of \$1.50 is charged.

The Department of Health and Physical Education for Men supplies a constantly growing demand for men in coaching and physical education positions. The work given in the Summer Session for athletic coaches will be of exceptional value to those who expect to qualify for either full-time or part-time coaching and physical education. The courses offered will meet the demands of those who wish to brush up and get a new angle on all courses as well as of those in part-time teaching and coaching situations.

The Department of Physical Education for Women offers courses in the Summer Session arranged especially for those who wish recreation, and at the same time some preparation and material of value in teaching Physical Education.

PHYSICAL EDUCATION FOR MEN

1. Football Theory and Practice (Knute Rockne's Method) (PE 327s).

Two credits; 8:00-11:00 daily with conferences from 11:00-12:00, first two weeks. Ag 329.

Professor Schissler.

2. Boxing and Wrestling (PE 1s).

One credit; 11:00-12:00 daily, first two weeks. MG.

Mr. Dixon, Mr. Stiner.

3. Basketball Theory and Practice (PE 328s).

One credit; 2:00-4:00 daily, first two weeks. Ag 329.

Mr. A. T. ("Slats") Gill.

4. Baseball (PE 329).

Two credits; 2:00-4:00 daily. MG.

Professor Coleman.

5. Track and Field (PE 334).

Two credits; 4:00-6:00 daily. MG.

Mr. Newman.

6. Organization and Administration of Physical Education (PE 411).

Two credits; 1:00 daily. MG.

Professor Coleman.

7. Administration of Intramural Sports (PE 2s).

Two credits; 4:00 daily. MG.

Professor Coleman.

8. Swimming Theory and Practice (PE 151s).

One and one-half credits; 3:00-5:00 daily, last four weeks; 1 credit, 3:00-4:00 daily for the six weeks; without instruction daily at 5:00.

Mr. Kenney.

PHYSICAL EDUCATION FOR WOMEN**1. Folk and Clog Dancing (PE 131s).**

One credit; 3:00 daily. WB.

Miss Reichart.

2. Social Dancing.

No credit; 5:00 W. WB. Fee \$1.50.

Miss Rex.

3. Tumbling (PEw 177s). One credit; 2:00 daily. WB. Miss Jacobsen.**4. Elementary Swimming (PE 151s).**

One credit; 11:00, 2:00, or 3:00 daily. WB. Miss Robinson, Miss Rex.

5. Advanced Swimming (PE 152s).

One credit; 4:00 daily. WB.

Miss Reichart.

6. Swimming.

No credit; 5:00 daily. WB.

Miss Jacobsen.

7. Tennis (PE 141s).

One credit; 8:00 and 9:00 daily.

Miss Jacobsen.

8. Coaching of Basketball for Girls (PE 462s).

Two credits; 11:00 daily. WB.

Miss Jacobsen.

9. Golf (PE 178s). One credit; 2:00 daily.

Miss Rex.

10. Organization and Administration in Physical Education for the High School Girl (PE 111s).

Three credits; 9:00 daily. WB.

Miss Rex.

11. Physical Education Curriculum for High School Girls (PE 112s).

Three credits; 10:00 daily. WB.

Miss Rex.

HYGIENE

12. **School Hygiene** (H 461s) (Ed 461s).

Three credits; 9:00-10:00 daily. HE 122. (G)

Assistant Professor Heagen.

13. **Organization and Administration of Health Education** (H 472s) (Ed 11s).

Three credits; 10:00-11:00 daily. C 109. (G)

Assistant Professor Heagen.

IX. Religion

ACADEMIC credit for study in the field of religion is given during the Summer Session as well as during the regular year. A course in present-day religious thought in the light of modern science is announced, together with a course on the teaching of Jesus as expressed in The Sermon on the Mount. These courses are open to all students.

1. **Studies in the Sermon on the Mount** (R 220).

One credit; 7:00 a.m. TTh. C 206.

Professor Warrington.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

2. **Orientation in Religious Thinking** (R 461).

Three credits; 9:00 daily. C 206. (g)

Professor Warrington.

X. Basic Arts and Sciences

FIVE departments of the School of Basic Arts and Sciences will offer courses in the 1931 Summer Session, including Art and Rural Architecture, English Language and Literature, History, Public Speaking and Dramatics, and Zoology.

ART AND RURAL ARCHITECTURE

NOTE: Each Monday, Wednesday, and Friday afternoon at 3:00 p.m. in Pharmacy 305 Professor Fairbanks will give lectures illustrated with lantern slides on the subject of Art Appreciation. These are open to the public. Those wishing credit should register for A 411s below.

1. **Color Harmony** (A 103s).

Prerequisites: A 101, 102, or their equivalent. Two credits; 9:00 MW and 9:00-11:00 F. Ag 306. Fee \$0.50.

Professor Fairbanks.

2. **Cast and Still Life Drawing** (A 214s).

Prerequisite: A 213 or equivalent. Two credits; 9:00 TTh, 9:00-11:00 W. Ag 306. Fee \$0.50.

Professor Fairbanks.

3. **Water-color** (A 333s).

Two credits; 11:00 TW, 2:00-4:00 Th. Ag 306. Fee \$0.50.
Professor Fairbanks.

4. **Commercial Art II** (A 362s).

Two credits. To be arranged. Ag 306. Professor Fairbanks.

5. **Art Appreciation** (A 411s).

Two credits; 3:00 MWF. C 109. Fee \$0.50. Professor Fairbanks.

ENGLISH LANGUAGE AND LITERATURE**COMPOSITION**1. **Corrective English** (Eng K).

No college credit; 2:00 daily. C 206. Assistant Professor Colby.

2. **English Grammar for Teachers** (Eng 1s).

Three credits; 2:00 daily. C 315. Associate Professor Peterson.

3. **General Composition** (Eng 110s).

Prerequisite: Eng 101. Three credits; 3:00 daily. C 206.
Assistant Professor Colby.

4. **Industrial Journalism** (IJ 200, 204, 1s). See Industrial Journalism, page 428.

LITERATURE5. **Present-day American Poetry** (Eng 444).

Three credits; 11:00 daily. C 315. Associate Professor Kierzek.

6. **Contemporary American Novel** (Eng 411).

Three credits; 10:00 daily. C 315. (g) Associate Professor Kierzek.

7. **Introduction to the Study of Literature** (Eng 2s).

Three credits; 9:00 daily. C 315. Associate Professor Peterson.

HISTORYHst 225. **American History (1776-1861).**

Three credits; 8:00 daily. C 304. Professor Horner.

Hst 226. **Recent History of the United States (1861-1931).**

Three credits; 9:00 daily. C 304. Professor Horner.

Hst 340. **History of Oregon.**

Three credits; 11:00 daily. C 304. Professor Horner.

PUBLIC SPEAKING AND DRAMATICS1. **Interpretation** (PSp 264s).

Three credits; 9:00 daily. C 211. Associate Professor Barnes.

2. Extempore Speaking (PSp 254).

Three credits; 9:00 daily, L 100, or 2:00 daily, C 9. Professor Mitchell.

FOR GRADUATES AND APPROVED UPPERCLASSMEN ONLY

3 and 4. Community Drama I and II (PSp 465s, 466s).

(I). Pantomimes, tableaux, plays, etc. Three credits; 10:00 daily.
Ad 23. (g) Associate Professor Barnes.

(II). Make-up, pageantry, shadow pictures, costumes, etc. Three
credits; 11:00 daily. Ad 22. (g) Professor Mitchell.

ZOOLOGY**1. Evolution and Eugenics (Z 353).**

Three credits; 11:00 daily. Fee \$0.50. C 110. Professor Fasten.

2. Special Study (Z 1s or Z 691s).

Hours, credits, and fees to be arranged. Confer with the department.
Ag 311. Professor Fasten.

XI. Music

PAUL PETRI, Director

I NSTRUCTION in Piano, Singing, Organ, Violin, Cello, Mandolin and Guitar, and Theoretical Subjects, including Glee Club conducting, is available to Summer Session students. The College permits six credits in applied music toward a degree in any school.

Instruction is mainly private, except in the Theoretical subjects. Fees are payable in advance. Classes in Harmony will not be held unless sufficient students register. Lessons missed by reason of severe illness will be made up by arrangement with the instructor. For further particulars apply to Paul Petri, Director of Music, Administration Building, Room 30.

	For the term	
	One lesson a week	Two lessons a week
Tuition Fees. Private $\frac{1}{2}$-hour lessons.		
Voice		
Mr. Petri	\$15.00	\$30.00
Piano		
Mrs. Petri	15.00	30.00
Mr. Arnold	10.00	20.00
Organ		
Mr. Arnold	12.00	24.00
Violin, Cello, Mandolin, Guitar		
Miss Bowden	10.00	20.00
Harmony. Private lessons		
Class. Three hours weekly	15.00	30.00
		\$7.50

XII. Courses Offered for Removal of High School Deficiencies

THE following courses in subjects of high school grade are offered only during the Summer Session, affording intensive instruction in subjects which may be desired for removal of high school deficiencies for clear entrance to college.

1. **English Grammar (A-hs).** See Corrective English, page 432.
2. **First Semester High School Civics (B-hs).**
One-half unit ($\frac{1}{2}$ year) entrance credit; 8:00 daily and M 4:00. C 309.
Mr. Lloyd.
3. **Second Semester High School Civics (C-hs).**
One-half unit ($\frac{1}{2}$ year) entrance credit; 9:00 daily and M 4:00. C 309.
Mr. Lloyd.
4. **First Semester High School American History (D-hs).**
One-half unit ($\frac{1}{2}$ year) entrance credit; 10:00 daily and T 3:00. C 309.
5. **Second Semester High School American History (E-hs).**
One-half unit ($\frac{1}{2}$ year) entrance credit; 11:00 daily and Th 3:00. C 309.
6. **First Semester Plane Geometry (F-hs).** (Offered if sufficient demand only. Students should apply in advance.)
One-half unit ($\frac{1}{2}$ year) entrance credit; 1:00 daily and MW 4:00. D 307.
Mr. Lloyd.
7. **Second Semester Plane Geometry (G-hs).** (If sufficient demand.)
One-half unit ($\frac{1}{2}$ year) entrance credit; 1:00 daily and MW 4:00. D 307.
8. **Algebra II (H-hs).**
One-half unit ($\frac{1}{2}$ year) entrance credit. To be arranged. Students needing Algebra III confer with the instructor. D 307. Mr. Lloyd.

XIII. Short Course for Members of 4-H Clubs

Direction of H. C. SEYMOUR, State Club Leader.

A TWO-WEEK junior short course in practical Agriculture, Animal Husbandry, and Home Economics, correlated with 4-H Club work, will be given on the campus of Oregon State Agricultural College June 8 to 20. Six hundred and fifty-two were enrolled in 1930. The Club members at the State Fair who placed first in the various projects or divisions of the projects are all members of this short course, their expenses being paid from funds contributed by the State Fair Board of Directors. In addition, many counties, organizations, and clubs have offered scholarships as prizes to their Club members and will send large delegations. Other Club members will be admitted upon the acceptance of their applications, up to the number that can be accommodated, expenses to be paid by the applicant.

Part IV

Experimentation and Research

The enlargement of human knowledge is a recognized function of all institutions of higher learning. The advancement of science is a special obligation of an institution established, as the Land-Grant colleges were, to give instruction in the sciences "with special reference to their application in the industries of life." Research as carried on in the several departments of the College is therefore directed especially toward problems of applied science. Research in agriculture and home economics is provided for through the Agricultural Experiment Station and its eight branch stations, while engineering research is centered in the work of the Engineering Experiment Station.

Agricultural Experiment Station

JAMES TERTIUS JARDINE, Director

OREGON State Agricultural Experiment Station was organized July 2, 1888, in accordance with the Act of Congress of 1887 known as the Hatch Act. The Experiment Station includes the Home Station at Corvallis and eight branch stations advantageously located in such a way as to cover the varying agricultural conditions of Oregon. The Station Staff is listed in Part I of the catalogue.

The Home Station

AT the Home Station about 900 acres of land are used by the College and Station workers engaged in the scientific investigation of problems presented by the different branches of agriculture. The Station organization includes the following departments: Agricultural Chemistry, Agricultural Economics, Agricultural Engineering, Animal Husbandry, Bacteriology, Botany and Plant Pathology, Dairy Husbandry, Entomology, Farm Crops, Farm Management, Home Economics, Horticulture, Poultry Husbandry, Soils, and Veterinary Medicine.

The scientific investigations of the Station Staff strongly support the instruction given in the classroom and through the Extension Service. Aside from the original investigations of economic significance to agriculture, the work affords daily object lessons in modern farm methods. To the students in the various fields of study the value of the investigative work can hardly be overestimated. To the state, from the point of view of economic progress, its value has been greater, in the estimation of many people, than the entire cost of the College to the commonwealth. The work of the Experiment Station is fundamental in the agricultural development of the state. Oregon's soil and climatic conditions present many problems that are unique and that must be solved before the state can develop its great potential agricultural wealth. As illustrative of the comprehensive character of the investigational work carried on by the Station, the following brief summaries of projects, by departments, are presented.

Agricultural Chemistry. Chemical research in agriculture at present is concerning itself with the following: (1) *Spray Materials.* Insecticides, fungicides, and combination sprays are being studied from the standpoint of their chemical and physical properties. At present the causes of injury to trees and fruit by the use of certain oils and emulsifiers for oil sprays are under investigation. (2) *Spray Residues.* More effective solvents are being sought for the removal of spray residues from fruits and vegetables as those products are prepared for the market. (3) *Animal Nutrition.* In some sections of the West the rations of dairy animals consist almost exclusively of alfalfa. In these rations the significance of the high calcium to phosphorus intake ratios is under study in cooperation with the department of Dairy Husbandry. The biological value of alfalfa proteins is being investigated by use of laboratory animals. (4) *Fruit Investigations.* In cooperation with the department of Horticulture three projects are under way. (a) Practical application of field

and laboratory data to the grading of dried prunes for market. (b) The study of factors involved in the use of Royal Ann cherries for maraschino production. (c) The effect of variations in orchard cultural treatment on the composition and keeping properties of Rogue River Valley pears. (5) *Soil Investigation*. An attempt is being made to correlate certain chemical and physical properties of soils with quality and keeping properties of the Bosc pear. (6) *Regulatory Work*. Enforcement of the state Fertilizer, Lime, and Economic Poison laws involves collection and analysis of fertilizer, lime, insecticide, and fungicide samples. In this work there are two objectives: (a) to insure compliance on the part of manufacturers and dealers with the very reasonable requirements of the respective laws, (b) to spread among users of these materials the best available information regarding compounding and application.

Agricultural Economics. Investigations in this department were started in 1927, including: (1) A study in the ratios of assessed values to sale values of real property in Oregon, followed by a study on comparison of the trends of rural and urban real property taxation in Oregon. A study in public expenditures in the State of Oregon on the basis of spending units and purposes for which expended. Incidence on rural property of taxation for public schools, elementary and high schools. (2) An investigation concerning the canning of fresh and dried prunes with special reference to increasing the market for Oregon prunes. (3) A study concerning the marketing of Western Oregon wool. (4) In cooperation with the United States Bureau of Agricultural Economics, a study of membership problems and growers' attitudes in centralized cooperative wool associations. (5) A study of the marketing machinery and outlets for berries in Oregon. (6) An economic study of the hop industry in Oregon.

Agricultural Engineering. Investigations in this department consist mainly of the work on the Relation of Electricity to Agriculture in cooperation with other departments. This program provides for obtaining of facts on the use of electric energy for irrigation, brooding, incubation, water heating, feed preparation, and the influence of lights on egg production; sterilization of dairy equipment; refrigeration; milking machines; dehydration of fruits and nuts; home equipment; general farm problems, such as elevation of grain, threshing, and silo filling.

Some attention is being given to study of arrangement and economy of construction of barns and other farm buildings; building materials; water supply, sewage disposal, and lighting systems for the farm home; wells and the farm irrigation pumping plant; farm equipment.

Animal Husbandry. Experiments in Animal Husbandry, which comprehend tests with horses, beef cattle, sheep, goats, and swine, are conducted partly at the Corvallis Station and partly at the Eastern Oregon Branch Experiment Station and the Umatilla Branch Experiment Station. Experiments with horses are directed to determine the cost of horse-power for various types of farm and other work, the amount of work that may reasonably be expected from a horse, the cost of keep, etc. Experiments with beef cattle, conducted chiefly at Union, are concerned with fattening steers on various rations and with methods of maturing range cattle, methods of growing heifers, and production costs. Experiments with sheep have been directed to determine cost of production, carrying capacity of different types of pasture, methods of fattening sheep, maturing ewes, and methods of rearing and marketing lambs for meat purposes. Experiments with goats have been concerned with the use of goats in browsing and

clearing of land. Experiments with hogs involve cost of production, including rapidity of gain; and comparison of different feeding rations and methods of feeding, including use of pasture.

Bacteriology. Experimental work in Soil Bacteriology embraces one major problem and one minor problem. The major problem is an investigation of the microbial decomposition of organic matter in certain Oregon soils. A study is being made of the influence of moisture and available nitrogen on the rate of straw decomposition in representative soil types. This is to determine under what conditions of soil fertility and moisture, cereal straws with and without added nitrogenous and other fertilizers may be most advantageously used as a source of humus. The occurrence and seasonal distribution of *Azotobacter*, an important group of non-symbiotic nitrogen-fixing bacteria, in typical Oregon soils is being studied as a minor problem.

Botany and Plant Pathology. The work in this department includes the following investigations: virus diseases of potatoes; diseases of truck crops; diseases of bulbs and other ornamentals; Oregon crop-disease survey; miscellaneous orchard diseases; black cap raspberry wilt; strawberry root rots; virus diseases of bramble fruits; miscellaneous fungi attacking small fruits; bacterial blight of filbert; fresh fruit disinfection; forage crop troubles; etc.

Dairy Husbandry. Investigations in this department now include: comparative feeding value of succulents; the most profitable amount of succulents to feed; the effects of such feeds upon quality of butter and milk; pasture investigations; normal growth of dairy heifers; methods of marketing Oregon butter. In cooperation with Agricultural Chemistry careful studies are under way on mineral requirements for growing cattle; mineral balance studies for milk-producing cows; the limiting factors in low milk production of alfalfa hay. In cooperation with Veterinary Medicine breeding problems, efficiency of herd sires, and diseases of dairy cattle are under investigation. A study of the effect of various methods of farm refrigeration for both cream and milk is made in cooperation with Agricultural Engineering. The department administers the Official Testing work in Oregon.

Entomology. Experiments in entomology include: (1) Tests to determine the effectiveness of various insecticides. (2) Introduction and propagation of beneficial insects. (3) Control of root borers and other root-infesting insects. (4) Ecological life-history and control studies on prune thrips, strawberry crown borer, cherry maggot, and codling-moth. (5) Biological studies and control of strawberry root-weevils, bulb insects, cherry, prune and vegetable insects.

Farm Crops. The experimental work in Farm Crops consists of: (1) Forage work with vetches and related plants; red, burr, and sweet clovers; soy-beans; horse-beans; alfalfa; grasses for seed and for hay; pasture mixtures; the study of hay in the stack and in the mow; and some experiments on the making of silage (2) Cereal experiments in varietal testing; breeding and nursery work with wheat, oats, barley and corn; investigation on physiologic forms of smut and on seed treatment in cooperation with Botany department. (3) Varietal, cultural, manufacturing, and economic studies of fiber and seed flax. (4) Potato experiments, including varietal trials; time and method of planting; methods of cutting; hill selection and fertilizer work; and effect of exposure of cut seed. (5) Weed control and

eradication. (6) Crop rotations. (7) Miscellaneous experiments with hard seed and milling quality of wheat. (8) Tillage experiments to work out problems of seed-bed preparation, seeding, and handling of various crops.

It is proposed, when sufficient funds and land are available, to establish an extensive plant-breeding experiment in field crops, a rotation experiment based on crop yield and economy of production.

Farm Management. Investigations in this field are concerned chiefly with (1) the internal organization of the farm, (2) costs and efficiency in production, (3) agricultural land economics. Specific major projects under investigation are as follows: (1) Cost and efficiency studies in Eastern Oregon Dry Farm Wheat Production, Western Oregon Prune Production, Rogue River Pear Production, All Oregon Hay and Silage Production, Commercial Egg Production in Oregon, Commercial Apple Production, Commercial Strawberry Production, Oregon Dairy Production, Walnut Production; (2) Studies of the internal organization of the Eastern Oregon Wheat Farm, the Western Oregon Prune Farm, the Eastern Oregon Irrigated Farm, the Oregon Poultry Farm, the Oregon Dairy Farm. Several minor studies in enterprise costs, farm practices and land economics also are being initiated or are in progress at this time.

Home Economics. Under terms of the Federal Purnell appropriation, the Agricultural Experiment Station is responsible for investigation along certain lines in the home economics field. A well-qualified home economist has been devoting full time primarily to use of time by farm homemakers, and to studies of the farm home.

Horticulture. Experiments in Horticulture comprise the following types of investigations: (1) More complex phases of pruning, including (a) relation of the nitrogen-carbohydrate ratio to pruning practices, (b) relation of carbohydrates and nitrogen to the behavior of apple spurs, and (c) chemical and physiological factors in growth correlations of apple shoots. (2) Pollination of the Cherry. (3) Strawberry variety tests. (4) Breeding investigations with strawberries. (5) Vegetable Crops investigations in (a) field irrigation, (b) seed strain trials, (c) miscellaneous greenhouse crops. (6) Investigations with the by-products of fruit and vegetables in (a) standardization of dried prunes, (b) relationship of going-in sirup to cut-out in canned fruits. (7) Harvesting and storage investigations with pears, apples, cherries, and prunes. (8) Elimination of undesirable spray residue from fruits. (9) Testing perfume roses. (10) Influence of irrigation on small fruits. (11) Processes of preserving cherries for maraschino purposes. (12) Preservation of berries by freezing.

Poultry Husbandry. Experiments in Poultry Husbandry are chiefly concerned with problems of breeding fowls for high average egg production, annually and for a period of years. The relative influence of sires and dams on progeny is also being studied, resulting in valuable data in the study of breed improvement. Results in this field of experimentation have already been remarkable and promise still greater progress.

Soils. The work in this department includes the following specific investigational projects: fertility rotation experiments; fertilizer experiments; soil acidity tests and lime trials; cooperative soil survey; soil correction trials; cooperative tillage and soil moisture studies; surveys and feasibility of irrigation and drainage projects; cooperative duty of water and related investigations; experiments in the distribution of water and

improvement of irrigation practice; supply of ground water available for irrigation by pumping; drainage and improvement of wet soils; evaporation and weather studies in relation to soil production; improvement of water laws; critical soil-moisture points for different crops; phosphorus in "red hill" soils; maintenance of organic matter in the soil; functions of sulfur in relation to soil; the use and value of manure; nutrient requirements of special crops for yield and quality; and the improvement of fertility of peat soils. A comprehensive system of crop rotations and fertilizer trials is being conducted on some fifteen of the chief soils of the state to help develop a permanent system of agriculture. The duty of water and related investigations are statewide in scope. The aim is to determine the right amount of water for the chief soil types and leading crops under the main types of farming in the principal irrigated valleys of the state. The surveys to determine the feasibility of proposed drainage or irrigation projects are made as demand arises. The experiments in drainage are to determine the most efficient depths and distance apart for placing drains in soils of different types, and for testing the efficiency of bedding drains in straw as compared with soils. There are one-half million acres of marsh lands in the state and three million acres of land periodically wet. If efficient drainage should add to the value of the land the average determined for this work in the Middle West, the reclamation of the state's wet soils would add at least \$10.00 an acre to the value of these millions of acres.

Veterinary Medicine. The experimental work of this department consists principally in work with diseases of cattle, diseases of poultry, and parasitic diseases of sheep and goats. Both field and laboratory studies are being made of infectious abortion and sterility of breeding cattle. Coccidiosis, bacillary white diarrhea, and fowl-pox are the principal diseases of poultry that are being studied. Liver-flukes, lung-worms, stomach-worms, and intestinal worms of sheep and goats are receiving attention. Some experiments are being conducted on salmon poisoning of dogs.

The Branch Stations

THE eight branch stations located at Astoria, Burns, Hermiston, Hood River, Moro, Talent, Union, and Pendleton conduct experiments on the major agricultural problems of their respective agricultural sections of the state.

The John Jacob Astor Branch Experiment Station. At Astoria the major problems are dairying, improvement of farm crops, soil fertility, and soil management for Coast conditions and the drainage, improvement, and cultivation of tide-lands.

The Harney Valley Branch Experiment Station. The station at Burns is conducting experiments in both dry-farming and irrigation agriculture as to: (1) varietal tests of grain and forage crops for this section of the state; (2) rates and dates of seeding; (3) tillage methods; (4) amount of irrigation water and methods of distribution for different crops; (5) fertilizers; (6) feasibility of pumping for irrigation.

The Umatilla Branch Experiment Station. The station at Hermiston is studying problems of agriculture under irrigation on the Umatilla Reclama-

tion Project and similar lands of the Columbia River Basin. Major attention is given to: (1) the amount of water needed for irrigation of different crops and methods of irrigating; (2) varietal trials of farm crops; (3) crop rotation experiments; (4) fertilizer experiments; (5) feeding experiments; (6) turkey management; (7) pasture for dairy cattle; (8) curly top disease of truck crops.

The Hood River Branch Experiment Station deals with orchard pests and horticultural problems of this important orcharding section. Experiments and demonstrations are conducted to decide upon the most satisfactory sprays and the most efficient equipment and methods of applying them to control the various orchard pests of the region. In horticulture, investigations are directed primarily to methods of pruning for different fruit crops, fertilizers for orchards, varietal tests with small fruits and potatoes, an orchard survey of methods and costs of products and winter hardiness of varieties.

The Sherman County Dry-Farm Branch Experiment Station. The Moro station is conducting investigations on the major problems of dry-land farming in the Columbia Basin, including: (1) varietal tests and rate and date of sowing experiments with field crops; (2) cereal breeding investigations; (3) tillage experiments; (4) soil moisture and nitrate investigations; (5) crop rotation experiments; (6) cereal disease investigations; and (7) cereal nurseries in counties of Eastern Oregon.

The Southern Oregon Branch Experiment Station at Talent is centering attention almost wholly upon problems involved in fruit production in this important fruit-growing region, including (1) investigations to determine relative resistance to pear blight of all the known species of *Pyrus* and all available varieties of cultivated pears in the hope of finding suitable blight-resistant pear stocks; (2) a test orchard of pear stocks, including the principal pear stocks of France, Japan, and China to determine those most satisfactory for Southern Oregon conditions; (3) testing new varieties of pears; (4) pear breeding experiments; (5) disinfectants for blight-control work; (6) fertilizers for orchards; (7) study of oil sprays; (8) studies on the control of insect pests; (9) cooperation in studies of harvesting, storing and processing of pears.

The Eastern Oregon Branch Experiment Station. The Union station is equipped with land and buildings for experiments with both livestock and farm crops. Major attention is at present devoted to the problems of growing and feeding cattle, sheep, and hogs with comparative study of different feeds and methods of feeding; the problems of suitable pastures, feeding, housing, and management of the dairy herd; investigations with grain and forage crops, including varietal trials of wheat, oats, barley, and legumes, crop rotations; making silage; soil fertility studies; poultry production and management; and pumping for irrigation.

The Pendleton Branch Experiment Station is equipped with 160 acres of land in an important wheat-growing belt for the purpose of establishing and maintaining crop rotation investigations. Umatilla county furnished the valuable land for the station. Maintenance is cooperatively between the Office of Dry Land Agriculture, Bureau of Plant Industry, United States Department of Agriculture, and the State of Oregon through the Experiment Station. While the major investigations will be on crop rotations, other problems of wheat growing will be taken up.

Engineering Experiment Station

HARRY STANLEY ROGERS, Dean and Director.

SAMUEL HERMAN GRAF, Director of Research.

BY act of the Board of Regents of the College on May 4, 1927, the Engineering Experiment Station was established to serve the state in a manner broadly outlined by the following policy:

(1) To serve the industries, utilities, professional engineers, public departments, and engineering teachers by making investigations of significance and interest to them.

(2) To stimulate and elevate engineering education by developing the research spirit in faculty and students.

(3) To publish and distribute through bulletins, circulars, and technical articles in periodicals the results of such studies, surveys, tests, investigations, and researches as will be of greatest benefit to the people of Oregon, and particularly to the state's industries, utilities, and professional engineers.

Organization and Projects. The Engineering Experiment Station is an integral part of the Engineering School. All staff members and laboratory facilities of the Engineering School are available for the investigational work of the Station to the extent of the sums allocated or contributed for their operation and support. Much of the work of the Station has been made possible by the assistance of industries and state and national associations. The dean of engineering is director of the station and the heads of the various major departments function as a council ex-officiis. The director of research acts as a technical counselor upon investigational work and as engineering editor of publications. The active staff is composed of members of the instructional staff who may be interested in various specific research projects and research fellows who are pursuing graduate study and are assigned to half-time work in the Station. Experts who are especially qualified by training and experience to advise upon the investigations in certain fields have also been appointed to the staff as special technical counselors. Some technical assistants have been supported by manufacturer's and industrial associations interested in working out specific problems.

The projects being investigated at the present time are Some Typical Oregon Concrete Aggregates, Mathematical Analysis and Experimental Studies of Fittings Used in Timber Construction, Tests on Concrete Drain Tiles and Investigations of Dry Mixes Used in Their Manufacture, Investigation of Lightning and Its Relationship to Forest Protection, Radio Interference from High Voltage Transmission Lines, Physical Properties of Litharge-Glycerine and Sand Mortar, and the Influence of Polarity Upon

High Voltage Discharges. Some of the projects recently completed are Tests on and Discussion of Industrial and Domestic Fuels Used in Oregon, A Sanitary Survey of the Willamette River, The Adjustment of Automotive Carburetors for Economy, and the Use of Sawdust in Concrete Aggregates for Dairy Barn Floors.

Among those industries and associations that have contributed to the support of research in the form of fellowships, supplies, equipment, and travel expenses are the Portland Wire and Iron Works, Columbia Wire and Iron Works, and the City Iron Works of Portland, The National Lumber Manufacturers Association, The Northwest Concrete Products Association, The United States Forest Service, The Oregon State Board of Forestry, The Oregon Forest Fire Association, The Northwest Electric Light and Power Association, and The National Electric Light Association.

Publications. The results of the investigations conducted by the Station are issued through three types of publications. These are:

- (1) *Bulletins* covering original investigations.
- (2) *Circulars* giving compilations of useful data.
- (3) *Reprints* giving more general distribution to scientific papers or reports previously published elsewhere, as for example, in the proceedings of professional societies.

Single copies of bulletins are sent free on request to interested residents of Oregon, to libraries, and to other experiment stations exchanging publications. Additional copies, or copies to others, are sent at prices covering cost of printing, as long as copies are available.

Publications of the Station available for distribution at the present time (April, 1931) are:

- Bulletin No. 1. Preliminary Report on the Control of Stream Pollution in Oregon, by C. V. Langton and H. S. Rogers. 1929.
Fifteen cents.
- Bulletin No. 2. A Sanitary Survey of the Willamette Valley, by H. S. Rogers, C. A. Mockmore and C. D. Adams. 1930.
Forty cents.
- Bulletin No. 3. The Properties of Cement Sawdust Mortars, Plain, and With Various Admixtures, by S. H. Graf and R. H. Johnson. 1930.
Twenty cents.
- Circular No. 1. A Discussion of the Properties and Economics of Fuels Used in Oregon, by C. E. Thomas and G. D. Keerins. 1929.
Twenty-five cents.
- Circular No. 2. Adjustment of Automotive Carburetors for Economy, by S. H. Graf and G. W. Gleeson. 1930.
Twenty-five cents.
- Reprint No. 1. Methods of Live Line Insulator Testing and Results of Tests with Different Instruments, by F. O. McMillan. 1927.
Twenty cents.

Part V

Extension Service

College Extension includes all means of imparting the message of the College to the people in their own communities. All major departments in the institution seek through every means possible, so far as resources and facilities permit, to serve the entire state. Through special Federal and State funds the Extension Service is enabled to maintain throughout the state a comprehensive program of cooperative extension work in agriculture and home economics.

Extension Service

PAUL VESTAL MARIS, Director.

THE Extension Service performs one of the three great functions of Oregon State Agricultural College, which include: resident instruction, research and experimentation, and college extension. The Extension Service is charged with the duty of extending the benefits, advantages, and available information of the College and of the United States Department of Agriculture to every portion of the state and to all those persons who for any reason are unable to come to the College. A list of the staff of the Extension Service is printed elsewhere in the catalogue.

A State-wide Campus. The Extension Service includes all forms of off-campus instruction and assistance in those subjects in the College curriculum which lend themselves to extension methods or which can be taken and adapted to the direct needs of the people of the state. The various Extension activities are the means through which information, instruction, assistance, and methods of self-help are carried to all persons who desire them at any point within the state. In brief, the Extension Service represents the medium, both independently and in hearty cooperation with all other organized forces of betterment, for enlarging and enriching the agricultural and home interests of Oregon. No county, town, hamlet, farm, or home need be without some evidence of this service.

Extension Projects. In order to assure the maximum of efficiency Extension work is conducted on the basis of definitely planned projects. These require approval by the proper College authority and the Secretary of the United States Department of Agriculture before federal funds are made available.

The several distinct lines of work now covered by written projects, from which the citizens of some portion of the state are receiving benefit, include:

1. General Administration and Organization of the Extension Service.
2. Field Meetings.
3. Radio Broadcasting. For information concerning Station KOAC, see page following.
4. County Agricultural Agent Service.
5. Nutrition.
6. Four-H Club Work.
7. Soils.

8. Horticulture.
9. Animal Husbandry.
10. Dairy Husbandry.
11. Poultry Husbandry.
12. Farm Crops.
13. Agricultural Economics, including Marketing and the Collection and Dissemination of Agricultural Statistical Information.
14. Rodent Control.
15. General Extension, including courses in Portland, Salem and other centers, Institutes for Business People, etc.
16. Preparation, Printing, and Distribution of Bulletins.
17. Service to Rural Organizations, including the provision of program material, training schools for community leaders in recreation and dramatic art.
18. Home Management.
19. Visual Education, including chart service, lantern slides, motion pictures.
20. Clothing.

It should not be assumed that these projects cover the only problems of importance within the state. It is the purpose to put into operation and to emphasize those lines of Extension Service that are fundamental to large and important interests of farm or home welfare, or to material agricultural development.

Radio Station KOAC. The College radio station, first opened in 1925, is operated entirely in the interest of the Oregon public. Programs broadcast by Station KOAC are arranged by the Extension Service and are entirely free from commercialism. The radio service is used as a means of extending the benefits of the varied activities of the College in the furtherance of "liberal and practical education" and the application of science in the industries. KOAC operates with 1,000 watts power on a frequency of 550 kilocycles.

Part VI

Miscellaneous

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Alumni Association Officers

BOARD OF DIRECTORS

	Term expires
President, Mark D. McCallister '05, State House, Salem.....	1931
Vice-president, Jeannette Cramer '22, Oregonian, Portland.....	1932
Treasurer, Charles H. Reynolds '13, La Grande.....	1934
Clifford A. Dunn, '11, Dunn & Baker, Klamath Falls.....	1933
Don W. Holgate, Class of '97, Trust Dept. U. S. Nat'l Bank, Portland.....	1935
Alumni Secretary, Edward C. Allworth '16, Memorial Union, Campus.	
Alumni Editor, A. Lowell McMillan '27, Memorial Union, Campus.	
Records Clerk, Eunice Courtright '25, Memorial Union, Campus.	

MEMBER OF BOARD OF CONTROL

	Term expires
Jay M. Reynolds '10, Route 1, Corvallis.....	1931

MEMBERS OF MEMORIAL UNION BOARD OF GOVERNORS

	Term expires
E. E. Wilson '89, First Nat'l Bank Bldg., Corvallis.....	1931
Roy R. Clark '09, 609 Railway Exchange Bldg., Portland.....	1932
R. Earl Riley '12, 80 North Broadway, Portland.....	1933
Percy A. Cupper '04, 411 Masonic Bldg., Salem.....	1934

MEMBER OF MEMORIAL UNION BOARD OF DIRECTORS

	Term expires
J. F. Porter ex-'12, care of Benton County State Bank, Corvallis.....	1931

ALUMNI CLUBS

OREGON

- Ashland Club—President, Harold Teale '27, High School, Ashland. Secretary, Mrs. Bessie Elhart, nee Bessie Newton, ex-'18, 117 Nob Hill.
- Baker County Club—President, Bernard Mainwaring '20, care of The Democrat-Herald, Baker.
- Central Oregon Club—President, Loyde Blakley '26, 504 Congress St., Bend. Secretary, Carol Boyd, 518 Hill St., Bend.
- Klamath County Club—President, Percy Murray '24, Box 486, or Klamath Falls Creamery, Klamath Falls.
- La Grande Club—President, William Heughan '24, Box 929. Secretary, Harold Boone '30, Chamber of Commerce.
- Linn County Club—President, Stowell Dawson ex-'12, 732 Broadalbin, Albany. Secretary, Mrs. A. L. Carnegie, nee Viva Delle Archibald, '14, Route 1, Corvallis.
- Medford Oregon State Club—Secretary, Mrs. Mabel Mack '28, Courthouse.
- Portland Club—President, Charles T. Parker '08, 952 Rex Ave. Secretary-Treasurer, Charles J. Weber '29, 614 Oregon Building.
- Roseburg Club—President, Chester Morgan '26, Laurelwood Addition.
- Salem Club—President, Edward F. Underwood '16, 1880 Fairmount Avenue. Secretary, Mrs. J. A. Jelderks, nee Katherine Marshall '24, 1564 Center St.
- Tillamook Club—President, Clorin J. Layton '22.
- Umatilla County Club—President, Berkeley A. Davis '22, care of Inland Empire Bank, Pendleton.
- Wasco County Club—President, Glen Corey, '18, 511 Benton, The Dalles. Secretary, Marjorie Crandall ex-'31, care of Western Dairy Products Co., The Dalles.

CALIFORNIA

- Golden Gate Club—President, Royse Clayton ex-'27, 845 Sutter St., San Francisco. Secretary, Mrs. Clyde Hubbard ex-'24, care of Olympic Club, San Francisco.
- Hemet Club—President, H. L. Wilson '21, Route "A," Box 102-C, Hemet.
- Long Beach Club—President, Rolland S. Thomas ex-'23, 378 Hope Street, Walnut Park. Secretary, Elsie Magnuson '23, 1574 Linden, Long Beach.

- Redwood Club—President, S. J. Damon '14, Ferndale.
 North Bay Counties Club—President, Willard VanDyke, '26, Petaluma. Secretary, Herbert von Lehe '25, Courthouse, Santa Rosa.
 San Diego Club—President, Arthur P. Loring, 4613½ Park Blvd., San Diego. Secretary, Mrs. Fred D. Hall, nee Katherine Elmer '24, 4152 Cleveland Ave., San Diego.
 Santa Clara County Club—President, T. N. Daniels, '25, 322 N. 14th St., San Jose. Secretary, Alice K. Kidder, '24, Hotel Vendome, San Jose.

COLORADO

- Denver—Secretary, Leo Laythe '16, 305 Custom House.

IDAHO

- Boise Club—President, Herschel Davidson '16, Route 2, Meridian. Secretary, Mrs. Carl Brandt, nee Clara Owens ex '23, 305 Idaho Building.
 Moscow Club—President, Mrs. J. H. Reardon, nee Florence Berchtold '19, 709 E. Third St.

ILLINOIS

- Chicago Club—President, William J. O'Neil '17, 2203 E. 67th St., Chicago.

IOWA

- Ames Club—President, William Oglesby '29, Veterinary Dept., I. S. C. Secretary, Laraine Dunn '29, Farm Crops Dept., I. S. C.

KANSAS

- Manhattan Club—President, Donald Wilbur '25, Entomology Dept., K. S. A. C. Secretary, Le Velle Wood '21, Van Zile Hall, Manhattan.

MISSOURI

- St. Louis Club—Secretary, Jay Green '12, 7340 Shaftsbury Ave.

MONTANA

- Montana Club—President, Frank Harrington '13, Hort. Dept., Montana State College, Bozeman.

NEW YORK

- Eastern Club—President, Edward R. Leibner '11, 1440 Broadway, New York City. Secretary, David Hogmer, '26, 4229 Judge St., Elmhurst, L. I., N. Y.
 Schenectady—President, Fred Crowther '27, 1593 Rugby Road, Schenectady. Secretary, Charles F. Savage '28, 116 Mohawk Ave., Scotia.

WASHINGTON

- Seattle Club—President, Leslie Smith '22, 834 Dexter-Horton Bldg. Secretary, John Avey '25, 209 32d Ave., Seattle. Drop-in luncheon, at Mannings, second Wednesday of each month.
 Spokane Club—President, Reno Banks ex-'20, 120 N. Wall St. Secretary, Mrs. C. C. Strong, nee Marie Tonseth '24, E. 4103 26th St.
 Wenatchee Club—Secretary, Paul Scea '21.

WISCONSIN

- University of Wisconsin Club—Secretary, Lloyd Covert '29, Chemical Bldg., U. of W., Madison, Wis.

DISTRICT OF COLUMBIA

- Washington, D. C. Club—President, Paul Emmett '22, Fixed Nitrogen Research Lab. Secretary, Ben H. Pubols '26, 2127 P St., NW.

HAWAII

- Hawaii Club—President, Ingraham Jones '26, 741 Eighth Ave., Honolulu. Secretary, Mrs. Loring Hudson (Margaret Smith '30), Kamehameha Schools, Honolulu.

Sixty-second Annual Commencement

Degrees Conferred June 1, 1931

DOCTOR OF SCIENCE

WILLIAM LOVELL FINLEY
A.B. (1903), California

DOCTOR OF ENGINEERING

GEORGE BURKHALTER HERINGTON

DOCTORS OF LAWS

ADOLFHE WOLFE

WILLIAM OXLEY THOMPSON

A.B. (1878), A.M. (1881), Muskingum College; LL.D. (1897), Western University of Pennsylvania; LL.D. (1908), Oberlin; LL.D. (1911), Vermont; LL.D. (1915), Michigan; LL.D. (1922), Miami; LL.D. (1924), Ohio Wesleyan; LL.D. (1925), Heidelberg; LL.D. (1925), Wilberforce; LL.D. (1925), Western Reserve; LL.D. (1929), Ohio State.

MASTERS OF SCIENCE

EVALYN ANNETTA BENTLEY

Tucson, Arizona.
B.S., 1912, Home Economics, Kansas State College.
Thesis: A Study of Incomes and Expenditures of Home Economics Graduates of Oregon State College.

LEE H. BISSETT

Newberg, Yamhill.
B.S., 1931, Vocational Education, Oregon State.
Thesis: Some Connotations of Height and Weight Among High School Boys.

RALPH EDWARD BROOKE

Salmon Arm, Canada.
B.S., 1929, Agriculture, University of British Columbia.
Thesis: Sterility in Dairy Cattle.

WILLIAM RICHARD BULLIS

Gaston, Yamhill.
B.S., 1930, Electrical Engineering, Oregon State.
Thesis: An Electrical Method for Measuring Sound Absorption.

ESTELLE JOSEPHINE CALKINS

Mount Vernon, Washington State.
B.S., 1925, Home Economics, Oregon State.
Thesis: An Analysis of the Housing and Operating Conditions in Sororities at Oregon State College.

EDWARD CLEVELAND CALLAWAY

Corvallis, Benton.
B.S., 1907, Pharmacy; M.S., 1911, Pharmacy, Oregon State.
Thesis: The Tetra-alkyl Ammonium Compounds, Their Possible Use in Agriculture and Industry.

MASTERS OF SCIENCE—*Continued*

ARTHUR WILLIAM COLE

Washington, District of Columbia.

B.S., 1929, South Dakota State College.

Thesis: Studies on the Growth of Bacteria, Yeast, and Molds in Butter Held in Storage at 4.3° to 10° Centigrade which is 40° to 50° Fahrenheit for One Month.

ROLAND EUGENE DIMICK

Corvallis, Benton.

B. S., 1926, Vocational Education, Oregon State.

Thesis: *Digonichaeta Setipennis* Fall.

A Tachinid Parasite of the European Earwig with a Study of Its Introduction, Biology, and Laboratory Methods Used in Rearing in Oregon.

MAE LANG DING

Hwa Nan College, Foochow, China.

B.S., 1929, Hwa Nan College, Foochow, China.

Thesis: Curricula in Home Economics for Hwa Nan College, China.

RUTH DOUGLASS

Tempe, Arizona.

B.S., 1925, Pomona College.

Thesis: A Study of the Vitamin G Content of Oregon Bosc Pears.

OSCAR JEFFERSON DOWD

Hartford, Michigan.

B.S., 1929, Michigan State College.

Thesis: Investigations in the Relative Transpiration Rate and Foliar Water-Retaining Power of Various Apple Varieties.

FLOYD MARVEN EDWARDS

Union, Union.

B.S., 1923, Agriculture, Oregon State.

Thesis: Fattening Lambs at the Union and Hermiston Branch Experiment Stations 1922 to 1929.

LAWRENCE THOMAS FISHER

Medford, Jackson.

B.S., 1929, Electrical Engineering, Oregon State.

Thesis: The Origin and Character of Electro-Magnetic Radiation from High Voltage Pin Type Insulators.

EARL ROSENDALE FOGARTY

DeSaba, California.

B.S., 1926, University of California.

Thesis: Available Phosphate Tests on Certain Oregon Soil Types.

GLENN WILLIS HOLGOMB

Corvallis, Benton.

B.S., 1919, Civil Engineering, University of Michigan.

Thesis: A Study in the Measurement of Engineering Aptitude.

MAE LUJEANNE HOLLOWAY

Corvallis, Benton.

B.S., 1929, Home Economics, Oregon State.

Thesis: A Study of the Vitamin B₁ Content of Oregon Bosc Pears.

PHILIP CORNWELL JOHNSON

Berkeley, California.

B.S., 1929, Forestry, Oregon State.

Thesis: The American Species of the Genus *Ellopia* (Lepidoptera) with Special Reference to *Ellopia Somnaria* Hulst.

RAYMOND HAWLEY JOHNSON

Newberg, Yamhill.

B.S., 1929, Chemical Engineering, Oregon State.

Thesis: The Adsorption of Water.

RICHARD S. KEARNS

Pendleton, Umatilla.

B.S., 1930, Forestry, Oregon State.

Thesis: The Relation of Air Circulation to Kiln Drying of Lumber.

MASTERS OF SCIENCE—*Continued*

HELEN LEE KELLEWAY

Corvallis, Benton.
B.S., 1922, Home Economics, Oregon State.
Thesis: Honey and Its Use in Cookery.

VERNON EMMET KERLEY

Eugene, Lane.
B.S., 1929, Electrical Engineering, Oregon State.
Thesis: Standardization of Photo-Tube Test and Ratings.

VERN E. MCDANIEL

Corvallis, Benton.
B.S., 1925, Forestry, Oregon State.
Thesis: Nursery Practice on the Oregon Forest Nursery.

JUANITA CHANEY MANNING

Corvallis, Benton.
B.S., 1921, Home Economics, Oregon State.
Thesis: A Syllabus for the Teaching of Child Care and Training in the Junior High School.

LIONEL WALTER MANNING

Bellingham, Washington State.
B.S., 1926, State College of Washington.
Thesis: The Interrelation of Teacher-Training Salary Schedules, State Certification and Advancement of Method for Industrial Arts in the Secondary Schools.

VONDIS ELBERT MILLER

Halsey, Linn.
B.S., 1930, Forestry, Oregon State.
Thesis: A Management Plan for the Peavy Arboretum and School Forest.

RALPH WALTON PARKER

Corvallis, Benton.
B.S., 1925, Industrial Arts, Oregon State.
Thesis: A Survey of Certain Industrial Activities of the State of Oregon with Particular Reference to the Possible Influence on the Practical Arts Program of Oregon Public Schools.

GEORGE LEONARD RYGG

Clifford, North Dakota.
B.S., 1929, North Dakota Agricultural College.
Thesis: Effects of Runner Production on Strawberry Plants.

DOROTHY SMITH SCHREINER

Corvallis, Benton.
B.S., 1925, University of Wisconsin.
Thesis: The Economic Factors Which Have Influenced the Changes in the Silhouette of Woman's Costume.

PAUL LOUIS SMITHERS

Canon City, Colorado.
B.S., 1922, Agriculture, State Agricultural College of Colorado.
Thesis: History and Analysis of the Pacific Cooperative Poultry Producers.

LEE WILLOUGHBY STEBBINGS

Albany, Linn.
B.S., 1915, Chemistry, State University of Iowa.
Thesis: The Valuation and Depreciation of Public Utilities Operating in Rural Communities.

REUBEN CHRISTIAN THIELKE

Portland, Multnomah.
B.S., 1929, Chemical Engineering, Oregon State.
Thesis: Optically Active Pinenes from Oregon Woods.

WILLIAM CAREY WHITAKER

Corvallis, Benton.
B.S., 1921, Agriculture, Oregon State.
Thesis: The Possibility of Inter-Transmission of Tulip Mosaic and Iris Mosaic by Insect Vectors, Especially Aphids.

MASTERS OF SCIENCE—*Continued*

FRANCIS DALE WILSON

Corvallis, Benton.
B.S., 1928, Agriculture, Kansas State College.
Thesis: Raising Calves on Dry Calf Meal.

LAWRENCE FISHER WOOSTER

Corvallis, Benton.
B.S., 1906, Electrical Engineering, University of Illinois.
Thesis: The Evolution of the Philosophy of Engineering Aptitude.

BACHELORS OF SCIENCE*

SCHOOL OF AGRICULTURE

*General Agriculture*BRIAN BAXTER BLACKMORE
Oamaru, New ZealandWILLIAM WALTER GRAFTON
Anaheim, California*Agricultural Education*LIONEL EARL CROSS
Prineville, Crook*Agricultural Engineering*KEITH JAY ABBOTT
Corvallis, BentonRICHARD WALTER HENZEL
Portland, Multnomah*Animal Husbandry*TINSMAN ROBERT CRAIG
Malin, Klamath
WALTER CARL GERLACH
Twin Falls, Idaho
NOLAND ADOLPH JACOBSEN
Payette, Idaho
DONALD ROBERTS KETCHAM
Waterford, California
RODWIN CONDON MCCORNACK
Eugene, LaneEDWIN ARTHUR MCKUNE
Paisley, Lake
RAYMOND BENSON RUGG
Pendleton, Umatilla
WILLIAM ARTHUR SAWYER
Kerby, Josephine
JAMES MERTON STEIN
Lakeview, Lake*Dairy Husbandry*HOWARD VELROY BENNETT
Independence, Polk
HOWARD BERTSCH
Corvallis, Benton
JOHN ANTHONY DUTRO
Corvallis, BentonJ. EDWIN HARPER
Gervais, Marion
MARVIN ROBERT WIGHTMAN
Heppner, Morrow*Entomology*WILLIAM DONALD EDWARDS
Corvallis, BentonHAROLD EUGENE HASBROUCK
Nampa, Idaho*Farm Crops*BURTON BOYCE BURROUGHS
Corvallis, Benton*Farm Management*ELMER OSCAR BERG
Canby, Clackamas
FORREST ADEN HARRAH
Pendleton, UmatillaROLAND WILLIAM SCHAAD
Newberg, Yamhill
LOREN JUDSON SMITH
Corvallis, Benton

*In case of starred names, degree was granted at close of 1930 Summer Session.

SCHOOL OF AGRICULTURE—Continued

Horticulture: Horticultural Products

J. NORMAN ADAMS
Corvallis, Benton

Horticulture: Landscape Architecture

*CHESTER E. CORRY
Portland, Multnomah
THOMAS GILMORE HEATON
San Francisco, California
FREDERICK LEISSLER, JR.
Portland, Multnomah

SAM SERRANO
Portland, Multnomah
ROBERT JAMES SPENCER
Walnut Park, California

Horticulture: Pomology

ALLEN DUNCAN BUSENBARK
Roseburg, Douglas
ARTHUR LYLE DAGLEY
Portland, Multnomah
AUSTIN VALENTINE HARPER
Corvallis, Benton

EDWARD RIDDELL LAGE
Hood River, Hood River
LEWIS NICHOLS
Dayton, Yamhill
HENRY CHARLES WILLIAMSON, JR.
Corvallis, Benton

Horticulture: Vegetable Gardening

ROWLAND GAGAR HAGAR
Roseburg, Douglas

NORMAN RASMUS OLIPHANT
Portland, Multnomah

Poultry Husbandry

JOHN ADAMS GULL
Salem, Marion
FRED HARSHBERGER
Warrenton, Clatsop

LINN SHROCK
Milwaukie, Clackamas
PAUL WIERDSMA
Corvallis, Benton

Soils

ELDON EDMISTON BAKER
Carlton, Yamhill
KENNETH ALEXANDER BROWN
Gervais, Marion

CLARENCE RALEIGH FERDUN
Lodi, California

Zoology

ESTRED IONE NELSON
St. Helens, Columbia

DEPARTMENT OF CHEMICAL ENGINEERING

PHILIP GULICK ACKERMANN
Corvallis, Benton
JAMES BENNETT BROWN
Corvallis, Benton
PAUL P. CONRAD
Redley, California
NAOMI MARY JOHNSON
Wenatchee, Washington State
ROBERT GRAHAM MISPLEY
Sacramento, California

GEORGE VICTOR PALMROSE
Seaside, Clatsop
HENRY MORROW RISLEY
Corvallis, Benton
A. WARD TEDROW
Portland, Multnomah
WILLARD PHILIP TYLER
Portland, Multnomah
THOMAS MARION WILKES
Corvallis, Benton

SCHOOL OF COMMERCE

- *THOMAS FRANCIS ADAMS
 Portland, Multnomah
 CLARENCE WILLIAM AKIN
 St. Helens, Columbia
 GEORGE RICHARD ANDRICH
 Astoria, Clatsop
 VIVIEN EULA BALES
 Kimberly, Grant
 MIRIAM BODE BARKER
 Portland, Multnomah
 WILDA IRENE BARKER
 Myrtle Point, Coos
 CLARK EWING BEARDSLEY
 Los Angeles, California
 PATRICIA ADALINE BECK
 Gaston, Washington
 *VESTA BERNICE BECKLEY
 Roseburg, Douglas
 JOHN CURTIS BLEVINS
 Corvallis, Benton
 JAMES HARVEY BOUTLINGHOUSE
 Portland, Multnomah
 FRANK JOSEPH BROST
 Portland, Multnomah
 ALFRED LEON BROWN
 Burns, Harney
 BETTY ANNE BURGARD
 Portland, Multnomah
 CLYDE BUSCHMAN
 Portland, Multnomah
 MARJORIE LYDIA BUSH
 Bridal Veil, Multnomah
 THARP CARTER
 Hollywood, California
 GEORGE REMER CASTNER
 Portland, Multnomah
 GUSTAV OTTO CILIAX
 Pasadena, California
 RALPH GUSTAV CILIAX
 Pasadena, California
 HENRY HUNTINGTON CLEMENT
 Salem, Marion
 REESE LEWIS COCHRAN
 Corvallis, Benton
 SAM ERUL COHEN
 Portland, Multnomah
 NITA IDELLIA COLVIN
 Ritter, Grant
 EDWARD CHARLES COMAN
 Covina, California
 MAXWELL COOK
 Corvallis, Benton
 FRED LEE COOPER
 Corvallis, Benton
 MADGE BERNICE COPPOCK
 Salem, Marion
 CLAY VAN CRIDER
 Dallas, Polk
 JOHN CLEMMER CUMMINGS
 Claremont, California
 HOWARD WILLIAM DAVIS
 Estacada, Clackamas
 ROLLIN AUSBEN DECK
 Hillsboro, Washington
 RITA LUCILLE DETEMPLE
 Portland, Multnomah
 EARL L. DIBBLE
 Portland, Multnomah
 ROBERT DRAGER
 Salem, Marion
 THELMA HELENE DRAKE
 Portland, Multnomah
 GEORGE HENRY DUFFIELD
 Portland, Multnomah
 EMERSON EHRINGER EICHORN
 Peoria, Illinois
 JOHN WALTER ERICKSON
 Cascade Locks, Hood River
 GLADYS BERYL ESTBERG
 Portland, Multnomah
 HERBERT WILLARD EWEN
 Portland, Multnomah
 JAMES KENNETH FRAER
 Marshfield, Coos
 HELEN FAYE FUNK
 Portland, Multnomah
 JOHN WALTER GALLAGHER
 Portland, Multnomah
 ROBERT PAUL GEDDES
 Peoria, Illinois
 LEO E. GLASCOCK
 Medford, Jackson
 GEORGE WILLIAM GORDON
 Portland, Multnomah
 Z. WAYNE GRIFFIN
 Los Angeles, California
 LLOYD HAROLD GRIMES
 Harrisburg, Linn
 SINCLAIR ROBLEY HAMMOND
 Portland, Multnomah
 HENRIETTA CHRISTANSA HANSEN
 Seattle, Washington State
 VELOREN NATHAN HANSEN
 Portland, Multnomah
 VALETTE SCARBOROUGH HARER
 La Grande, Union
 ELINOR HARTWELL
 Corvallis, Benton
 LELA BERTHA HATHAWAY
 Corvallis, Benton
 RALPH MAXWELL HAYES
 Portland, Multnomah
 HAROLD HENRY HEAD
 Central Point, Jackson
 *DONALD ADAIR HEINZ
 Multnomah, Multnomah
 GERALD WALTER HELD
 Corvallis, Benton
 LUDWIG HENRY HEYMAN
 Corvallis, Benton
 LUELLE MAUD HOPKINS
 Long Beach, California
 CARL ROYCE HERR
 Portland, Multnomah
 JESSE LEONARD HOVEY
 Corvallis, Benton
 NEVILLE GLENFIELD HUFFMAN
 Portland, Multnomah
 HAZEL HUTCHINSON
 Corvallis, Benton
 EDWARD LEWIS JEWETT
 Dayton, Washington State
 ARTHUR HERBERT JOHNSON
 Pasadena, California
 KERMIT MILTON JOHNSON
 Portland, Multnomah
 VIOLA CLARA JOHNSON
 Everett, Washington State
 HUGH ANDREW KERWIN
 Klamath Falls, Klamath
 CHARLES WILLIAM KING
 Corvallis, Benton
 GEORGE ANKER KNUITSEN
 Portland, Multnomah
 *MILLARD SMALL KOOGLE
 Corvallis, Benton
 MILDRED INEZ KRAMER
 Portland, Multnomah
 HELEN EUGENIE KUTCH
 Corvallis, Benton
 HARRY NORMAN LANCASTER
 Portland, Multnomah
 EARL LLOYD LARSON
 Corvallis, Benton
 IRVING ARTHUR LARSON
 St. Helens, Columbia

SCHOOL OF COMMERCE—*Continued*

GEORGE ERNEST LINDAUER Portland, Multnomah	LEE ASTON PURDY Portland, Multnomah
MORRIS THORP LITTLE Portland, Multnomah	MARIE M. REHLING Weiser, Idaho
PORTER J. LOOMIS Corvallis, Benton	FRANCES ADELAIDE REID Burlingame, California
HARVEY EDWARD LOUNSBURY, JR. Portland, Multnomah	EDWARD BRUNTON REYNOLDS Portland, Multnomah
AGNES STUDER MCCLOSKEY Corvallis, Benton	KINGSLEY ROBERTS Portland, Multnomah
MELVIN MCCONNELL Corvallis, Benton	LAWRENCE H. ROBERTS The Dalles, Wasco
HAROLD EDGAR MCDANIEL North Bend, Coos	MELVIN RADER ROBERTS Madera, California
*JOHN PAUL MCDOWELL Philomath, Benton	*DELBERT SHELBY SCOTT Ontario, Malheur
WILLIAM WARD MCKALIP Corvallis, Benton	MORRIS LEE SEARCY Moro, Sherman
JOSEPH TAYLOR MCNAUGHT Hemiston, Umatilla	CHRISTINE SEECK Lebanon, Linn
CHARLES H. MACK Klamath Falls, Klamath	CHARLES HUGH SIMPSON Salem, Marion
WALTER DEAN MACKAY Bend, Deschutes	LUKE WADE SRMS Walla Walla, Washington State
PAUL JOSEPH MAHONEY Montevia, California	MARY IRENE SINCLAIR Portland, Multnomah
KATHRYN ELIZABETH MANSFIELD Portland, Multnomah	ROBERT HENRY SKINNER Portland, Multnomah
KENNETH SHIRLEY MARTIN Grants Pass, Josephine	HAROLD WILLIS SPENCER Portland, Multnomah
IVER WILLIS MASTERSONE Richland, Baker	JAMES HARLEY SROUFE Portland, Multnomah
FOSTER MEYERS Eagle Creek, Clackamas	MARJORIE LORAIN STEARNS Portland, Multnomah
MILDRED BEATRICE MITCHELL Lebanon, Linn	DOROTHY MAE STRADLEY Grass Valley, Sherman
ELDON MOLSTROM Adams, Umatilla	ROSE TAFF Palo Alto, California
CARROLL DANIEL MONTGOMERY Corvallis, Benton	JAMES MARIEL TORSION Corvallis, Benton
AGNES JENSINE NASSET Corvallis, Benton	WILLARD TOTTEN Corvallis, Benton
GEORGE MILLER NICHOLSON Portland, Multnomah	CHARLES PAUL TROYER Corvallis, Benton
JACK OLDS Portland, Multnomah	FLORENCE ELEANOR TYBERG Gearhart, Clatsop
JOHN HAMILTON OSGOOD Corvallis, Benton	EDNA TAYLOR VANCE Corvallis, Benton
THELMA PAULINE PANKEY Central Point, Jackson	CLAUDE WANICHEK Bend, Deschutes
FRANK SUNDERMEYER PARKER Milwaukie, Clackamas	CLARENCE ROOSEVELT WHITE Corvallis, Benton
ROBERT CHARLES PEACOCK Pendleton, Umatilla	GORDON WILLIAM WINKS Portland, Multnomah
LELAND LYMAN PENNELL Portland, Multnomah	FRED WINTERS Portland, Multnomah
GEORGE JEFFERSON PERKINS Portland, Multnomah	MARIAN AUBREY WOLFF San Bernardino, California
CAROL BROWN PHILLIPS Milwaukie, Clackamas	FRANCES ELIZABETH YOUNG San Francisco, California
REX PHILLIPS Portland, Multnomah	TED ALTHOUSE YOUNG Albany, Linn
EMIL PUBOLS Portland, Multnomah	

SCHOOL OF ENGINEERING

Civil Engineering

JACK AUSTIN BLEVANS Joseph, Wallowa	VERNER EUGENE CARSON Ashland, Jackson
HARLAN EUGENE BROWN, JR. Portland, Multnomah	RALPH CARL ELLE Portland, Multnomah
MAXWELTON SELWYN CAMPBELL Corvallis, Benton	HENRY WATSON HANCE Corvallis, Benton

SCHOOL OF ENGINEERING—Continued

ELMER DUDLEY LINCOLN
Portland, Multnomah
EDWARD NEWELL MCKINSTRY
Grants Pass, Josephine
DAVID EDWIN MORRIS
Portland, Multnomah
FRANK WOODBURN PARKER
Hammond, Clatsop
EUEL FRANCIS PHILPOTT
Leneve, Coos
ARDERY ROBERT RANKIN
San Jose, California
FRED GRANT ROBLEY
Estacada, Clackamas
ANDRE ROCH
Geneva, Switzerland

ALVIN CHRISTIAN ROSS
Pendleton, Umatilla
EARL FRANKLIN SALING
Portland, Multnomah
ARTHUR RANDOLPH SORING
Woodburn, Clackamas
PAUL ANSELM STANGELAND
Astoria, Clatsop
HOWARD BURTON STANLEY
Portland, Multnomah
DALE EMANUEL STURMER
Portland, Multnomah
BERTLAND JAY GRANDISON TOUSEY
Portland, Multnomah
HOWARD JOSEPH VAN CLEAVE
Mt. Angel, Marion

Electrical Engineering

*FREDERICK LEON ACKERMAN
Portland, Multnomah
WILLIAM HENRY ALLEN
San Dimas, California
NEELAND ASHLA
Portland, Multnomah
*EDGAR BADER
Portland, Multnomah
HOWARD GLEN BARNETT
Salem, Marion
JOHN RAYMOND BATCHELLER
Portland, Multnomah
HARVEY BAXTER
Bend, Deschutes
NEIL JOHN BERG
Portland, Multnomah
CORMACK ELMER BOUCHER
Albany, Linn
VERNON LEROY BROWN
Corvallis, Benton
HOWARD COLEMAN
Corvallis, Benton
WESLEY ALLEN COOK
Portland, Multnomah
LUTHER WILLIAM CRAMER
The Dalles, Wasco
ROY EUGENE DAHLIN
Corvallis, Benton
HAROLD DWIGHT DEVOE
Medford, Jackson
VIRGIL HENRY DUNKIN
Portland, Multnomah
PHILIP ARNOLD EKSTRAND
Albany, Linn
CHARLES DALTON FOSTER
Portland, Multnomah
ROBERT ALAN FRONK
McMinnville, Yamhill
DONALD CLARK GILLANDERS
Monitor, Marion
REGINALD BUEHRLE HAIGHT
Cottage Grove, Lane

LURTON RAYMOND HALDERMAN
Portland, Multnomah
HAMILTON HOWELL
Medford, Jackson
CALVIN RICHARD HUGHART
Corvallis, Benton
ROBERT EDWARD JARMON
Echo, Umatilla
DELMAR ALLAN KENNEL
Portland, Multnomah
HENRY KARL KOBERSTEIN
Portland, Multnomah
HAROLD LAW LACKEY
Vale, Malheur
AUGUST JOHN MUSTOLA
Clatskanie, Columbia
ADHELD ALFRED OTTO
Portland, Multnomah
CLARENCE BLOOMFIELD PARSONS
Portland, Multnomah
OLIVER DIX PERKINS
Milwaukie, Clackamas
NORVAL GEORGE REETZ
Corvallis, Benton
FRANK ASHLEY RIEBE
Portland, Multnomah
LEO REIFERSTAD
Portland, Multnomah
GORDON N. SMITH
Portland, Multnomah
MELVIN JAMES STOUT
Corvallis, Benton
LEONARD NICHOLAS SYLVESTER
Corvallis, Benton
MILTON HARVEY TIPTON
Goble, Columbia
GORDON TAYLOR VAN CLEAVE
Mt. Angel, Marion
ALEXIS RUEL WHEELER
Eugene, Lane

Industrial Arts

MAURICE LESLIE BULLARD
Estacada, Clackamas
GEORGE BERT CLISBY
Corvallis, Benton
LOYD THOMAS DUNN
Boring, Clackamas
ROY VIKING FORSNAS
Portland, Multnomah
ELMER WALTER GARRISON
Corvallis, Benton
CHESTER JOHNSON
Mineral, Washington State

ALEXANDER BRUCE MCEACHERN
Owyhee, Malheur
LAURI O. PERNU
Astoria, Clatsop
ELDON GEORGE RUNCIMAN
Exeter, California
EUGENE MICHAEL SPANIOL
Stayton, Marion
CLAIR NEWCOMB STEELE
Creswell, Lane
GAYFORD FINLEY WILSON
Beaverton, Washington

SCHOOL OF ENGINEERING—*Continued**Mechanical Engineering*

EDWIN PARKER AULD
Corvallis, Benton
GEORGE DEWEY BAILEY
Corvallis, Benton
WILLIAM KENNETH BAKER
Oswego, Clackamas
WAYNE LEWIS BAUER
Molalla, Clackamas
LYLE ELBERTUS BEYERS
Coquille, Coos
DELMAR LOUIS BROWN
Silverton, Marion
MARVIN KENNETH BUCHNER
Albany, Linn
GILBERT FENN BUCK
Portland, Multnomah
LUTHER WILLIAM CRAMER
The Dalles, Wasco
ROBERT JAMES DAVIS
Portland, Multnomah
ROBLEY EVANS DOYLE
Arago, Coos
WALTER EDWARD ENKE
Corvallis, Benton
GEORGE VERNE JOHNSON
Portland, Multnomah
JOHN PAUL JONES
Corvallis, Benton

RUDOLPH THEODORE KASER
Burnt Ranch, Jefferson
ROBERT VENSON KERLEY
Eugene, Lane
AUGUST KERZEL
Portland, Multnomah
ORVILLE LEROY KIME
Vale, Malheur
CHARLES EDWARD LEE
Echo, Umatilla
DONALD EDWARD LINDSAY
Corvallis, Benton
LUTHER RICHARD LUCAS
Grants Pass, Josephine
EDWIN ELLISON PARKER
Corvallis, Benton
NORTON LEE PECK
Corvallis, Benton
ANTON JULIUS SCHWERTFEGER
Oregon City, Clackamas
*EDGAR ALLEN WOLFE
Antelope, Wasco
ERNEST LESTER WOODS
Dufur, Wasco
RICHARD CLIFTON WRIGHT
Portland, Multnomah

SCHOOL OF FORESTRY

Logging Engineering

EARL ELLIS CUMMINS
Hood River, Hood River
HENRY FREDERICK DREWFS
Portland, Multnomah
HYDEN PERIS ELLIS
Corvallis, Benton

NORMAN HUGHES FRENCH
Portland, Multnomah
RAYMOND WIEST
Portland, Multnomah

Lumber Manufacture

OWEN LEWIS AYDELOTT
Garibaldi, Tillamook
ROBERT MURRAY EVENDEN
Warrenton, Clatsop

MERTON PUTNAM SMITH
Ashland, Jackson

Technical Forestry

ALBERT ARNST
Hillsboro, Washington
ROY BLOMSTROM
Roseburg, Douglas
HAROLD READ BOWERMAN
West Linn, Clackamas
WILLIAM FRANCIS CUMMINS
Yaquina, Lincoln
ROLAND HOWARD FERGUSON
Corvallis, Benton
LAWRENCE FOX HAMILTON
Albany, Linn
ELMER GARTH HITCHCOCK
Salinas, California
*JAMES C. ILER
Toledo, Lincoln

JAMES WILLIAM KIMMEY
Corvallis, Benton
A. G. LINDH
Corvallis, Benton
ALAN ARTHUR MCCREADY
Corvallis, Benton
HAROLD ROBERT MANSFIELD
Murphy, Josephine
ROYAL M. NETTLETON
Eugene, Lane
IVAN JENNINGS NICHOLAS
Corvallis, Benton
WALTER JAMES RUST
Blachly, Lane
LOUIS WESSEL
Corvallis, Benton

SCHOOL OF HOME ECONOMICS

- HELEN HARRIET ABRAHAM
Corvallis, Benton
- *BEATRICE HELEN ANGUS
Hood River, Hood River
- RUTH FAY BAUMBACH
Boring, Clackamas
- *JANIS ANNE BELKNAP
Ontario, Malheur
- EVELYN MAGRIETA BUELL
Portland, Multnomah
- LELIA MARGUERITE CAMERON
Fairfield, California
- IVY ELEANOR CHARLTON
La Grande, Union
- MARGARET LENORE COATES
Albany, Linn
- DELIA GARRETT COLEMAN
Corvallis, Benton
- HAZEL MAY COSTLEY
Modesto, California
- FRANCES MAY CROKER
Salem, Marion
- HESTER DAVIS
Salem, Marion
- MARGARET CARLA ECKELMAN
Portland, Multnomah
- LEONE ELLIOTT
Perrydale, Polk
- MARIAN ELIZABETH ELLIOTT
Corvallis, Benton
- VERDA ARZELLA FRAME
Ferndale, California
- FRANCES LOUISE GALLATIN
Ashland, Jackson
- ALMA GOFF
Corvallis, Benton
- *LILLIAN ISABEL GOODWIN
Boise, Idaho
- VIRGINIA RUTH GREEN
Portland, Multnomah
- IRENE LAVELLE GRIGGS
Cottage Grove, Lane
- JOSEPHINE HILL
Eugene, Lane
- ELIZABETH AUGUSTA HOWLAND
Oregon City, Clackamas
- RUTH MILLER HUDSON
Eugene, Lane
- MARJORIE JEAN INGLE
Albany, Linn
- LORENA NADINE JACK
Corvallis, Benton
- HELEN SUSANNE JARDINE
Corvallis, Benton
- *MARGARET MILLICENT JENKINSON
Hanford, California
- ALICE KATHERINE JOHNSON
Forest Grove, Washington
- ELSIE JOHNSON
Vancouver, Washington State
- LUCILLE CLAIR KUTCH
Corvallis, Benton
- IDA ALICE LEACH
Deer Island, Columbia
- *FRANCISCA DOROTHEA LUCK
Salinas, California
- KATHLEEN ELIZABETH MCCLINTOCK
Pendleton, Umatilla
- RUTH MCCORKLE
Maupin, Wasco
- LAURA MAY MCSTAY
Corvallis, Benton
- ELIZABETH LOUISE MARKER
Downey, California
- ALYCE LYNN NANTZ
Burlingame, California
- GERTRUDE EDNA NEWTON
Corvallis, Benton
- LOUISE NICHOLS
San Jose, California
- *REBECCA MARIE OLSON
Turlock, California
- WINNIFRED ELLEN PEMBERTON
Salem, Marion
- MARION MELVINA POGUE
Lemon Cove, California
- BEULAH MARIE PORTER
LaFayette, Yamhill
- MILDRED AMELIA PROCTOR
San Anselmo, California
- LUCY REYNOLDS
Portland, Multnomah
- FRANCES MAY ROBINSON
Portland, Multnomah
- ELIZABETH ROBLEY
Portland, Multnomah
- MABELLE GRACE ROSS
La Canada, California
- CHARLOTTE JANE RUDD
Eugene, Lane
- NELMA LAURA SAYLOR
Echo, Umatilla
- FLORENCE JOAN SCHANZ
Portland, Multnomah
- ELIZABETH M. SEDGWICK
Creswell, Lane
- ALICE RUTH STEELE
Metzger, Washington
- GRACE EVELYN SWEATT
Barstow, Texas
- ELIZABETH DENA TOLIN
Corvallis, Benton
- DELPHA ANITA WOOD
Portland, Multnomah
- ELOISE WRIGHT
Salem, Marion

SCHOOL OF MINES

- ORAN MARVIN ANDERSON
McMinnville, Yamhill
- *EARL E. BARNWELL
LaGrande, Union
- EDWIN JOHN CARLSON
Astoria, Clatsop
- *ALTON EDWARD KLITZ
Boardman, Morrow
- FOREST H. MAJORS
Corvallis, Benton
- ERNEST CHARLES SMITH
Douglas, Alaska

SCHOOL OF PHARMACY

DOROTHY VERA BOLTON
Antelope, Wasco
DANIEL MILTON BROWN
Corvallis, Benton
WALTER KNOWLTON HALL
Clatskanie, Columbia
NORMA ELIZABETH HALLOCK
Portland, Multnomah
EMILY DEFOREST HANSEN
Portland, Multnomah
PAUL EDGAR KEIR
Hood River, Hood River
ROMA VESTA MAYES
Corvallis, Benton

RUBY BEATRICE OWSLEY
Huntington, Baker
CRYSTAL IONE RATH
Portland, Multnomah
LEON FRANK RAY
Portland, Multnomah
WILLIAM LEWIS RUEPPEL
Corvallis, Benton
VICTOR ARCHIBALD SATHER
Silverton, Marion
FRANCIS LYMAN WILKES
Corvallis, Benton

SCHOOL OF VOCATIONAL EDUCATION

ELIZABETH ABRAHAM
Corvallis, Benton
MARTIN GUSTAV ANDERSON
Corvallis, Benton
HILDRED BERNICE ATKINSON
Portland, Multnomah
LESLIE BYRON AVRIT
Corvallis, Benton
EDNA MAY BABCOCK
Astoria, Clatsop
RODERIC BLACKMAN BALLARD
Long Beach, California
JOE A. BELCHER
Corvallis, Benton
RUTH BELLROOD
Portland, Multnomah
EDITH MARY BENNETT
Corvallis, Benton
JOHN RICHARD BEYERLE
Dallas, Polk
MARY ELIZABETH BILLING
Corvallis, Benton
LEE H. BRISSETT
Newberg, Yamhill
RALPH ERNEST BUERKE
Corvallis, Benton
CELIA ELVIRA BUMP
Gervais, Marion
*HAROLD WILSON BUMP
Airlie, Benton
CHLOE ELIZABETH BURGE
Corvallis, Benton
GLADYS BRYAR BURGESS
Coquille, Coos
FRANCES NUGENT BUTNER
Roseburg, Douglas
*LELAND BRANTLEY CAMERON
Corvallis, Benton
MARTHA LOUIE CLARK
Corvallis, Benton
PATRICIA LUCILE COAN
Klamath Falls, Klamath
VERA LYOLA COLBRY
Tangent, Linn
WESLEY A. COUTTS
Portland, Multnomah
MILDRED LOUISE CUMMINS
Yaquina, Lincoln
MARJORIE DAVIS
Corvallis, Benton
MARGARET COLLINS DAWLEY
Portland, Multnomah
AUSTIN GRAHAM DODGE
Myrtle Point, Coos
TOM DRYNAN
Portland, Multnomah

LOIS CORNELIA EDSON
Amity, Polk
GEORGE ELMER EMIGH, JR.
St. Helens, Columbia
AVALYN DELZELL FEHLMAN
Corvallis, Benton
ETHEER GERTRUDE FOSTER
Powell Buttes, Crook
LAURA LOANA FREEMAN
Scio, Linn
MARJORIE IRENE GEROW
Astoria, Clatsop
MILDRED CLARA GLANN
Albany, Linn
JOHN CATLIN GOSS
Portland, Multnomah
*DOROTHY LAURA HALL
Portland, Multnomah
MARY ISABELLA HAMILTON
Albany, Linn
MORRIS EUGENE HARVEY
Portland, Multnomah
SUSAN ELEANOR HAYS
Palo Alto, California
DORATHEA KATHERINE HENNINGSEN
Portland, Multnomah
ELIZABETH VINSON HEPBURN
Portland, Multnomah
BELLE HOUSLEY
Yoncalla, Douglas
HELEN MARGUERITE HULL
Boise, Idaho
HOPE INLOW
LaGrande, Union
HELEN JARL
Boring, Clackamas
EDITH G. JOHNSON
Portland, Multnomah
RONALD LEE JOHNSON
Corvallis, Benton
DANIEL CARROL JORDAN
Burns, Harney
EMMA GRACE KLEINSMITH
Portland, Multnomah
OSA-EDWINA LAUTNER
Portland, Multnomah
JOSEPH THOMAS LEONARD
Drain, Douglas
FAITH ELNORA LINDROS
Corvallis, Benton
RUTH HEMBREE MCGRATH
Hillsboro, Washington
CLIFFORD CHARLES MCLEAN
Portland, Multnomah
ROSALIND MACWHINNIE
Seattle, Washington State

SCHOOL OF VOCATIONAL EDUCATION—Continued

- LOUISE MANN
 Pendleton, Umatilla
 DOROTHY FRANCES MARSTERS
 Roseburg, Douglas
 SUSAN AMY MARTIN
 Salem, Marion
 NADENE MAYFIELD
 Milwaukie, Clackamas
 ETHEL McLAIN MILLER
 Monmouth, Polk
 IONE ARNA MILLER
 Mogo, Sherman
 MARGARET EDITH MILLER
 Tacoma, Washington State
 LEWIS RUSSELL MILLS
 Vernonia, Columbia
 PERCY MERL MINER
 Corvallis, Benton
 *ESTHER ANNE MOSER
 Sherwood, Washington
 VELMA NEEDHAM
 Corvallis, Benton
 CLYDIE PHILLIPS
 Freewater, Umatilla
 REX EUGENE ROBINSON
 Corvallis, Benton
 EDNA HAYS RUSSELL
 Dallas, Polk
 DELLA VALENTINE SANFORD
 Orland, California
 VIRGINIA ELLA SCHNEIDER
 Corvallis, Benton
 ELIZABETH ESTELLA SCOTT
 Jordan Valley, Malheur
 EDRIC SHERMAN
 Portland, Multnomah
 NORI MARGARET SHIMOMURA
 Portland, Multnomah
- *WILLIAM ODELL SHOWALTER
 McMinnville, Yamhill
 CHARLES GUSTAVE SNYDER
 Corvallis, Benton
 *LALLA PRUDENCE SANNER
 Payette, Idaho
 MARIAN ELIZABETH SPRINGER
 Umatilla, Umatilla
 RICHARD WRIGHT STALKER
 Portland, Multnomah
 ANNA LOUISA STEWART
 Molalla, Clackamas
 EDA MARY STONER
 Corvallis, Benton
 ELIZABETH ANTOINETTE STOUT
 Scappoose, Columbia
 EMMA THOENY
 Athena, Umatilla
 LEOME ROSANNA THORDARSON
 Corvallis, Benton
 HOWARD FLETCHER TONG
 Clackamas, Clackamas
 KATHRYN ANN TONGSING
 Portland, Multnomah
 ROMAN CAMACHO VILLALON
 Corvallis, Benton
 CHESTER LEWIS WARD
 Corvallis, Benton
 WILMA DORIS WELLS
 Corvallis, Benton
 MARTHA MARIE WETZEL
 Portland, Multnomah
 TRESSIA CHARLOTTE WIECK
 Corvallis, Benton
 *CARLTON EUGENE WOOD
 Madera, California

PHARMACEUTICAL CHEMISTS

SCHOOL OF PHARMACY

- EUGENE RIEMAN ALLEN
 Corvallis, Benton
 ELIZABETH JANE BRIANS
 Salem, Marion
 EDWIN DWIGHT JOHNSON
 Portland, Multnomah
 MARIAN JEANNETTE MILNES
 Claresholm, Canada
 HAROLD SCEARCE PARSONS
 Eugene, Lane
 EUGENE POWELL
 Toledo, Lincoln
- IVA MAY SMITH
 Freewater, Umatilla
 ESTELLE LOUISE VSETECKA
 Scio, Linn
 GEORGE GROSSER WANDEL
 Corvallis, Benton
 MARSHALL PHILIP WELLES
 Pasadena, California
 ALICE JEAN YOUNG
 Portland, Multnomah
 JOSEPH YOUNG
 Salem, Marion

Senior Honor Students

Elections for June, 1931

(See page 68.)

Agriculture

BURTON BOYCE BURROUGHS

ESTRED IONE NELSON

Chemical Engineering

PHILIP GULICK ACKERMANN

SENIOR HONOR STUDENTS—*Continued*

Commerce

JOHN CURTIS BLEVINS	LELA BERTHA HATHAWAY
BETTY ANNE BURGARD	NEVILLE GLENFIELD HUFFMAN
EDWARD CHARLES COMAN	CHARLES WILLIAM KING
MAXWELL COOK	AGNES STUDER MCCLOSKEY
EARL L. DIBBLE	LEE ASTON PURDY
GLADYS BERYL ESTBERG	MARY IRENE SINCLAIR
SINCLAIR ROBLEY HAMMOND	GORDON WILLIAM WINKS

Engineering

PHILIP ARNOLD EKSTRAND	EDWIN ELLISON PARKER
DONALD CLARK GILLANDERS	ARDERY ROBERT RANKIN
REGINALD BUEHRLE HAIGHT	LEO REIERSTAD
HAMILTON HOWELL	ARTHUR RANDOLPH SORING
ROBERT VENSON KERLEY	DALE EMANUEL STURMER

Forestry

ALBERT ARNST	ROBERT MURRAY EVENDEN
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Home Economics

HESTER DAVIS	FRANCES LOUISE GALLATIN
MARIAN ELIZABETH ELLIOTT	HELEN SUSANNE JARDINE
VERDA ARZELLA FRAME	DELPHA ANITA WOOD

Pharmacy

RUBY BEATRICE OWSLEY

Vocational Education

RODERIC BLACKMAN BALLARD	VIRGINIA ELLA SCHNEIDER
MILDRED CLARA GLANN	NORI MARGARET SHIMOMURA
MARY ISABELLA HAMILTON	RICHARD WRIGHT STALKER
HELEN JARL	WILMA DORIS WELLS
REX EUGENE ROBINSON	

Prizes and Awards

Announced May 6, 1931

THE CLARA H. WALDO PRIZES

(See page 68.)

Senior Women

First Honor—

HESTER DAVIS
(Home Economics)

Sophomore Women

First Honor—

KATHRYN JOEHNKE
(Home Economics)

PRIZES AND AWARDS—Continued

Honorable Mention—

LELA BERTHA HATHAWAY
(Commerce)
VIRGINIA ELLA SCHNEIDER
(Vocational Education)

*Junior Women**First Honor—*

ALICE FISHER
(Vocational Education)

Honorable Mention—

FLORENCE SCOTT
(Commerce)
BARBARA BURTIS
(Home Economics)

Honorable Mention—

NADINE MILLHOLLEN
(Vocational Education)
ELIZABETH FLETCHER
(Home Economics)

*Freshman Women**First Honor—*

MAXINE PETERSON
(General)

Honorable Mention—

ALLISON COMISH
(Vocational Education)
CAROL MEYERS
(General)

THE BENTON COUNTY STATE BANK PRIZES

(See page 68.)

*Senior Men**First Honor—*

SINCLAIR ROBLEY HAMMOND
(Commerce)

Honorable Mention—

GORDON WILLIAM WINKS
(Commerce)
ARDERY ROBERT RANKIN
(Civil Engineering)

*Junior Men**First Honor—*

ERNEST R. SEARS
(Agriculture)

Honorable Mention—

ROBERT BROWN
(Commerce)
RICHARD W. LYMAN
(Pharmacy)

*Sophomore Men**First Honor—*

HOWARD P. BECKENDORF
(Electrical Engineering)

Honorable Mention—

WALDO TAYLOR
(Commerce)
C. IVAN BRANTON
(Agriculture)

*Freshman Men**First Honor—*

FRED W. SALING
(Commerce)

Honorable Mention—

DONALD PRENTISS
(Agriculture)
DAVID R. WILEY
(Pharmacy)

THE JOSEPH H. ALBERT PRIZE

(See page 69.)

ALICE RUTH STEELE
(Home Economics)

PRIZES AND AWARDS—*Continued*

THE CHI OMEGA PRIZE

(See page 69.)

NORI MARGARET SHIMOMURA
(Vocational Education)

THE MOUNTAIN STATES POWER COMPANY CUP

(See page 69.)

RODERIC BLACKMAN BALLARD
(Vocational Education)

THE JACOB REICHART PRIZE

(See page 69.)

GORDON WILLIAM WINKS
(Commerce)

THE E. D. RESSLER MEMORIAL

(See page 71.)

ALICE INGALLS

Military Honors

HONOR GRADUATES, MILITARY DEPARTMENT

On account of the recognized efficiency of the Military Department at the College, the United States War Department permits the institution to name five percent of the graduates who have pursued the training in the Reserve Officers' Training Corps as Honor Graduates, selection being on the basis of their academic standing on the campus and their interest and efficiency in the prescribed military work.

GEORGE STEPHEN MAXWELL COOK
ROBERT EDWARD JARMONKERMIT MILTON JOHNSON
LEE ASTON PURDY

MILITARY COMMISSIONS

The United States Government has established Reserve Officers' Training Corps units in Engineers, Field Artillery, and Infantry at this institution. Few colleges and universities in the United States are so well equipped for efficient military instruction as Oregon State Agricultural College. From 1917 to 1926 a small percentage of educational institutions were listed as "Distinguished" on account of unusual efficiency of the Military Department, as determined by the War Department inspectors. During this ten-year period this institution was so classified with the exception of three years. All of the graduates who complete the R. O. T. C. course are eligible for reserve commissions provided they are recommended by the proper College authorities. These commissions insure them of service as commissioned officers in time of war or emergency. The recipients of these commissions have demonstrated their leadership, manhood, and unselfish devotion to the services of the Nation.

*Infantry Unit*HOWARD VELROY BENNETT
JEROME WADHAM CLARK
JOHN BOYD DOYLE
MARTIN JOSEPH ELLEJOHN WALTER GALLAGHER
LLOYD HAROLD GRIMES
GERALD WALTER HELD
CARL ROYCE HERR

MILITARY COMMISSIONS—*Continued*

JESSE LEONARD HOVEY
RONALD LEE JOHNSON
FREDERICK HAROLD LOOMIS
GEORGE JEFFERSON PERKINS
LEE ASTON PURDY

WILLIAM ARTHUR SAWYER
HAROLD WILLIS SPENCER
COUELLE THOMPSON
CHARLES PAUL TROYER
FRANCIS LYMAN WILKES

Field Artillery Unit

RALPH ORLO APPERSON
ELMER OSCAR BERG
JACK AUSTIN BLEVANS
KENNETH ALEXANDER BROWN
PAUL ALEXANDER CAWLFIELD
GEORGE STEPHEN MAXWELL COOK
WESLEY ALLEN COOK
ROBERT JAMES DAVIS
RODNEY TAYLOR DUNLAP
HERBERT WILLARD EWEN
LAWRENCE EDWARD FRANCIS
ROBERT ALAN FRONK
JAMES STILLENGER GIBSON
LAWRENCE FOX HAMILTON
RICHARD WALTER HENZEL
KERMIT MILTON JOHNSON
DONALD EDWARD LINDSAY
RODWIN CONDON MCCORNACK

DAVID SIDNEY MCGAUHEY
EDWARD NEWELL MCKINSTRY
CECIL MALCOLM MACGREGOR
LELAND FIELD MAYBACH
ROBERT GRAHAM MISPLEY
HOWARD BIRDELL NIXON
FRANK WARD O'CONNOR
OLIVER DIX PERKINS
NORVAL GEORGE REETZ
MELVIN RADER ROBERTS
WALTER ALBERT SCHULTZ
EDRIC SHERMAN
BERTIL SJOBLOM
JAMES MERTON STEIN
ALEXIS RUEL WHEELER
THOMAS MARION WILKES
GAYFORD FINLEY WILSON
HOMER LEONARD WILSON

Engineer Unit

ROBERT PERRY BEAL
ROY EUGENE DAHLIN
HENRY FREDERICK DREWFS
GERALD FITTMAN DUDLEY
DONALD CLARK GILLANDERS
LURTON RAYMOND HALDERMAN

ROBERT EDWARD JARMON
CARL JOHNSON
HENRY KARL KOBERSTEIN
ANTON JULIUS SCHWERTFEGER
BERTLAND JAY GRANDISON TOUSEY

Students, 1930-31

The classification of students is indicated by the following abbreviations: A, Agriculture; C, Commerce; Ch, Chemical Engineering; CE, Civil Engineering; E, Engineering; EE, Electrical Engineering; F, Forestry; G, General; H, Home Economics; IA, Industrial Arts; M, Mines; ME, Mechanical Engineering; MS, Military Science; O, Optional; P, Pharmacy; S, Special; V, Vocational Education; n, non-degree student (see page 56); 1, 2, 3, 4, freshman, sophomore, junior, or senior year, respectively.

GRADUATE STUDENTS

1930-31

Baird, Fred Joseph.....	Corvallis	Jenks, Forena.....	Albany
Beals, Ernest L.....	Corvallis	Jenks, Volena M.....	Albany
Bentley, Evalyn A.....	Tucson, Ariz.	Johnson, Philip Cornwell.....	Berkeley, Calif.
Bibee, Georgia Chapman.....	Corvallis	Johnson, Raymond H.....	Newberg
Bissett, Lee H.....	Corvallis	Jones, Sidney Carroll.....	Chehalis, Wash.
Bolin, Fonsoe M.....	Corvallis	Kearns, Richard Seng.....	Pendleton
Branstetter, Joseph Clifton.....	Fortuna, Calif.	Kerley, Vernon Emmet.....	Eugene
Brooke, Ralph Edward.....	Salmon Arm, B.C.	Kessi, William Aaron.....	Monroe
Brown, Lydia.....	Corvallis	Knowlton, Esther Selma.....	Corvallis
Bullis, William Richard.....	Gaston	Kollas, Wilhelm J.....	Hood River
Callaway, Edward Cleveland.....	Corvallis	Lafky, Ernest Herman.....	Marion
Cole, Arthur William.....	Washington, D.C.	Larson, A. O.....	Corvallis
Cordley, Dorothea McLouth.....	Corvallis	Lee, Roy Samuel.....	Denton, Tex.
Courson, John Kenneth.....	Corvallis	Lesley, Wanda.....	Eugene
Courtright, Eunice Esther.....	Corvallis	Logan, Felipe P.....	Philippine Islands
Crumly, Mrs. Margaret Shamel.....	Corvallis	Loughary, Ivan Hill.....	Corvallis
Dahlberg, Walfred Andrew.....	Corvallis	Lund, Walter Thomas.....	Portland
Davis, Mrs. Merle Bonney.....	Corvallis	McDaniel, Vern E.....	Corvallis
Dewey, George William.....	Redmond	McGauhey, Dorothy Eleanor.....	Corvallis
Dimick, Roland Eugene.....	Corvallis	McMillan, Alva Lowell.....	Corvallis
Ding, Mae Lang.....	Foochow, China	MacLean, Kenneth Ross.....	Corvallis
Douglass, Ruth.....	Tempe, Ariz.	Magee, Kathrene.....	McMinnville
Dowd, Oscar Jefferson.....	Hartford, Mich.	Mallery, Albert Lea.....	Corvallis
Drill, Harry T.....	Corvallis	Manning, Juanita Chaney.....	Corvallis
Edwards, Dorsey Wayne.....	Monmouth	Manning, Lionel Walter.....	Bellingham, Wash.
Edwards, Floyd Marven.....	Union	Marquardt, Arthur Reynold.....	Lyons, Neb.
Ekstrand, Philip Arnold.....	Albany	Mason, Earl George.....	Corvallis
Enzie, Walter Denton.....	Corvallis	Mayne, Ada Reed.....	Portland
Fehlman, Donald Everette.....	Corvallis	Merryfield, Fred.....	Corvallis
Feikert, Grant Stephen.....	Corvallis	Miller, Mrs. Ethel M.....	Monmouth
Fenton, Genevieve M.....	Portland	Miller, Vondis Elbert.....	Halsey
Fisher, Lawrence Thomas.....	Corvallis	Mockmore, C. A.....	Corvallis
Flood, Gerhard R.....	Westport	Moreland, Henry D.....	Corvallis
Fogarty, Earl Rosendale.....	DeSabra, Calif.	Moore, Willetta.....	Eugene
Fullerton, David Humphrey.....	Albany	Muth, Otto Herbert.....	Corvallis
Gleeson, George Walter.....	Corvallis	Nichols, Ben H.....	Corvallis
Grant, Jay Francis.....	Springfield	Nordgren, Lilly.....	Corvallis
Gray, Kenneth Wiesner.....	Marion	Onsdorff, Charles Thomas.....	Corvallis
Handford, John Bancroft.....	Corvallis	Osika, Clarence Stanley.....	Monmouth
Harris, Linden E.....	Marysville, Idaho	Paine, Robert Treat.....	Redlands, Calif.
Hatch, Miles B.....	Alderton, Wash.	Parker, Florence Bryant.....	Corvallis
Hathaway, Mrs. Grace Farrar.....	Corvallis	Parker, Ralph Walton.....	Corvallis
Heagen, Rena.....	Zanesville, Ohio	Patterson, Joseph Deane.....	Corvallis
Hermann, Margaret Anna.....	Astoria	Paul, William Howard.....	Corvallis
Herren, Thelma May.....	Rye Valley	Phillips, Harry A.....	Terre Haute, Ind.
Hoffman, Charles.....	Vernonia	Price, Perry Hugh.....	Springfield
Hoh, Pik Wan.....	Canton, China	Radford, Irene.....	Corvallis
Holcomb, Glenn Willis.....	Corvallis	Rardin, Maybelle.....	Colorado Springs, Colo.
Holloway, Mae Lujeanne.....	Corvallis	Riley, Lelia Beggs.....	Corvallis
Holtz, R. Dean.....	Gillette, Wyo.	Robinson, Cowin C.....	Corvallis
Howell, Minnie Lou.....	Corvallis	Ruppel, Henry George.....	Corvallis
Howey, Olive Mary.....	Corvallis	Ryge, G. Leonard.....	Clifford, N.D.
Irvine, Jessie May.....	McMinnville	Sander, Albert Frederick.....	Portland

Schreiner, Mrs. Dorothy S.....	Corvallis	Thompson, Charley Devers.....	Portland
Schroeder, Gertrude Elise.....	Eugene	Timm, Gustav August.....	Corvallis
Searing, Lyall DeForest.....	Portland	Underwood, Edward Franklin.....	Salem
Selby, Halbert E.....	Corvallis	Vance, Virginia Wilda.....	Mackey, Idaho
Sly, Cecil Matthew.....	Corvallis	Varner, William Roy.....	Corvallis
Smith, Aldene.....	Corvallis	Vaughn, Edward Kemp.....	State College, N.M.
Smith, David Clyde.....	Corvallis	Walker, Clyde.....	Corvallis
Smith, Martha Virginia.....	Corvallis	Ward, Chester Lewis.....	Corvallis
Smithers, Paul Louis.....	Canon City, Colo.	Whitaker, Carl F.....	Corvallis
Southwick, Roy Wendel.....	Porterville, Calif.	Whitaker, William Carey.....	Corvallis
Summers, Robert Edward.....	Corvallis	Wilson, Francis Dale.....	Corvallis
Swedenburg, Genevieve Marie.....	Ashland	Wilcox, Joseph.....	Corvallis
Taylor, Florence.....	Portland	Wilson, Richard Henry.....	Portland
Thielke, Reuben Christian.....	Portland	Wooster, Lawrence F.....	Corvallis
Thomas, Mary Little.....	Palo Alto, Calif.	Yates, Willard Wilson.....	Corvallis
Thompson, Benjamin Garrison.....	Corvallis		

UNDERGRADUATE STUDENTS

1930-31

Aamodt, Carl G., A, S.....	Milwaukie	Anderson, Colver Farlow, Ch, 1.....	Ashland
Abbott, Kieth Jay, A, 4.....	Corvallis	Anderson, Don, V, 1.....	Portland
Abel, George Joseph, E 1.....	Silverton	Anderson, Dorothy Louise, V, 3.....	Portland
Abernathy, Byron, C, 1.....	Philomath	Anderson, Elaine Joyce, V, 1.....	Portland
Abraham, Elizabeth, V, 4.....	Corvallis	Anderson, Fred A., C, 1.....	Sherwood
Abraham, Fred Erwin, ME, 2.....	Portland	Anderson, Helen Delores, C, 2.....	Merrill
Abraham, Helen, H, 4.....	Corvallis	Anderson, Helen Medores, V, 3.....	Portland
Abrams, Ronald H., E, 1.....	Corvallis	Anderson, John William, A, 1.....	Paauhau, T.H.
Acarrequi, Floyd, C, 2.....	Jordan Valley	Anderson, Keith, C, 2.....	Pasadena, Calif.
Acker, Melvin, F, 1.....	Portland	Anderson, Lyle Newton, F, 2.....	Redmond
Ackerman, Lilah Anna, H, 3.....	Corvallis	Anderson, Marie M., C, 2.....	Ontario
Ackermann, Philip G., Ch, 4.....	Corvallis	Anderson, Martin G., V, 4.....	Corvallis
Adair, Benjamin John, A, 2.....	Coburg	Anderson, Oran Marvin, M, 4.....	Newberg
Adams, Elmer M., M, 2.....	Portland	Anderson, Pauline June, V, 3.....	Portland
Adams, George Edward, V, 2.....	Santa Ana, Calif.	Anderson, Robert Charles, IA, 1.....	Corvallis
Adams, Jack, E, 1.....	Warrenton	Anderson, Roy E. R., C, 3.....	Albany
Adams, James Byron, V, 2.....	St. Helens	Andrews, Douglas Donald, P, 1.....	Portland
Adams, J. Norman, A, 4.....	Corvallis	Andrews, Edythe Evangeline, V, 2.....	Grants Pass
Adams, Keldon Gaylord, C, 1.....	Hoquiam, Wash.	Andrich, George Richard, C, 4.....	Astoria
Adams, Orville, V, 4.....	Salem	Angle, Martha Cornelia, C, 1.....	Corvallis
Adams, Robert Sterling, Jr., F, 2.....	Lakeview	Angle, Marvin Giger, F, 2.....	Corvallis
Adams, Romeyn Elbert, V, 1.....	Corvallis	Annala, Arvo Russell, C, 2.....	Hood River
Ahlers, Carl Johan, C, 3.....	Summit, N.J.	Antrim, Ellis W., E, 1.....	Aloha
Aikins, Janice Meredith, H, 3.....	Riddle	Apperson, Ralph Orlo, F, 4.....	Corvallis
Akin, Clarence William, C, 4.....	St. Helens	Applebe, Mary Whately, H, 2.....	Grants Pass
Albaugh, Edwin James, A, 3.....	Corvallis	Applegate, Dan W., CE, 3.....	Drain
Albert, Archie Howard, C, 2.....	Portland	Applegate, Tracy W., EE, 3.....	Voncalla
Alcorn, Irma, C, 3.....	Corvallis	Applewhite, Gordon Miles, P, 1.....	Roseburg
Alderman, Loyal George, EE, 2.....	Hammond	Arant, Donald M., C, 1.....	Forest Grove
Aldrich, Amy Elizabeth, C, 2.....	Pendleton	Archibald, Harry Greenfell, A, 1.....	Grand Forks, B.C.
Alexander, Gordon Thayer, C, 2.....	Palo Alto, Calif.	Arents, Chester Abbo, EE, 3.....	Portland
Allen, Benson, C, 2.....	Portland	Arnes, Cecil R., V, 1.....	Eugene
Allen, Ethan Alfred, IA, 2.....	Waldron, Wash.	Armstrong, Elizabeth Joan, C, 1.....	Portland
Allen, Eugene Rieman, P, 2.....	Corvallis	Armstrong, George Edwin, C, 3.....	Portland
Allen, Francis Edward, F, 1.....	Los Angeles, Calif.	Armstrong, Richard L., A, 1.....	Tacoma, Wash.
Allen, Harold Elmer, G, 1.....	Cottage Grove	Armstrong, Thomas Bolton, F, 2.....	Pasadena, Calif.
Allen, Hugh, E, 1.....	Bakersfield, Calif.	Armstrong, William M., E, 1.....	Marshland
Allen, John Frederick, P, N.....	Corvallis	Arnsberg, Ace J., C, 3.....	Portland
Allen, John Miller, V, 2.....	Portland	Arnst, Albert, F, 4.....	Hillsboro
Allen, Kenneth L., P, 1.....	Ontario	Arteburn, Royce, C, 1.....	Pendleton
Allen, Leona Grace, C, 1.....	Corvallis	Asbury, Raymon D., E, 1.....	Silverton
Allen, Lloyd Lee, CE, 4.....	Redmond	Ash, Alice Arnold, C, 2.....	Corvallis
Allen, Sherman R., P, 1.....	Richland	Askwith, William Horace, F, 2.....	Portland
Allen, William Henry, EE, 4.....	San Dimas, Calif.	Asper, Pauline Amalia, H, 2.....	Telocaset
Altman, Dale Ellis, V, 3.....	Gresham	Atkinson, Edmund Hilton, V, 1.....	Corvallis
Ambuhl, Marvyn Russell, Ch, 1.....	Portland	Atkinson, Hildred B., V, 4.....	Portland
Amos, Robert, C, 2.....	Portland	Atkinson, Ruby Arline, V, 1.....	Portland
Andersen, Roy Gihm, CE, 3.....	Portland	Atterbury, Alexander Henry, P, 3.....	Albany
Anderson, Anna Veronica, C, N.....	Corvallis	Atterbury, Cal, V, 1.....	Tigard
		Atterbury, Harlan Eugene, C, 2.....	Roseburg

Atwood, Keene DeLoss, C, 1.....Astoria
 Aubert, George, IA, 1.....Mount Hood
 Auer, Walter Virgil, E, 1.....Corry, Pa.
 Auferheide, Robert, F, 1.....Salem
 Auld, Edwin Parker, ME, 4.....Corvallis
 Aungst, Leslie H., Ch, 1.....Baker
 Ausland, Willis M., CE, 2.....Grants Pass
 Auvil, Thelma, H, 3.....Entiat, Wash.
 Avrit, Leslie Byron, V, 4.....Corvallis
 Aydelott, Owen L., F, 4.....Garibaldi
 Ayer, Constance June, V, 2.....Red Bluff, Calif.
 Ayers, Carl Babin, C, 2.....Portland
 Ayers, Stanley James, E, 1.....Coquille
 Ayres, Wallace, A, 2.....Junction City
 Babcock, Edna May, V, 4.....Astoria
 Babcock, Frances Kimball, C, 2.....Portland
 Babcock, Irma Lucille, H, 2.....Astoria
 Backlund, Arthur, EE, 2.....Corvallis
 Bacon, Gordon J., P, 1.....Boring
 Bader, John William, C, 2.....Portland
 Badurina, Lawrence John, E, 1.....Portland
 Baechtel, Richard Samuel, F, 3.....Corvallis
 Bagley, William R. Jr., ME, 2.....Duluth, Minn.
 Bailey, Alfred William, V, 4.....Portland
 Bailey, Frances Harriet, V, 1.....Portland
 Bailey, George Ducey, ME, 4.....Corvallis
 Bailey, Harrison Earl, E, 1.....Portland
 Bailey, Kingman Buford, CE, 2.....Portland
 Baird, Douglas George, CE, 3.....Corvallis
 Baird, Grace Ellen, H, 3.....Portland
 Baker, Dorothea Darland, H, 1.....Carlton
 Baker, Eldon Edmiston, A, 4.....Carlton
 Baker, Gail Clinton, F, 3.....Callahan, Calif.
 Baker, Kenneth Harold, A, 2.....Corvallis
 Baker, Lloyd B., P, 2.....Newberg
 Baker, Lloyd V., C, 3.....Carlton
 Baker, Maurice A., V, 1.....La Grande
 Baker, Morrell Cecil, P, 1.....Nampa, Idaho
 Baker, Owen V., EE, 2.....Newberg
 Baker, Virginia Kathryn, C, 2.....Eugene
 Baker, W. Kenneth, ME, 4.....Oswego
 Bakman, Frank Stanley, C, 2.....Fresno, Calif.
 Balch, Anthony Cuthbert, EE, 2.....Portland
 Baldrige, W. Dwight, CE, 2.....Parma, Idaho
 Baldwin, George Melvin, C, 1.....Portland
 Baldwin, Rodney Douglas, A, 1.....Morro Bay, Calif.
 Bales, Forrest Eleanor, C, 3.....Kimberly
 Bales, Kathleen, H, 1.....Kimberly
 Bales, Lucille, C, 3.....Corvallis
 Bales, Vivian Eula, C, 4.....Kimberly
 Ball, Delbert, EE, 2.....Portland
 Ball, Eldon, A, 2.....Crockett, Calif.
 Ballard, Roderic Blackman, V, 4.....Long Beach, Calif.
 Balsiger, Stuart Riggs, C, N.....Klamath Falls
 Balzer, Lois Ethel, H, 2.....Portland
 Balzer, Russell Leonard, C, 1.....Portland
 Bandy, Edith Caroline, H, N.....Corvallis
 Bandy, Thelma Blanche, V, 1.....Corvallis
 Banister, Clara Ida, C, 1.....Paisley
 Banks, Kathryn Dryden, C, 1.....Portland
 Barber, Marion Myrtle, H, 1.....Camas, Wash.
 Bardwell, Vera, H, 2.....Pico, Calif.
 Barker, Edwin M., C, 1.....Anacortes, Wash.
 Barker, Margaret Elizabeth, H, 3.....Anacortes, Wash.
 Barker, Miriam Bode, C, 4.....Portland
 Barker, Wilda Irene, C, 4.....Myrtle Point
 Barlow, Frank Stephen, V, 1.....Portland
 Barlow, Freda Virginia, G, 1.....Pueblo, Colo.
 Barnes, Zed William, P, 2.....Klamath Falls
 Barnett, Howard Glen, EE, 4.....Salem
 Barnett, Neva Inez, C, 1.....Saugus, Calif.
 Barrett, Mary Margaret, V, 1.....Portland
 Barricklow, Eugene Arthur, A, 1.....Portland
 Barrows, Effie, H, 2.....Logan, Utah

Barrus, Conrad H., P, 1.....Puunene, T.H.
 Bartel, Robert Ray, E, 1.....Portland
 Barton, Victor P., CE, 2.....San Gabriel, Calif.
 Bartrum, Kenneth G., A, 2.....Portland
 Baskerville, Harry Herbert, C, 1.....Los Angeles, Calif.
 Batcheller, Campbell Robinson, V, 2.....Corvallis
 Batcheller, Raymond, EE, 4.....Portland
 Bateman, Harold W., C, 2.....Milton
 Bateman, Ross L., E, 1.....Toledo
 Bates, Clarence Cass, V, 2.....Corvallis
 Bates, Daniel Walter, C, 1.....Jennings Lodge
 Bates, Leon E., P, N.....Warm Springs
 Bauer, Donald Clinton, C, 4.....Molalla
 Bauer, Ernest William, C, 3.....Portland
 Bauer, Paul G., C, 1.....Corvallis
 Bauer, Wayne Lewis, ME, 4.....Molalla
 Bauge, Paul J., EE, 2.....Oak Grove
 Bault, Lester, V, 1.....Tangent
 Baumbach, Ruth Fay, H, 4.....Boring
 Baxter, Fredah B., C, N.....Coquille
 Baxter, Harvey, EE, 4.....Bend
 Beach, Gene Fay, H, 1.....Bend
 Beal, Robert Perry, F, 3.....Los Angeles, Calif.
 Beal, Robert William, ME, 2.....Parkdale
 Beall, Harriet Hays, V, 3.....Portland
 Beals, Ruth Grace, C, 1.....Tillamook
 Beals, Wenonah Alice, A, 1.....Corvallis
 Bean, Lucy Isabel, H, 2.....Junction City
 Bear, Henrietta Nioma, V, 2.....Albany
 Beardsley, Bruce M., E, 1.....Corvallis
 Beardsley, Cassius Marvin, A, 3.....Corvallis
 Beardsley, Clark Ewing, C, 4.....Los Angeles, Calif.
 Beasley, Dorothy, H, 2.....Santa Ana, Calif.
 Beatty, Daniel Webster, ME, 3.....Brownsville
 Beatty, Fulton Owen, V, 1.....Glendale, Calif.
 Bechen, Haarby Berg, C, 3.....Hillsboro
 Beck, Patricia Adaline, C, 4.....Gaston
 Beckendorf, Howard Paul, EE, 2.....Portland
 Beckendorf, Walter Arthur, P, 3.....Portland
 Becker, Maxwell Henry, C, 2.....Nampa, Idaho
 Beckham, Welby Eucl, M, 1.....Bandon
 Beckley, Henry L., A, 2.....Elkton
 Beckley, Lois Marie, C, 2.....Roseburg
 Bedford, Jack Montgomery, C, 2.....Klamath Falls
 Beebe, George Parker, C, 3.....Corvallis
 Beecher, Helen Vernon, H, 2.....Stockton, Calif.
 Beight, Kathryn Mary, H, 3.....Albany
 Beith, Marjorie Mae, C, 3.....Joseph
 Belanger, Joseph, A, 4.....Corvallis
 Belcher, Joe A., V, 4.....Corvallis
 Belknap, Harold Augustus, F, 2.....Colusa, Calif.
 Bell, Barbara Dee, H, 2.....Corvallis
 Bell, Clark Kenaston, C, 1.....Pasadena, Calif.
 Bell, Elizabeth, H, 2.....Portland
 Bell, Gordon Melvin, C, 1.....Grants Pass
 Bell, Howard Jefferson, C, 1.....Portland
 Bell, Jesse A., E, 1.....Oregon City
 Bell, LaMar Claude, C, 1.....Grants Pass
 Belbrood, Ruth, V, 4.....Portland
 Beltrami, Leo J., C, 1.....San Francisco, Calif.
 Bendixen, Leroy K., A, 1.....Milwaukie
 Benedict, Hazel M., V, 1.....Portland
 Benefiel, Velma Lulu, H, 2.....Corvallis
 Bengel, Terrel Lynn, A, 1.....Heppner
 Benham, Henry L., IA, 1.....Williams, Ariz.
 Benito, Marcelino, E, 1.....Corvallis
 Benner, Raymond Edward, C, 2.....Upland, Calif.
 Bennett, David Edwin, IA, 1.....Corvallis
 Bennett, Edith Mary, V, 4.....Corvallis
 Bennett, Elizabeth, V, 2.....Corvallis

- Bennett, Howard Velroy, A, 4.....Independence
 Bennett, Jack K., E, 1.....Portland
 Bennett, James T., A, 1.....Corvallis
 Bennett, Mary Pauline, V, 4.....Albany
 Bennett, Maxine Margaret, V, 2.....Grants Pass
 Benschmidt, Adolph, CE, 2.....Tillamook
 Bentley, Frederick Erwin, C, 2.....Claremont, Calif.
 Beresford, Josephine Chilton, H, 1.....Portland
 Berg, Elmer, A, 4.....Canby
 Berg, Harold William, Ch, 3.....Salem
 Berg, Neil John, EE, 4.....Portland
 Berg, Willard Theodore, A, 1.....Warren
 Bergdahl, Astrid Ermine, V, 1.....Portland
 Bergen, Harold G., A, 1.....Filer, Idaho
 Berger, Philip K., F, 3.....Bend
 Bergerson, Gilbert, V, 2.....Vernonia
 Berkey, Henry W., E, 1.....Tillamook
 Berlow, Alex, C, 1.....Portland
 Bertram, Mary E., H, 2.....Corvallis
 Bertsch, Howard, A, 4.....Corvallis
 Beswick, Tom, ME, 2.....Ashland
 Bethel, John W., V, 2.....Bend
 Beyerle, John Richard, V, 4.....Dallas
 Beyers, Lyle Elbertus, ME, 4.....Coquille
 Bhagwat, Bhagwant Balaji, A, 1.....Bombay, India
 Biancone, John, V, 2.....Portland
 Biersdorf, Delbert, E, 1.....Cornelius
 Billing, Margaret Electa, C, 3.....Corvallis
 Billing, Mary Elizabeth, V, 4.....Corvallis
 Billings, John S., A, 1.....Ashland
 Bilyeu, Eloise, H, 3.....Portland
 Bilyeu, Marion Josephine, V, 1.....Portland
 Bingham, Frances, V, 3.....Canyon City
 Bingham, Stewart J., V, 1.....Canyon City
 Birrel, Jean Carleton, H, 3.....Portland
 Bishop, Helen Merle, H, 1.....Portland
 Bishop, James Franklin, A, 1.....Tigard
 Bishop, Marguerite Eleanor, C, 1.....Portland
 Bissell, Charles Mitchel, C, 1.....Atascadero, Calif.
 Black, Donald Harry, C, 1.....Portland
 Black, Robert James, V, 2.....Corvallis
 Black, Ruth Jessica, V, N.....Portland
 Blackmore, Brian, A, 4.....Oamaru, New Zealand
 Blackwell, Peggy Mae, G, 1.....Reedsport
 Blair, Dale, C, 1.....Mount Angel
 Blake, David G., E, 1.....Ashland
 Blakely, Carolyn, V, 1.....Redmond
 Blanchfield, Emmett Underwood, A, 1.....Los Angeles, Calif.
 Blasen, Robert Earl, EE, 2.....Portland
 Blazier, Anita Marie, V, 3.....Portland
 Bleamaster, Mirian DuBois, G, 1.....Corvallis
 Blevans, Jack Austin, CE, 4.....Joseph Blevins, John, C, 4.....Corvallis
 Bliton, Albert Henry, E, 4.....Medford
 Blomstrom, Roy, F, 4.....Roseburg
 Blow, Grace Hayward, H, 4.....Los Angeles, Calif.
 Blurock, Betty, V, 1.....Vancouver, Wash.
 Bockman, Charles Eugene, V, 1.....Portland
 Bodle, Gwen Mary, V, 4.....Portland
 Bodner, William Stephen, V, 2.....Corvallis
 Bofto, Eino Alfred, V, 2.....Portland
 Bogard, Earl, E, 1.....Butte Falls
 Bogart, Clark, C, 2.....Portland
 Bogen, Harry Emerson, C, 1.....Glendale, Calif.
 Bogess, Jack C., IA, 3.....Mabel Boileau, Michael Joseph, EE, 2.....Marshfield
 Bolle, John Donald, C, 1.....Oregon City
 Bohannon, Glenn, C, 3.....Corvallis
 Bollinger, Robert Edward, C, 1.....Portland
 Bollman, Paul, P, 2.....Dallas
 Bolton, Verna, P, 4.....Antelope
 Bomgardner, Meron, H, 3.....Portland
 Bondeson, Harold, E, 1.....Portland
 Bonebrake, Donald Clinton, C, 2.....Portland
 Bonebrake, John Henry, ME, 2.....Portland
 Bonge, Mildred May, V, 1.....Corvallis
 Booth, Amy Elizabeth, V, 1.....Portland
 Booth, Harold Charles, E, 1.....Parkdale
 Booth, Janet, H, 2.....Jennings Lodge
 Boring, William Chester, Ch, 1.....Junction City
 Borkowski, George, EE, 2.....Portland
 Bort, William Frank, M, 3.....Corvallis
 Boswell, Carl Knox, V, 2.....Central Point
 Boswell, Clifford Edwin, V, 4.....Central Point
 Bothern, Frances Rose, H, 1.....Albany
 Botcher, Richard, F, 1.....Portland
 Botts, Cyril H., ME, 3.....Wauna
 Boucher, Cormack Elmer, EE, 4.....Albany
 Boultinghouse, Carrie Lela, V, 3.....San Bernardino, Calif.
 Boultinghouse, James Harvey, C, 4.....Portland
 Bower, Philip Adair, V, 2.....Corvallis
 Bowerman, Harold Read, F, 4.....West Linn
 Bowerman, Irma, H, 1.....Hood River
 Bowers, Eugene William, A, 1.....Astoria
 Bowman, Clyde, ME, 3.....Anaheim, Calif.
 Bowman, Pierre James, C, 2.....Portland
 Bowne, Francis J., CE, 3.....Klamath Falls
 Bowne, Walter B., F, 3.....Klamath Falls
 Boyce, Virginia Esther, C, 1.....Hollywood, Calif.
 Boyles, Ferne Mary, V, 2.....Portland
 Braaten, Emerald N., Ch, 2.....Eugene
 Brachvogel, Richard I., P, 3.....Portland
 Bradley, John James, C, 2.....Vallejo, Calif.
 Bradley, Lora Rosalie, H, 1.....Silver Lake
 Bradley, Lyle William, C, 1.....Lakeview
 Bradshaw, Mildred E., C, 2.....La Grande
 Brady, Lawrence, EE, 2.....Portland
 Brainerd, Catherine, V, 2.....Portland
 Brainerd, Robert Abner, V, 2.....Portland
 Brainerd, Lucretia May, H, 2.....Portland
 Brandeberry, Earl Cedric, F, 1.....Albany
 Branton, Clarence Ivan, A, 2.....Dixonville
 Brashear, Norman, IA, 1.....Rogue River
 Bray, E. Loren, EE, 2.....Albany
 Breck, Isabel, C, 3.....Baker
 Brennan, Charlotte Christine, H, 2.....Portland
 Brennan, Frances Theresa, C, 1.....Lakeview
 Bressie, Yancie Carl, IA, 1.....Portland
 Brewitt, Edward Herbert, C, 1.....Tacoma, Wash.
 Brians, Elizabeth Jane, P, 2.....Salem
 Briant, Charles, A, 1.....Yakima, Wash.
 Briggs, James T., ME, 2.....Ashland
 Briggs, Mark Robert, C, 2.....Corvallis
 Brigham, Harriet Edna, C, 1.....Eugene
 Brineman, Margaret, H, 1.....San Diego, Calif.
 Bringolf, Marjorie, C, 1.....The Dalles
 Brinker, L. Edwin, CE, 2.....Los Angeles, Calif.
 Brintzenhoff, Trimble, EE, 3.....Portland
 Brittain, Virgil Marion, EE, 2.....Portland
 Britton, Thomas George, C, 1.....Portland
 Britton, James Day, CE, 2.....Marysville, Calif.
 Brock, Samuel Clinton, E, 1.....Wasco
 Brodie, Elden Francis, C, 1.....Myrtle Point
 Brogotti, William Travis, C, 1.....Helix
 Brommer, Fredericka Emilie, H, 2.....Medford
 Brooms, Berwin, C, 1.....Portland
 Bronson, Bob, C, 1.....Portland
 Brooks, Frances Mary, H, 1.....Portland
 Brooks, Wayne, M, 1.....Portland
 Brost, Frank Joseph, C, 4.....Portland

- Brown, Albert C., V, 2.....Philomath
 Brown, Alfred L., C, 4.....Burns
 Brown, Betty, Ch, 2.....Corvallis
 Brown, Carlos T., F, 2.....Portland
 Brown, Carroll E., F, 2.....Portland
 Brown, Dan M., P, 4.....Corvallis
 Brown, Delmar Louis, ME, 4.....Silverton
 Brown, E. Ernestine, H, 1.....Hillsboro
 Brown, Edith E., H, 2.....Lakeview
 Brown, Harlan Eugene, CE, 4.....Portland
 Brown, Harold, C, 1.....Portland
 Brown, Helen Means, H, 3.....Portland
 Brown, Howard French, C, N.....Klamath Falls
 Brown, Jack A., M, 3.....Corvallis
 Brown, James Bennett, Ch, 4.....Corvallis
 Brown, Jay Kenneth, Ch, 2.....Ashland
 Brown, Kenneth A., A, 4.....Gervais
 Brown, Lowell Eastham, ME, 2.....Silverton
 Brown, Marjorie Alice, H, 1.....Vancouver, B. C.
 Brown, Neal Chester, A, 1.....Drain
 Brown, Otis Carleton, A, 3.....Corvallis
 Brown, Phoebe Kathleen, H, 1.....Vancouver, B. C.
 Brown, Rebecca Elizabeth, V, 2.....Portland
 Brown, Richard Myers, C, 1.....Portland
 Brown, Robert B., C, 3.....Burns
 Brown, Robert L., A, 1.....Corvallis
 Brown, Vernon Leroy, EE, 4.....Corvallis
 Brown, Z. Shelley, P, 4.....Portland
 Brownhill, Stanley McBride, EE, 2.....Portland
 Browning, Elizabeth Mason, H, 1.....Portland
 Brownsey, Wilbur Harris, C, 1.....Compton, Calif.
 Brownson, Shirlee Ruth, C, 1.....Hermiston
 Bruce, William Thomas, V, 3.....La Grude
 Brumbaugh, Sheldon, O, S.....Corvallis
 Brunskill, Paul M., P, 2.....Albany
 Bryan, Billie Jean, H, 2.....Bremerton, Wash.
 Bryan, Vanita Faye, C, 2.....Paisley
 Bryant, Isabelle, V, 3.....Corvallis
 Bryant, Malcolm S., C, 1.....Portland
 Buccat, Jose U., CE, 2.....Corvallis
 Buchanan, Aurella, H, 2.....Corvallis
 Buchanan, James Robert, V, 2.....Corvallis
 Buchner, Marvin K., ME, 4.....Albany
 Buck, Doris Adelaide, V, 2.....Portland
 Buck, Florence, V, 2.....Portland
 Buck, Gilbert Fenn, ME, 4.....Portland
 Buck, Lyle Ellis, V, 1.....McMinnville
 Buck, Margie Kate, H, 2.....Eugene
 Buck, Milton, F, 4.....Portland
 Buckhorn, Elmer A., EE, 2.....Bend
 Buckley, Clarkson I., V, 1.....Corvallis
 Budd, Willa Hoyt, V, 3.....Glendale, Calif.
 Buell, Evelyn Magrita, H, 4.....Portland
 Buerke, Ralph Ernest, V, 4.....Corvallis
 Buford, Howard Wellington, A, 2.....Long Beach, Calif.
 Bullard, Howard Warren, F, 2.....Bullards
 Bullard, Maurice L., IA, 4.....Estacada
 Bullis, Ruth May, H, 2.....Gaston
 Bump, Celia Elvira, V, 4.....Gervais
 Buntin, Claudia Maie, V, 1.....Salem
 Burch, Frances Elizabeth, C, 1.....Lakeview
 Buren, Alice Rosalie, H, 2.....Salem
 Burgard, Betty Ann, C, 4.....Portland
 Burge, Chloe Elizabeth, V, 4.....Corvallis
 Burgoyne, Carlyle Ferris, P, 1.....Riddle
 Burke, Edna Lawrence, V, 4.....Dallas
 Burke, Kendall E., V, 4.....Dallas
 Burke, Nelle W., H, S.....Corvallis
 Burke, Robert J., ME, 3.....Portland
 Burkhardt, Scott, CE, 3.....St. Helens
 Burnett, Gail Marjorie, C, 1.....Portland
 Burnett, George Lewis, F, 1.....Portland
 Burnett, Shirley W., ME, 3.....Eagle Creek
 Burns, Marian Grace, C, 2.....Portland
 Burns, Randall Joseph, C, 2.....Portland
 Burroughs, Burton Boyce, A, 4.....Corvallis
 Burroughs, Dillard Willis, C, 1.....Hollywood, Calif.
 Burt, John Brown, M, 1.....Carlton
 Burtis, Barbara Stewart, H, 3.....Corvallis
 Burwell, Gerald Leroy, F, 3.....Corvallis
 Buschman, Clyde, C, 4.....Portland
 Busenbark, Allen Duncan, A, 4.....Roseburg
 Busenbark, Dale Willard, A, 1.....Roseburg
 Busenbark, Helen Fae, H, 2.....Roseburg
 Busenbark, Wilma, H, 1.....Roseburg
 Bush, Marjorie Lydia, C, 4.....Bridal Veil
 Bush, Paul Babbitt, A, 1.....Bridal Veil
 Butler, Kelton, C, 1.....Salem
 Butner, Frances N., V, 4.....Roseburg
 Butterfield, Neal Allan, A, 2.....Woodburn
 Button, Joan Daphne, C, 1.....Portland
 Buxton, Charles Roberts, V, 1.....Corvallis
 Buzhard, Dorothy Lenore, C, 2.....Hillsboro
 Byington, Erma Bessie, C, 1.....Philomath
 Byington, William Wallace, M, 2.....Philomath
 Byram, Harold Mark, C, 1.....Canyon City
 Byrd, Dorothy Maurine, V, 2.....Corvallis
 Byrne, Bayard Woodruff Jr., C, 2.....Los Angeles, Calif.
 Byrne, Jack M., C, 2.....Elgin, Ill.
 Cabanag, Arcade B., E, 1.....Eugene
 Caday, Petronilo G., C, 1.....Lacomb
 Cady, Marion Ernest, Ch, 2.....Portland
 Calaba, Victor, ME, 2.....Salem
 Calderwood, Catherine, V, 3.....Lakeview
 Califf, William Evelyn, F, 2.....Oregon City
 Callaway, James Ralph, E, 1.....Long Beach, Calif.
 Callin, Luella B., C, S.....Corvallis
 Calub, Nemesio Orpilla, A, 2.....Portland
 Calvert, Emmett Richard, F, 2.....San Gabriel, Calif.
 Cameron, Lelia Marguerite, H, 4.....Fairfield, Calif.
 Campbell, Catherine May, H, 2.....Tenino, Wash.
 Campbell, Dale K., A, 1.....Corvallis
 Campbell, Lewis Patterson, E, 1.....Salem
 Campbell, Maxwellton Selwin, CE, 4.....Corvallis
 Campbell, Pauline, V, 2.....Pasadena, Calif.
 Campbell, Wilbert Forbes, C, 2.....Portland
 Cannessa, Marjorie Marie, H, 2.....Astoria
 Canova, Murray F., A, 2.....Corvallis
 Cantine, Thomas Robinson, CE, 3.....Portland
 Carden, Lois Margaret, H, 2.....Whittier, Calif.
 Cardinell, Kenneth Edward, E, 1.....Manhattan Beach, Calif.
 Carey, Frances Geraldine, C, 2.....Portland
 Carl, Kenneth E., A, 2.....Arago
 Carl, Raymond August, IA, 4.....Salem
 Carleton, Candler, CE, 4.....Alsea
 Carleton, Edmund Ackerman, Ch, 1.....Portland
 Carlton, Charles William, E, 1.....Portland
 Carlson, Albert Steen, C, 2.....North Powder
 Carlson, Byron Arthur, C, 3.....Portland
 Carlson, Edwin J., M, 4.....Astoria
 Carlson, Elmer G., Ch, 1.....The Dalles
 Carlson, Janet M., C, 3.....Tone
 Carlson, Kenneth David, C, 2.....Prineville
 Carlson, Milton V., C, 1.....Portland
 Carlson, Winnifred Elaine, C, 1.....Juneau, Alaska
 Carlstrom, Dorothy Elizabeth, H, 2.....Hamilton, Mont.
 Carlton, Robert Ogden, Ch, 1.....Portland

- Carmichael, C. H., A, S.....Corvallis
 Carpenter, Fred Roy, V, 2.....Corvallis
 Carpenter, Margery R., H, 2.....Pasadena,
 Calif.
 Carr, Clarence Eugene, P, 2.....Tacoma,
 Wash.
 Carr, Maxwell, C, 1.....Tacoma, Wash.
 Carroll, Cecil Thomas, V, 2.....Corvallis
 Carroll, John M., E, 1.....Portland
 Carson, Homer, F, 2.....Corvallis
 Carson, Verner Eugene, CE, 4.....Ashland
 Carson, Virginia, V, 1.....San Bernardino,
 Calif.
 Carter, Elden Wuest, CE, 2.....Portland
 Carter, Ilo, C, 1.....Corvallis
 Carter, Tharp, C, 4.....Hollywood, Calif.
 Carter, Verna, H, 2.....Portland
 Carver, Wayne R., C, 2.....Myrtle Point
 Cassel, Shirley Elizabeth, G, 1.....Portland
 Caster, Marion Bertram, E, 1.....Central
 Point
 Castner, George Remer, C, 4.....Portland
 Cate, Jack C., V, 2.....Corvallis
 Cavender, Noel, C, 1.....Portland
 Cawfield, Paul A., EE, N.....Burns
 Chambers, Ramona Jane, C, 1.....Canyon
 City
 Chandler, Delva Frances, C, 3.....Wendling
 Chandler, Marion Franklyn, C, 3.....Baker
 Chandler, Paul Roy, C, 1.....Lakeview
 Chandler, Ruth Pauline, C, 1.....Portland
 Chapman, Frederick Milton, P, 1.....Roseburg
 Chapman, Kenneth Agee, P, N.....Corvallis
 Chapman, Lawrence Edwin, F, 1.....Portland
 Chapman, Paul, A, 3.....Dallas
 Chapson, Kenneth P., IA, 2.....Corvallis
 Charlton, Ivy Eleanor, H, 4.....La Grande
 Charlton, Velma Izora, H, 2.....La Grande
 Chatterton, Jay Hewitt, EE, 3.....Portland
 Chatterton, Lois Orma, H, 1.....Portland
 Chattin, Charles W. Jr., EE, 2.....Ashland
 Cherrick, Morris R., A, 1.....Canby
 Chester, Charles Eric, F, 1.....Astoria
 Choate, Virgil Albert, A, 1.....Summerville
 Chong, Stanley Valentine, A, 1.....Portland
 Christensen, Ena Erla, C, 3.....Alsea
 Christensen, Harold M., C, 1.....Waterloo,
 Iowa
 Christensen, Robert P., P, 2.....Oakland, Calif.
 Christensen, Thonette Fremming, O, 2.....
 Oakland, Calif.
 Christenson, Chester Marion, E, 1.....Portland
 Christian, Stanley Charles, A, 3.....Hana-
 mauli, T. H.
 Christiansen, Claud Bert, Ch, 2.....Ontario
 Christiansen, Robert Niels, CE, 3.....Portland
 Christison, James S., C, 1.....Portland
 Christopher, Franklyn A., C, 2.....Adams
 Church, Floyd W., EE, 2.....Roseburg
 Church, Troas Viviette, H, 1.....Roseburg
 Churchill, George William, F, 2.....Roseburg
 Ciliax, F. Louise, V, 2.....Pasadena, Calif.
 Ciliax, Gustav Otto Jr., C, 4.....Pasadena,
 Calif.
 Ciliax, Ralph Gustav, C, 4.....Pasadena, Calif.
 Claassen, Arthur Montieth, C, 2.....Paso
 Robles, Calif.
 Claassen, William Alexander, C, 1.....Corvallis
 Claggett, Lloyd Alvin, C, 1.....Salem
 Clark, Arthur William, G, 1.....Piedmont, Calif.
 Clark, Cleon Ladd, F, 3.....Bend
 Clark, Dorothy Margaret, H, 1.....Pomona,
 Calif.
 Clark, Fred Weston, E, 1.....Eugene
 Clark, Georgina Suzanne, C, 3.....Halsey
 Clark, J. Woodson, C, 1.....Portland
 Clark, Jerome Wadham, C, 2.....Portland
 Clark, John E., C, 2.....Lapine
 Clark, Margaret Frances, C, 3.....Portland
 Clark, Martha Louie, V, 4.....Corvallis
 Clark, Trevor Thomas, P, 2.....Altadena, Calif.
 Clayton, Marjorie Helen, C, 2.....Enterprise
 Clemens, Gertrude, H, N.....Portland
 Clemens, Kathryn D., G, 1.....Portland
 Clemens, Ralph Sherman, ME, 2.....Portland
 Clement, Henry Huntington, C, 4.....Salem
 Clinton, Harry Forest, C, 2.....Corvallis
 Clinton, Kathryn, G, 1.....Chehalis, Wash.
 Clisby, George Bert, IA, S.....Corvallis
 Clodfelter, Harland Russell, Ch, 1.....Corvallis
 Coan, Patricia Lucile, V, 4.....Klamath Falls
 Coates, Margaret Lenore, H, 4.....Albany
 Coates, Marion, H, 1.....Tillamook
 Coates, Olive Marie, H, 3.....Corvallis
 Cobb, Alan W., Ch, 3.....Oak Grove
 Cobo, Dorothy Aletha, H, 1.....Portland
 Cobo, Keith Barr, C, 1.....Portland
 Cochran, Alice Lillian, H, 1.....Brownsville
 Cochran, Molly A., H, 1.....Eugene
 Cochran, Reese Lewis, C, 4.....Corvallis
 Coe, Mildred Louise, V, 1.....Portland
 Cofer, Helen Mae, C, 1.....Klamath Falls
 Cohen, Sam E., C, 4.....Portland
 Colbry, James Harrison, A, 1.....Tangent
 Colbry, Vera Lyola, V, 4.....Tangent
 Coldiron, Nora Bell, V, 1.....Halsey
 Cole, Mary Louise, H, 2.....Portland
 Cole, Opal Kathryn, H, 2.....Portland
 Coleman, Delia Garrett, H, 4.....Corvallis
 Coleman, Howard, EE, 4.....Corvallis
 Coleman, James M., V, 2.....Portland
 Coleman, Perry Alexander, C, 2.....The Dalles
 Coleman, Timothy J., Ch, 2.....Portland
 Coleman, Warren Richard, P, 2.....Bend
 Coleman, William Henry, A, 2.....Dundee
 Collett, Ralph Leonard, E, 1.....Portland
 Collin, Henry A. Jr., A, 1.....Orosi, Calif.
 Collins, Mary Louise, H, 2.....Ames, Iowa
 Collinsworth, Chester M., A, N.....Joseph
 Colver, Eldred R., E, 1.....Phoenix
 Colvin, Edgar Dean, A, 3.....Siletz
 Colvin, Nita Idellia, C, 4.....Ritter
 Coman, Edward Charles, C, 4.....Covina, Calif.
 Comish, Alison, V, 1.....Corvallis
 Compton, Leo Miles, F, 1.....Corvallis
 Comstock, John, F, 1.....Cove
 Conaway, Charley E., E, 1.....Medford
 Condon, Dean Leslie, CE, 2.....Corvallis
 Conner, Karl, G, 1.....Corvallis
 Conrad, Paul P., Ch, 4.....Reedley, Calif.
 Conway, Dixon E., G, 1.....North Bend
 Cook, Clive Winton, A, N.....Wells
 Cook, Harold Ernest, C, 3.....Pendleton
 Cook, Ila Mae, V, N.....Corvallis
 Cook, J. William, Ch, 1.....Myrtle Creek
 Cook, Leland Theodore, V, 3.....Portland
 Cook, Louise Winfield, H, 1.....Salem
 Cook, Lynn F., P, 1.....Independence
 Cook, Maxwell, C, 4.....Corvallis
 Cook, Wesley A., EE, 4.....Portland
 Cook, Warren G., ME, 3.....Warrenton
 Cook, Wesley A., EE, 4.....Portland
 Cooke, James Philip, Ch, 2.....Portland
 Cookman, Frederick William, E, 1.....Portland
 Cool, Candace Marjorie, H, 3.....Portland
 Coombe, Grace Elizabeth, C, 2.....Ashland
 Coombs, Anna Margaret, H, 2.....Prairie City
 Coombs, Edwin Alfred, A, 3.....Prairie City
 Coon, Donald C., E, 1.....Corvallis
 Cooper, Edward Harold, E, 1.....Portland
 Cooper, Fred Lee, C, 4.....Corvallis
 Cooper, Horace G., F, 3.....Portland
 Cooper, Jaqueline, H, 1.....Portland
 Cooper, Kenneth, C, 1.....Corvallis
 Cooper, Robert L., F, 1.....Elgin, Ill.
 Cooper, Wilbur David, E, 1.....Parkdale

Coopey, Martin Portman, E, 1.....Corvallis
 Copeland, John, V, 2.....Klamath Agency
 Coppock, Madge Bernice, C, 4.....Corvallis
 Corbett, Phyllis, V, 1.....Oregon City
 Corbin, Uriel Lee, F, 2.....Halsey
 Corkett, Earl, O, 1.....Portland
 Corlew, Cecil L., E, 1.....Portland
 Corum, Sam Milton, F, 1.....Silver Lake
 Cory, H. Newell, F, 3.....Lakeview
 Costley, Hazel May, H, 4.....Modesto, Calif.
 Couey, Edgar Roy, C, 3.....Troutdale
 Courtemanche, Louis, C, 1.....McMinnville
 Courtney, Robert Evan, F, 2.....Los Angeles, Calif.
 Coutts, Wesley A., V, 4.....Portland
 Cowardin, Robert Dacus, V, 1.....Corvallis
 Cowen, Dale Russell, C, 2.....Portland
 Cowie, Harry Dean, V, 1.....Portland
 Cox, Jack Orval, V, 2.....Union
 Cox, Troy, F, 1.....Harrisburg
 Craig, Allan Russell, P, 1.....Corvallis
 Craig, Mason Gordon, E, 1.....Portland
 Craig, Neal, A, 3.....Malin
 Craig, Tinsman Robert, A, 4.....Malin
 Crail, Elsie Vivian, H, 3.....Portland
 Crail, Nita Belle, H, 1.....Portland
 Cram, Eleanor Louise, V, 1.....Portland
 Cram, Elizabeth Blanche, V, 2.....Portland
 Cramer, Carl A., ME, 3.....Portland
 Cramer, Luther William, ME, 3.....The Dalles
 Cramer, Olive Irene, C, 2.....Corvallis
 Crawford, Arthur B., A, 1.....Gaylorlin
 Crawford, Clayton, C, 1.....Corvallis
 Crawford, Harold Frederick, P, 2.....Eugene
 Crawford, Melvin Emerson, F, 1.....Corvallis
 Crawford, Thomas H., ME, 2.....Los Angeles, Calif.
 Crawford, Willard Nelson, C, 1.....Corvallis
 Crenshaw, Donald King, C, 1.....Tillamook
 Cress, Jack M., A, 1.....Portland
 Crider, C. Van, C, 4.....Dallas
 Crillo, Louise, C, 1.....Portland
 Crofoot, Violet, C, 3.....Portland
 Croker, Frances May, H, 4.....Salem
 Cronin, Robert, EE, 3.....Pendleton
 Crook, Alma M., H, 1.....Harlem, Mont.
 Cross, Lionel E., A, 4.....Corvallis
 Crossett, Dorothy Grace, V, 1.....Portland
 Crouter, Alfred B., A, 3.....Union
 Crover, Nellie, V, 1.....Lebanon
 Crowe, George Leland, C, 2.....Corvallis
 Crowe, James Harvey, V, 2.....Corvallis
 Crowell, Elizabeth Louise, H, 2.....Pasadena, Calif.
 Cruikshank, George S., CE, 2.....Portland
 Crump, Elmer W., C, 3.....Lakeview
 Crump, Viola Ruth, C, 2.....Adel
 Cummings, Marie, V, 2.....Corvallis
 Cummings, John Clemmer, C, 4.....Claremont, Calif.
 Cummings, Orlo G., C, 1.....West Fir
 Cummins, Ellis Earl, F, 4.....Hood River
 Cummins, Mildred Louise, V, 4.....Yaquina
 Cummins, William Frances, F, 4.....Yaquina
 Cunliff, Gerald, EE, 4.....Dee
 Cuning, Tom Klett, V, 2.....Klamath Falls
 Copper, Mabel Louisa, H, 3.....Salem
 Curl, Dorothy Mary, V, 3.....Portland
 Curran, Daniel Edward, CE, 2.....La Grande
 Currie, Jean, C, 3.....Camas, Wash.
 Currin, Ruth Helen, C, 2.....Eugene
 Curtin, Victor, C, 1.....Portland
 Curtis, A. Ralph, A, 3.....Corvallis
 Curtis, Jack, C, 1.....Corvallis
 Cusick, Eugene, Ch, 3.....Forest Grove
 Cutler, Kenneth Bryant, C, 2.....Portland
 D'spain, Grace Elizabeth, C, 1.....Milwaukie

Dagley, Arthur Lyle, A, 4.....Portland
 Dahl, Russell Eugene, CE, 2.....Portland
 Dahlin, Lucille Shirley, H, 1.....Florence
 Dahlin, Roy Eugene, EE, 4.....Corvallis
 Dahlin, Verus, F, S.....Corvallis
 Dale, Dorothy Irene, C, 1.....Canyon City
 Dale, Margaret Retrum, C, 3.....Canyon City
 Daley, Mildred, G, 1.....Santa Ana, Calif.
 Daley, Stanton Eugene, V, 2.....Stockton, Calif.
 Dalrymple, Margaret Ernestene, C, 1.....The Dalles
 Dalton, Charles LeRoy, V, 3.....Corvallis
 Damitio, Harry Albert, V, 2.....Aberdeen, Wash.
 Dammeier, Margaret Leonore, V, 2.....Portland
 Danforth, George, EE, 2.....Portland
 Danforth, Willis, V, 1.....Bend
 Dann, Edwin Allen, A, 2.....Fowler, Calif.
 Danne, Jack J., V, 1.....Shedd
 Darley, Charles Herman, A, 1.....West Stayton
 Darling, Ineta Hamlin, H, 3.....Corvallis
 Darlington, Lawrence Edwin, V, 2.....Corvallis
 Dasch, Dale Milton, A, 2.....Salem
 Daubenspeck, Richard, E, 1.....Venice, Calif.
 Davidson, Loomis Arvella, V, 1.....Central Point
 Davidson, Marvin William, A, 2.....Haines
 Davidson, Mary Jane, H, 1.....Alberta, Canada
 Davies, Daniel Ralph, Ch, 1.....Parkdale
 Davies, Gaylord, V, 3.....Troutdale
 Davies, John, V, 2.....Corvallis
 Davies, T. Albert, EE, 3.....Parkdale
 Davis, Catherine, V, 1.....Portland
 Davis, Donald Neil, E, 1.....Drain
 Davis, Eldon Maitland, ME, 2.....Portland
 Davis, Everett Henry, E, 1.....Corvallis
 Davis, Florence Mariam, C, 2.....Portland
 Davis, Hester, H, 4.....Salem
 Davis, Howard William, C, 4.....Estacada
 Davis, Inez Virginia, V, 1.....Orange, Calif.
 Davis, Irene Ruby, V, 2.....Corvallis
 Davis, James Hooper Jr., ME, 3.....Honolulu, T.H.
 Davis, Keith Edweon, A, 1.....Corvallis
 Davis, Lenard H., Ch, 2.....Estacada
 Davis, Mary E., C, 1.....Sierra Madre, Calif.
 Davis, Owen Davies, E, 1.....Honolulu, T.H.
 Davis, Owen Leroy, A, 2.....Ontario
 Davis, Richard J., A, 1.....Shedd
 Davis, Robert James, ME, 4.....Portland
 Davis, Ruth Jeannette, H, 2.....Corvallis
 Davis, Thelma Irene, O, 2.....Salem
 Davis, Trist Franklin, C, 1.....Corvallis
 Dawley, Margaret, V, 4.....Portland
 Dawson, Harold Wilbur, EE, 2.....The Dalles
 Day, Alvin Masten, EE, 3.....La Grande
 Day, Ben Jr., C, 1.....Gold Hill
 Day, Ella M., H, 3.....Toledo
 Day, Grace Lee, G, 1.....Salem
 Day, John Stewart, V, 2.....Gold Hill
 Day, Phyllis Kathleen, H, 1.....Salem
 Day, Wilma Lucille, V, 1.....Hubbard
 Dean, Doris A., C, 1.....White Salmon, Wash.
 Dean, Ruth Hazel, V, 1.....Fort Lewis, Wash.
 Dearborn, Isabelle, C, 2.....Corvallis
 Deardorff, Eldon R., ME, 2.....Corvallis
 Dearfield, Elizabeth Ann, V, 2.....Corvallis
 DeArmond, Ruth Elizabeth, H, 1.....Sitka, Alaska
 DeArmond, Tom Hamilton, A, 2.....Suver
 Decious, Charles R., V, 2.....Fort Bidwell, Calif.
 Dick, Rollin Ausben, C, 4.....Hillsboro
 Deckebach, Donald Carl, EE, N.....Salem
 Dedman, Frank William, C, 3.....Portland

- DeGeneault, Lewis E., C, 2.....Grants Pass
 Deiffell, John J., C, 3.....Portland
 de la Saux, Carolyn Frances, V, 2.....Corvallis
 DeLashmutt, Beryl Clifton, C, 2.....Corvallis
 DeLong, Vernon E., A, 1.....La Grande
 Delzell, Thelma, O, 1.....Turner
 DeMoss, Susan Eileen, H, 2.....Corvallis
 Denham, James Frank, C, 1.....Talent
 Denman, Helen Louise, H, 3.....Corvallis
 Dennis, Charles Edward, E, 1.....Klamath Falls
 Dennis, Herbert, F, 3.....Klamath Falls
 Denmore, Jane, C, 1.....Portland
 Denton, James Carlyle, E, 1.....Portland
 Deremiah, Joe, A, 2.....Corvallis
 DeRock, Alberta Mignon, C, 1.....Mist
 De Shazer, Florence Echo, C, 2.....Boring
 Desler, Lillian Esther, H, 3.....Mt. Angel
 Desmond, John Wilbur, A, 2.....Minot, N.D.
 DeTemple, Rita Lucille, C, 4.....Portland
 Devine, Fred George, M, 1.....Portland
 DeVoe, Harold Dwight, EE, 4.....Medford
 Dew, Marie, C, 1.....Corvallis
 DeWitte, Theodore Richard, CE, 3.....Portland
 Dibble, Earl L., C, 4.....Portland
 Dick, Elinor Bernice, H, 1.....Portland
 Dickey, Eleanor Grey, H, 1.....Corvallis
 Dickson, William Ziegler, P, 2.....Portland
 Digneress, Mabel Jacqueline, H, 1.....Silverton
 Digman, Clarence Eugene, C, N.....Portland
 Dill, Herman, F, 2.....Prineville
 Dillin, Dorothy Ann, H, 3.....Pomona, Calif.
 Diment, Ervin P., P, 3.....Newberg
 Dimmitt, Oliver Lee, C, 2.....Portland
 Dingle, Helena Blanche, C, 1.....Whittier, Calif.
 Dirker, Brady, A, 1.....Portland
 Dixon, Eugenia Elizabeth, V, 1.....Corvallis
 Dixon, C. H. Gordon, F, 1.....Victoria, B.C.
 Dixon, James, V, 4.....Corvallis
 Dixon, William Frank, V, 1.....Corvallis
 Dizney, Clarence, IA, 2.....The Dalles
 Dodd, Willene E., V, 2.....Long Beach, Calif.
 Dodge, Austin G., V, 4.....Myrtle Point
 Dodge, Thomas Clarence, E, 1.....Portland
 Dolan, Glen Owen, ME, 3.....Portland
 Dolan, Mary Jane, H, 1.....Corvallis
 Don, Jean, H, 1.....Fossil
 Donelson, Kenneth Wilber, C, 2.....Portland
 Donley, Gordon Richard, A, 1.....Portland
 Dorner, William John, E, 1.....Portland
 Doty, Darwin Horneff, C, 1.....Corvallis
 Dougherty, John Wilson, E, 1.....Portland
 Dougherty, Richard Herbert, E, 1.....Portland
 Doughton, Dorothy Dale, H, 1.....Lebanon
 Doughton, Howard Franklin, C, 2.....Lebanon
 Doughton, Rhea Cathryne, C, 1.....Oakland
 Doughton, Webber Petty, A, 2.....Lebanon
 Douglass, Charles T., ME, 2.....San Francisco, Calif.
 Downing, Garnet Homer, ME, 2.....Corvallis
 Doyle, Blanche W., H, 2.....Los Molinas, Calif.
 Doyle, John B., F, 2.....Oregon City
 Doyle, Margaret Elizabeth Cooper, V, 2.....Corvallis
 Doyle, Robley E., ME, 4.....Arago
 Drager, George Edgar, E, 1.....Salem
 Drager, Margaret Marie, C, 2.....Salem
 Drager, Robert, C, 4.....Salem
 Drake, Miles Edward, P, 2.....Portland
 Drake, Thelma Helene, C, 4.....Portland
 Draper, Dorothy Blanche, H, 2.....Des Moines, Wash.
 Dredge, William Charles, C, 2.....Azusa, Calif.
 Dreisbach, Marjory, H, 1.....Baker
 Dresser, Leland, ME, 2.....Corvallis
 Drewis, Henry Frederick, F, 4.....Portland
 Drows, Dorothy Verma, G, 4.....Portland
 Dreyer, Martha Doris, H, 3.....Portland
 Driggs, Marion Ione, C, 1.....Salem
 Druschel, Dorothy Jean, V, 2.....Portland
 Drynan, Tom, V, 4.....Portland
 Dudley, Gerald Pittman, V, 3.....Wolf Creek
 Duif, Gayle Elizabeth, V, 2.....Portland
 Duif, George R., C, 3.....Baker
 Duifield, George Henry, C, 4.....Portland
 DuFrane, Jack Louis, C, 2.....Corvallis
 Dugan, George Raymond, IA, N.....Bend
 Dumbeck, Ethel M., V, 4.....Albany
 Dunagan, Averitt C., E, 1.....Scotts Mills
 Dunham, Donald B., C, 3.....Klamath Falls
 Dunham, Marion, H, 1.....Alberta, Canada
 Dunkelberger, Jerry, O, 2.....Los Angeles, Calif.
 Dunkelberger, Richard Blair, C, 2.....Portland
 Dunkin, Marshall Fielding, V, 2.....Portland
 Dunkin, Virgil Henry, EE, 4.....Portland
 Dunlap, Rodney Taylor, ME, 3.....Portland
 Dunn, Henry L., A, 2.....Corvallis
 Dunn, Lloyd Thomas, IA, 4.....Boring
 Dunn, Richard William, V, 2.....Portland
 Dunning, James Joseph, F, 1.....Portland
 Durham, Clark Hinton, P, N.....Salem
 Durland, Samuel Clyde, ME, 4.....Roseburg
 Duryee, Melville, O, 1.....Los Angeles, Calif.
 Dutcher, Frances Millikin, H, 2.....Eugene
 Dutcher, T. Paul, A, 3.....Corvallis
 Dutro, John A., A, 4.....Corvallis
 Dutton, William Reiman, C, N.....Portland
 Dyer, Emma, V, 1.....Mayville
 Dyrhrman, Harry A., M, 2.....Corvallis
 Dysert, Bertie, C, 1.....Corvallis
 Ea, Domingo Estrada, A, 2.....Corvallis
 Eachus, Katherine, H, 3.....Lakeport, Calif.
 Eames, Harold L., P, N.....Corvallis
 Ebbert, Theodore H., EE, 2.....Corvallis
 Ebel, Albert Robert, C, 4.....Portland
 Eckelman, Margaret Carla, H, 4.....Portland
 Eddy, Clarence, C, 1.....Corvallis
 Edgerton, Lois Evelyn, H, 2.....Lakeview
 Edson, Lois C., V, 4.....Amity
 Edwardes, Edna, G, 1.....San Francisco, Calif.
 Edwards, Aileen, C, 2.....Mayville
 Edwards, Fern Elizabeth, V, 2.....Portland
 Edwards, Grant H., V, 3.....Corvallis
 Edwards, Philip Lyles, C, 1.....Oakland, Calif.
 Edwards, W. Donald, A, 4.....Corvallis
 Efteland, J. Edward, C, 3.....Portland
 Egan, Bryan E., ME, 2.....Corvallis
 Eicher, Bertha Luella, V, 1.....Central Point
 Eichorn, Emerson Ehringer, C, 4.....Peoria, Ill.
 Eilers, Vernon, A, 4.....Corvallis
 Eilmann, Frederick William, A, 2.....Lorane
 Eisenbrey, Evelyn, H, 2.....Pomona, Calif.
 Eisenbrey, Morris M., M, 1.....Pomona, Calif.
 Eisenschmidt, Herbert, V, 1.....Portland
 Ekstrand, Philip Arnold, EE, 4.....Albany
 Elden, George W., C, 3.....Central Point
 Elden, Harry F., C, 2.....Central Point
 Eldredge, Kenneth R., EE, 3.....Portland
 Eldridge, Frederick Lee, V, 2.....Corona, Calif.
 Eldridge, Robert Louis, E, 1.....Corvallis
 Eliasson, Frans William, V, 2.....Astoria
 Elkin, Theo James, C, 2.....Portland
 Elkins, Katharine Jane, V, 3.....Prineville
 Elle, Martin Joseph, V, 3.....Portland
 Elle, Ralph Carl, CE, 3.....Portland
 Elliott, Leone, H, 4.....Perrydale
 Elliott, Marian Elizabeth, H, 4.....Corvallis
 Ellis, Hyden Peris, F, 3.....Astoria
 Ellsworth, Thelma Patricia, V, 1.....Portland
 Emery, C. Kenneth, E, 1.....Portland
 Emigh, George Elmer Jr., V, N.....St. Helens
 Emmel, Wilford Philip, A, 3.....Salem
 Emmett, James Lowell, C, 1.....Salem
 Emrick, Walter E., A, 3.....Tangent

- Enegren, Edwin Carl, A, 2.....Marshfield
 Enget, Margaret Joan, H, 1.....Salem
 Engelstad, Edwin Boris, Ch, 3.....Gresham
 Enke, Robert Arnold, Ch, 1.....Corvallis
 Enke, Walter Edward, ME, 4.....Corvallis
 Ennor, Harold Varley, EE, 3.....Salem
 Enslow, Melvin Fuller, C, 3.....Falls Creek
 Enzie, Vincent J., A, 2.....Long Beach, Calif.
 Eri, Alvin, C, 1.....Boring
 Eri, Clarence, G, 1.....Boring
 Erickson, Arthur, C, 2.....Bend
 Erickson, Alvin, C, 3.....Grants Pass
 Erickson, Gilbert G., C, 1.....Portland
 Erickson, John Walter, C, 4.....Cascade Locks
 Erlandson, Gilbert George, V, 2.....Portland
 Ernest, Thurley Bertha, C, 1.....Portland
 Ernst, Lester William, C, 1.....St. Paul
 Erwin, Lee, E, 1.....Albany
 Esbenschade, Gertrude Louise, V, 1.....Portland
 Essman, Lewis, A, 1.....Myrtle Point
 Estberg, Gladys Beryl Tegner, C, 4.....Portland
 Estioko, Moises, A, 2.....Corvallis
 Evans, Bertrand Richard, V, 3.....Pendleton
 Evans, Mahlon Keith, C, 1.....Troutdale
 Evenden, Robert Murray, F, 3.....Warrenton
 Evenden, William, A, 2.....Warrenton
 Everest, Alton, EE, 3.....Portland
 Everhart, Adress Tyrone, F, 1.....Oregon City
 Everhart, Berneita L., V, 2.....Molalla
 Ewalt, Harold, A, 2.....Estacada
 Ewen, Herbert W., C, 4.....Portland
 Fagans, Kenneth, V, 2.....Nehalem
 Fahey, Catherine, V, 4.....Oak Grove
 Failing, William Latimer, E, 1.....Portland
 Fain, Charles Marvin, IA, 2.....Corvallis
 Fallner, Bernadine, P, 3.....Lebanon
 Faris, Therone Ivan, F, 1.....Corvallis
 Farley, Lester Timothy, C, 3.....Corvallis
 Farrow, Robert William, C, 3.....Los Angeles, Calif.
 Faveluke, Eugene, C, 1.....Portland
 Felhman, Delzell Avalyn Lorilla, V, 3.....Corvallis
 Felipe, Servando Valdez, F, N.....Corvallis
 Felker, Samuel Alfred, ME, 2.....Eagle Creek
 Felton, Glenn W., IA, S.....Dayton
 Fenn, Joel Ransom, A, 1.....Melrose
 Fenner, Keith Peck, E, 1.....St. Helens
 Fenstermacher, John B., C, 2.....Piedmont, Calif.
 Ferdun, Clarence, A, 4.....Lodi, Calif.
 Ferguson, Claude, E, 1.....Grass Valley, Calif.
 Ferguson, Henry Paul, C, 1.....Marshfield
 Ferguson, Roland, F, 4.....Corvallis
 Ferguson, Wallace, G, 1.....Marshfield
 Feser, Dora Helen, C, 1.....Portland
 Ficklin, John Albert, C, 2.....Huntington
 Finch, Marjorie LaVerne, C, 2.....Tillamook
 Finch, Robert Walter, A, 2.....Fullerton, Calif.
 Finch, Ruth Margaret, H, 2.....Portland
 Finchum, James Dayton, M, 1.....Merrill
 Finell, Herman Ewald, IA, 1.....Marshfield
 Fink, William J., A, 3.....Porterville, Calif.
 Finlay, Donald W., E, 1.....Portland
 Finley, Edward James, C, 2.....Tigard
 Finnell, Harold E., A, 1.....Portland
 Fischer, Eugenia Bernadine, H, 3.....Albany
 Fish, Alice Nelda, V, 3.....Bridg
 Fisher, Alice Mary, V, 3.....Albany
 Fisher, Eugene H., A, 2.....Oakland
 Fisher, Frank C., E, S.....Portland
 Fisher, William Henry, EE, 2.....Medford
 Flora, Lloyd James, E, 1.....Carlton
 Fitzstephens, William Barnett, EE, 2.....Corvallis
 Fix, Louis A., P, 1.....Oregon City
 Platt, George William, EE, 2.....Eugene
 Fleener, Wilda Alene, V, 1.....Salem
 Fleming, Alvin Neil, C, 2.....Portland
 Fleming, Robert Earnest, IA, 4.....Eugene
 Fletcher, Elizabeth May, H, 2.....Portland
 Fletcher, Ellisworth Richmond, EE, 2.....Salem
 Fletcher, George A., A, 2.....Hood River
 Fletcher, Louise C., V, 1.....Salem
 Flood, Dagmar, H, 1.....Westport
 Flood, Frida, V, 2.....Westport
 Flora, Lloyd James, E, 1.....Carlton
 Fogler, Loren Irving, CE, 2.....San Bernardino, Calif.
 Foley, Francis Barnett, F, 2.....Glendale, Calif.
 Forbes, Byron Wallace, C, 1.....Portland
 Forcum, Paul Eugene, Ch, 3.....Whitefish, Mont.
 Ford, Richard Ulysses, V, 1.....Portland
 Forden, Eleanor Georgia, C, 1.....Hood River
 Forden, Harold J., V, 2.....Hood River
 Foreman, Paul B., C, 2.....Baker
 Forrest, Arleta, V, 2.....Portland
 Forrester, Jess Wayne, C, 1.....Marshfield
 Forse, Harry Bernarr, F, 2.....Courtney, B.C.
 Forsnas, Roy V., IA, 4.....Superior, Ariz.
 Forsyth, Norton Alexander, C, 3.....Santa Rosa, Calif.
 Fosburg, Cranson Henry, F, 2.....Marshfield
 Foster, C. Dalton, EE, 4.....Portland
 Foster, Dorothy Ann, V, 2.....Powell Butte
 Foster, Elmer George, C, 1.....Corvallis
 Foster, Esther Gertrude, V, 4.....Powell Butte
 Foster, Harold Martin, F, 2.....Lorane
 Foster, Lyle W., C, 2.....Corvallis
 Fosterling, Arthur W., EE, 3.....Baker
 Fowells, Harry Ardell, F, 2.....Reedville
 Fowells, Mildred Carleton, V, 2.....Corvallis
 Fox, Frances Eva, H, 1.....Portland
 Fox, Maurice Kelly, F, 1.....Portland
 Fox, Nelson Henry, V, 3.....Portland
 Foxley, William E., O, 1.....Corvallis
 Fraer, James K., C, 4.....Marshfield
 Frakes, Edna Belle, H, 2.....Lakeview
 Frame, Verda Arzella, H, 4.....Ferndale, Calif.
 Francis, Lawrence Edward, A, 3.....Corvallis
 Frandsen, Thorvald, E, 1.....Alhambra, Calif.
 Frank, Eugene Frederick, E, 1.....Baker
 Franzke, Evelyn Gladys, H, 1.....Newport
 Frederick, Amby, C, 3.....Medford
 Frederick, Virginia Myrtle, C, 1.....Grants Pass
 Freeborn, Jean Alice, C, 2.....Washington, D.C.
 Freeman, Albert, ME, 3.....Portland
 Freeman, Laura Loana, V, 4.....Scio
 Friedman, David, ME, 2.....Portland
 French, Norman Hughes, F, 4.....Portland
 Frewing, Darrell K., A, 2.....Tigard
 Frey, George Archibald, F, 4.....Corvallis
 Fridley, Vernon Alonzo, F, 2.....Santa Cruz, Calif.
 Fronk, Robert A., EE, 4.....McMinnville
 Frost, Chester, C, 2.....Etiwanda, Calif.
 Frost, Elizabeth Arlene, H, 2.....Sandy
 Fuller, George Alvin, E, 1.....Corvallis
 Fuller, Richard, A, 1.....McMinnville
 Fundman, Ernestine Paula, C, 2.....Willamina
 Fundman, Gwendolyn Elizabeth, C, 1.....Corvallis
 Funk, Helen Faye, C, 4.....Portland
 Furnish, Kathryn, V, 1.....Pendleton
 Gable, Lucille Eleanor, V, 1.....Portland
 Gabler, Elizabeth C., V, 2.....Portland
 Gabriel, Aurelio N., V, 3.....Corvallis
 Gaddis, Jean E., H, 1.....Portland
 Gail, Budd W., P, 1.....Medford
 Gaither, William Reuel, E, 1.....Astoria
 Gallagher, John Walter, C, 4.....Corvallis
 Gallagher, Mary Elizabeth, C, 3.....Portland
 Gallagher, Virginia R., H, 2.....Portland

- Gallaher, M. Carl, V, N.....Corvallis
 Gallaher, Morgan Henry, IA, 2.....Corvallis
 Gallatin, Frances Louise, H, 4.....Ashland
 Gallaway, Holbrook, Ch, 3.....Hood River
 Galligan, Mildred Lavina, C, 1.....Hood River
 Galloway, Genevieve, V, 3.....Milton
 Ganong, Joanne St. Clair, V, 1.....Portland
 Garbutt, Frances Imogene, C, 3.....Ontario, Calif.
 Gardiner, Rosemary, H, 3.....Oregon City
 Gardiner, William Walter, E, 1.....Portland
 Gardiner, Frank, P, 3.....Bates
 Gardner, Mary Allison, C, 2.....Napa, Calif.
 Gardner, Vernon C., C, 3.....Turlock, Calif.
 Garhardt, Mart K., V, 2.....Portland
 Garland, Charles Walter, C, 2.....Hubbard
 Garlinghouse, Lester Edwin, E, 1.....Halfway
 Garretson, Henry Merle, Ch, 3.....Portland
 Garrigues, Dorothea Elizabeth, H, 1.....Portland
 Garrison, Elmer Walter, IA, 2.....Corvallis
 Garrison, Lorraine Mae, H, 1.....Corvallis
 Garrison, Ray Leonard, A, 1.....Nyssa
 Garrow, Lloyd Joseph, C, 1.....Portland
 Gary, Marian Caroline, V, 1.....Portland
 Gaskins, Rex, F, 1.....Diamond Springs, Calif.
 Gault, Jean Effie, H, 2.....Gladstone
 Gaylord, Charles B., C, 3.....Portland
 Gearhart, Hazel, V, 1.....Myrtle Point
 Gentry, Eugene W., C, 2.....Lexington
 George, Frances L., H, 1.....Echo
 Geren, John Lawrence, CE, 2.....Scotts Mills
 Gerlach, Claude Theodore, P, 1.....Coquille
 Germain, Donald, P, 2.....Portland
 Gerish, John M., ME, 2.....Portland
 Getz, Robert Patterson, C, 1.....Corvallis
 Gibbs, Howard Scott, V, 1.....Albany
 Gibbs, Jack Alban, E, 1.....Roseburg
 Gibson, Howard, A, 1.....Corvallis
 Gibson, James S., C, 3.....Corvallis
 Gibson, Thelma Agnes, H, 2.....Portland
 Gibson, William Larrick, V, 1.....Galt, Calif.
 Gilbert, Frank H., E, 1.....Portland
 Gilbert, Inez, P, 1.....Corvallis
 Gilbert, Lucile, H, 3.....Corvallis
 Gilbert, Theodore D., C, 2.....Albany
 Gilbert, Warren Everett, CE, 3.....Portland
 Giles, Frank R., C, 1.....Portland
 Gill, Francis L., V, 2.....Monmouth
 Gill, James R., C, 2.....Los Angeles, Calif.
 Gillan, Crosby Lee, Ch, 1.....Glendale, Calif.
 Gillanders, Donald C., EE, 4.....Monitor
 Gilles, Donald M., E, 1.....Portland
 Gillespie, Noel, C, 2.....Vernon, B.C.
 Gilmore, William James, V, 1.....Corvallis
 Gilson, Leonard L., V, N.....Perrydale
 Gimming, John Joseph, V, 1.....Peoria, Ill.
 Gish, W. Arno, EE, 2.....Portland
 Gittings, Philip Louis, A, 1.....Prineville
 Given, William Elmer, C, 2.....Portland
 Glann, Mildred, V, 4.....Albany
 Glascock, John Edward, E, 1.....Ontario
 Glascock, Leo E., C, 4.....Medford
 Glascock, Ethel Faye, V, 3.....Yakima, Wash.
 Glaze, Arletha Lavern, V, 3.....Corvallis
 Gleason, Harry Myron, C, 2.....Corvallis
 Gleason, William Edward, ME, 2.....Portland
 Gnavauch, Freda Elizabeth, C, 1.....Echo
 Gnekow, Rudolph Franklin, C, 1.....Stockton, Calif.
 Godard, F. Lois, H, 1.....Cottage Grove
 Godman, John R., EE, 2.....Corvallis
 Goff, Alma, H, 4.....Corvallis
 Goff, Wayne Leroy, CE, 3.....Medford
 Goldsberry, Archie Alvin, IA, 1.....Auburn, Calif.
 Goodall, G. Robert, A, 2.....Eugene
 Goodfellow, Peggy Irene, C, 1.....Salem
 Gooding, Ward Leighton, Ch, 3.....Burns
 Goodman, Gladys, H, 1.....Portland
 Gordon, Delpha Mary, H, 2.....Portland
 Gordon, George William, C, 4.....Portland
 Gordon, Margaret, V, 3.....Piedmont, Calif.
 Goss, John Catlin, V, 4.....Portland
 Goss, John Dean, A, 2.....Portland
 Goss, Walter Alling Jr., C, 3.....Portland
 Goss, William Henry, F, 2.....South Gate, Calif.
 Goyette, Irene Bernice, H, 2.....Silverton
 Grafton, William Walter, A, 4.....Anaheim, Calif.
 Graham, Clarence A., E, 1.....Pendleton
 Graham, Eugene Earl, Ch, 1.....Fruitland
 Graham, Tom R. Jr., P, 1.....Corvallis
 Grant, Annabelle Janet, C, 3.....Portland
 Grant, Gene, A, 1.....Corvallis
 Grant, Gordon Lynn, C, 2.....Portland
 Grasier, Frederick Arden, E, 1.....Gladstone
 Graves, Robert Newton, F, 1.....Rainier
 Gray, Arvilla, H, 1.....Portland
 Gray, Charles Marshall, C, 1.....Gold Hill
 Gray, Iris, O, 2.....Juneau, Alaska
 Gray, Lester Edmund, C, 1.....Beaverton
 Grayson, Mark Alfred, V, 2.....Portland
 Green, Charlotte Delia, H, 1.....Vernonia
 Green, Curtis E., E, 1.....Corvallis
 Green, Lytle E., CE, 2.....Mt. Vernon
 Green, Norman Holton, C, 1.....Vernonia
 Green, Virginia Ruth, H, 4.....Portland
 Greene, Frances, V, 2.....Oakland, Calif.
 Greening, Richard Bluford, C, 2.....Corvallis
 Greenleaf, Lee M., CE, 3.....Medford
 Greenwell, Jack Bryson, C, 1.....Kealakekua, T.H.
 Greenwood, John Alvin, E, 1.....Portland
 Gregg, Mary J., V, 4.....Portland
 Gregory, Edward Mortimer, E, 1.....Albany
 Gregory, Lester J., Ch, 2.....Molalla
 Gregory, Maurine Olive, V, 2.....Newberg
 Greno, Raphael Valentine, C, 4.....Los Angeles, Calif.
 Greves, Jack Hans, M, 2.....North Bend
 Gribble, John Foster, F, 1.....Medford
 Griffin, Z. Wayne, C, 4.....Los Angeles, Calif.
 Griggs, Irene, H, 4.....Cottage Grove
 Griggs, Lloyd, A, 2.....Cottage Grove
 Grigsby, Geraldine Julia, C, 1.....Portland
 Grim, Willard Allen, F, 2.....Medford
 Grimes, Edgar B., A, 2.....Harrisburg
 Grimes, Lloyd, C, 4.....Harrisburg
 Griswold, Nadina Olivia, C, 2.....Pendleton
 Gropp, William Helmuth, ME, 3.....Eugene
 Gross, Alvin Eugene, A, 3.....Halfway
 Gross, Clifford, E, 1.....Halfway
 Gross, John J., V, 2.....Corvallis
 Guerian, Ben Alfred, C, 3.....Pendleton
 Guiss, Helen McKinney, V, 3.....Woodburn
 Gull, John Adam, A, 4.....Salem
 Gumpert, Clyde, V, 2.....Bend
 Gunter, Ida Cora, C, 1.....Grants Pass
 Gustafson, Arthur Welfred, V, 2.....Klamath Falls
 Gustafson, Walter Alexander, F, 3.....Corvallis
 Guthrie, Wynnetta, C, 1.....Corvallis
 Hackett, Ruth Caroline, H, 2.....Grants Pass
 Hadley, Harold Hubert, C, 3.....Vale
 Hagar, Edward William, A, 1.....Roseburg
 Hagar, Marian Virginia, H, 2.....Roseburg
 Hagar, Rowland Gager, A, 4.....Roseburg
 Hagen, Clarence Lloyd, V, 3.....Nashwauk, Minn.
 Hager, Roderick David, EE, 2.....Portland
 Hagood, Laura Margaret, H, N.....Portland
 Hague, Gordon, V, 1.....Portland
 Haight, Lillian Pearle, C, 1.....Portland

Haight, Reginald B., EE, 4..... Cottage Grove
 Haines, Deloss, C, 1..... Bend
 Haines, Robert L., F, 1..... Huber
 Halderman, Lurton Raymond, EE, 4..... Portland
 Hale, Edward Everett, E, S..... Portland
 Hall, Beatrice Burdette, H, 1..... Pasadena, Calif.
 Hall, Dorothy Helen, C, 2..... Portland
 Hall, Heath Vale, F, 1..... Salem
 Hall, James Grills, C, 1..... Goldendale
 Hall, Margery Jean, H, 3..... Sacramento, Calif.
 Hall, Marian Gertrude, H, 1..... Portland
 Hall, Muriel Mar, H, 1..... Corvallis
 Hall, Robert Creed, A, 1..... Scappoose
 Hall, Ronald Wright, G, 1..... Corvallis
 Hall, Ruby Alma, H, 2..... Portland
 Hall, Thomas C., A, 2..... Corvallis
 Hall, Wilhelmina, V, 2..... Corvallis
 Hall, W. Knowlton, P, 4..... Clatskanie
 Hallinan, Cecil Walter, V, 1..... Oregon City
 Hallock, Norma Elizabeth, P, 4..... Portland
 Halseth, Cordiner J., ME, 2..... Portland
 Halsey, Eldred, ME, 2..... Corvallis
 Hamilton, Earl M., V, 2..... Corvallis
 Hamilton, Kenneth Porter, A, 2..... Albany
 Hamilton, Lawrence Fox, F, 4..... Albany
 Hamilton, Mary Isabella, V, 4..... Albany
 Hamm, Robert Leland, A, 3..... Roseburg
 Hammer, Kenneth Oliver, V, N..... Rainier
 Hammericksen, Oscar Raymond, P, 1..... Eugene
 Hammond, Sinclair R., C, 4..... Portland
 Hammond, Thorne Harrison, C, 2..... Portland
 Hance, Henry Watson, CE, 4..... Corvallis
 Hand, J. Douglas, A, 1..... North Powder
 Hanigan, George Henry, C, 2..... Kerry
 Hanks, Dan Cardwell, V, 1..... Nyssa
 Hanna, John Muir, C, 1..... Marting, Calif.
 Hanselman, George Allen, C, 2..... Portland
 Hansen, Alice DeLyria, H, N..... Corvallis
 Hansen, Dale Henry, EE, 3..... Marshfield
 Hansen, Elmer, A, 2..... Freewater
 Hansen, Elmore, CE, 2..... Astoria
 Hansen, Emily DeForest, P, 4..... Portland
 Hansen, Henrietta C., C, 4..... Seattle, Wash.
 Hansen, Howard Benjamin, A, 3..... Terrebonne
 Hansen, Martin I., C, S..... Oakland, Calif.
 Hansen, Veloren N., C, 4..... Portland
 Hanson, John Joy, P, 2..... San Francisco, Calif.
 Hanson, Mrs. Lora M., V, S..... Corvallis
 Hanson, Orrie Wilford, F, 3..... Silverton
 Hanson, Raymond A., C, 2..... Portland
 Hanthorn, Howard E., Ch, 3..... Portland
 Hanthorn, Walter, E, 1..... Portland
 Harbeck, Marie Monica, A, 3..... Grants Pass
 Harber, William Glover, E, 1..... Albany
 Harbinson, James Eugene, A, 1..... Sacramento, Calif.
 Hardenburger, Bob, IA, 1..... Corvallis
 Harer, Valette Scarborough, C, 4..... La Grande
 Harker, Percival Oren, ME, 2..... Los Angeles, Calif.
 Harkleroad, James David, EE, 2..... Oswego
 Harlan, Clarence B., IA, S..... Corvallis
 Harman, Buddene, C, 1..... Sherwood
 Harms, F. Champ, C, 2..... Portland
 Harms, Nevius Henry, V, 1..... Peoria, Ill.
 Harn, Wayne, A, 2..... Corvallis
 Harper, Austin V., A, 3..... Corvallis
 Harper, Curtis Thornton, Ch, 1..... Portland
 Harper, Hannah Mary, H, 1..... Junction City
 Harper, J. Edwin, A, 4..... Gervais
 Harper, Muriel Evelyn, H, 1..... Alturas, Calif.
 Harper, Robert Selvester, A, 1..... Adin, Calif.
 Harrah, Forrest Aden, A, 4..... Pendleton

Harrang, Norman Orville, A, 2..... Foster
 Harrington, Ethel, H, 2..... Corvallis
 Harrington, John D., C, 2..... McMinnville
 Harrington, Joseph F., M, 3..... Corvallis
 Harris, Edward C., E, 1..... Condon
 Harris, Walter Lee, Ch, 2..... Medford
 Harrison, B. Clifford, C, 1..... Coburg
 Harrison, Ruth, V, 2..... Portland
 Harrison, Marshall Bohn, C, 1..... Portland
 Harrison, Ruth, H, 1..... La Grande
 Harrison, Verne, CE, S..... Oswego
 Harry, Rosalie Florence, C, 2..... Oregon City
 Harshberger, Fred, A, 4..... Warrenton
 Harsin, J. Arthur, G, 1..... Enterprise
 Hart, Gifford Thompson, ME, 2..... Kerby
 Hart, J. Lorene, C, 2..... Jefferson
 Hart, Lucy Elizabeth, C, 2..... Kerby
 Hartford, Frank L., E, 1..... Portland
 Hartley, George Wellington, C, 3..... Portland
 Hartwell, Elmor, C, 4..... Corvallis
 Harvey, Donna Mae, V, 1..... Portland
 Harvey, Guy Marvin, V, 2..... Corvallis
 Harvey, Morris Eugene, P, 4..... Portland
 Hasbrouck, Harold Eugene, A, 4..... Nampa, Idaho
 Hatch, Loring, CE, 2..... Falls City
 Hathaway, Lela Bertha, C, 4..... Corvallis
 Hathorn, Jesse, F, 2..... Hood River
 Haun, Ferne Ida, H, 1..... Lostine
 Hauner, John Frederick, C, 2..... Portland
 Hauswirth, Armin O., C, 1..... Albany
 Hauswirth, Walter H., EE, 2..... Albany
 Hawkins, Dehlia Alice, H, 4..... Klamath Falls
 Hawkins, John L., V, 2..... Klamath Falls
 Hawley, Helen Ruth, H, 4..... Portland
 Haworth, James Blaine, P, 2..... Oswego
 Hay, Clifford Charles, A, 1..... Philomath
 Hayden, Helen Elizabeth, H, 3..... Klamath Falls
 Hayes, Burke, E, 1..... Pendleton
 Hayes, Lucille Helen, C, 2..... Powers
 Hayes, Ralph Maxwell, C, 4..... Portland
 Haynes, Helen Dorothy, H, 1..... Corvallis
 Hays, Susan Eleanor, V, 4..... Palo Alto, Calif.
 Hayssen, Leonard E. Q., E, 1..... Portland
 Hazelton, Elgie Oren, E, 1..... Myrtle Point
 Head, Harold Henry, C, 4..... Central Point
 Head, William, V, 2..... Arlington
 Heartwell, James Charles, V, 2..... Long Beach, Calif.
 Heater, Lyle DeLoss, C, 1..... Portland
 Heath, Virgil Taylor, V, 1..... Gates
 Heaton, Thomas Gilmore, A, 4..... San Francisco, Calif.
 Hector, Wally M., E, 1..... Klamath Falls
 Hedgpeth, Joel, A, 1..... Fresno, Calif.
 Hegdahl, Harold William, V, N..... North Bend
 Heide, Lawrence William, C, 2..... Anaheim, Calif.
 Heider, Zelda Marguerite, V, 2..... Sheridan
 Heil, Helen Louise, V, 3..... Newberg
 Heimann, Richard Joseph, V, 1..... Altadena, Calif.
 Heise, Wesley Clay, C, 2..... Salem
 Helber, Fred E., EE, 2..... Portland
 Held, Gerald Walter, C, 4..... Corvallis
 Held, Leonard Edgar, C, 2..... Corvallis
 Helmick, Paul Franklin, E, 1..... Corvallis
 Helser, Ray Jack, C, 1..... Portland
 Hememway, Ellen Kathryn, C, 1..... Salem
 Hendricks, William Kern, C, 1..... Portland
 Henningsen, Dorothea, H, 4..... Portland
 Henry, John Baldwin, F, S..... Ashland
 Hensley, Vera Willabell, V, 2..... Hillsboro
 Henzel, Richard Walter, A, 4..... Portland
 Hepburn, Elizabeth Vinson, V, 4..... Portland
 Herchenbein, Ann Louise, H, 1..... Manzanita
 Hermann, Theodore Thomas, V, 1..... Corvallis

- Herndon, Helen Lucile, C, 1.....Halsey
 Herren, Mary Peyton, P, 1.....Berkeley, Calif.
 Herrington, Doris Florence, Ch, 1.....Portland
 Herron, Raymond Virgil, C, 2.....Junction City
 Hertz, DeMaris, C, 2.....Portland
 Hertz, Howard Davis, E, 1.....Portland
 Heryford, George Henry, Ch, 2.....Butte Falls
 Hess, Dorothy Deane, P, 2.....Portland
 Hesseldin, Geraldine Louise, C, 1.....Portland
 Hessler, LaVerne Dorothy, H, 1.....Dayton
 Hessler, Mina, H, 3.....Dayton
 Heyman, Ludwig, C, 4.....Albany
 Hibbeln, Paul John, A, 1.....Orofino, Idaho
 Hickox, Harlow Henry, IA, 1.....Gaston
 Hicks, Avis Marie, C, 3.....Salem
 Hick, Francis, O, 1.....Corvallis
 Higby, Lester, C, 3.....Forest Grove
 Higgins, Gordon W., C, 2.....Talent
 Hill, Carl Milton, IA, 1.....Days Creek
 Hill, Earl LeRoy, V, 2.....Corvallis
 Hill, Harold Sidney, A, 1.....Eugene
 Hill, Josephine, H, 4.....Eugene
 Hill, Martha H., V, 4.....Independence
 Hillstrom, Alphonse Matthews, C, 2.....Marsh-
 field
 Hilt, Edna Beatrice, H, 2.....Vancouver, B.C.
 Hinchcliff, Jean Louise, H, 1.....Claremont,
 Calif.
 Hinkley, Arthur LeRoy, A, 2.....Corvallis
 Hindman, Louise, C, 3.....Baker
 Hisey, Jean Earl, C, 2.....Pasadena, Calif.
 Hitchcock, Elmer Garth, F, 3.....Salinas, Calif.
 Hjertager, Harold Eugene, F, 1.....Hilt, Calif.
 Hoagland, Emory Earl Jr., C, 2.....Long
 Beach, Calif.
 Hobson, Chester Willis, ME, 2.....Portland
 Hocken, Robert Allyn, V, 2.....Corvallis
 Hockley, Claude Clement Jr., E, 1.....Portland
 Hodgkins, Margaret Lucretia, H, 1.....Gresham
 Hodgkinson, Graeme L., Ch, 1.....Portland
 Hoeh, Irene, C, 1.....The Dalles
 Hoff, William Sherritt, E, 1.....Portland
 Hoffer, Ivan Burnell, A, 3.....Portland
 Hoffman, Cathrin A., H, 1.....Vernonia
 Hogan, John Hanley, IA, S.....Corvallis
 Holcomb, Alpha Donna, C, 1.....Richland
 Holden, Everett S., A, 1.....Corvallis
 Holderman, Gilderoy W., E, 1.....Portland
 Holdman, Mrs. Rena Hales, H, 3.....Pendleton
 Hole, Douglas Chester, F, N.....Jennings
 Lodge
 Hole, Mary Elizabeth, H, 1.....Jennings Lodge
 Holeman, Mildred Ethel, H, 2.....Albany
 Holland, Clinton Hugh, E, 1.....Portland
 Hollingsworth, Gladys Elaine, C, 2.....Bell-
 ingham, Wash.
 Hollis, Roy Francis, M, 1.....Chico, Calif.
 Holloway, Jacqueline, C, 1.....Myrtle Point
 Holman, Dick Allan, M, 1.....Los Angeles,
 Calif.
 Holman, Grace Elizabeth, H, 1.....Salem
 Holmes, Alfred B., ME, 2.....Portland
 Holmes, Eldon Frederick, F, 1.....Albany
 Holt, Gwynn Arthur, C, 1.....Ft. Lewis, Wash.
 Holt, Virginia Maurine, H, 1.....Salem
 Homewood, Maud Louise, V, 3.....Grass
 Valley
 Homolac, Henry Leo, F, 2.....Pasadena, Calif.
 Hood, Donald B., C, 2.....Portland
 Hood, John Gordon, A, 1.....Vancouver, Wash.
 Hooper, Frank W., E, 1.....Woodburn
 Hopkins, Jesse Clyde, C, 2.....Banks
 Hopkins, Luella M., C, 4.....Long Beach, Calif.
 Hopper, Wallace A., C, 2.....Fresno, Calif.
 Horn, Francis M., A, 2.....Cottage Grove
 Horn, Jesse L., C, 1.....Corvallis
 Horn, Myron Josiah, F, 2.....Corvallis
 Horn, Ralph W., F, 3.....Portland
 Horr, Carl Royce, C, 2.....Portland
 Hotchkiss, Mae Aleen, C, 1.....Lakeview
 Hottel, Curtiss Roxanne, V, 3.....Milwaukie
 Houser, Jack Gerald, E, 1.....Corvallis
 Housley, Belle, C, 4.....Yoncalla
 Howde, Kerner Oliver, A, 1.....Enterprise
 Hovey, Roland Henry, C, 2.....Central Point
 Hovey, Leonard, C, 4.....Corvallis
 Howard, Charles E., E, 1.....Grants Pass
 Howard, Edgar F., ME, 3.....Corvallis
 Howard, George Russell, C, 1.....Pendleton
 Howard, Gordon Russell, C, 1.....Los Angeles,
 Calif.
 Howard, James Martin, C, 3.....Culver
 Howard, Wilma L., H, 1.....Corvallis
 Howe, Ruth Maurine, G, 1.....Salem
 Howell, Hamilton H., EE, 4.....Medford
 Howells, Robert Fuller, E, 1.....Corvallis
 Howie, Alberta Steele, V, 1.....Corvallis
 Howie, George Williamson, EE, 3.....Milwau-
 kie
 Howland, Daphna Marie, H, 3.....Pendleton
 Howland, Elizabeth Agusta, H, 4.....Oregon
 City
 Hoyt, Eleanor Marshall, V, 1.....Portland
 Hoyt, Leonard C., C, 1.....Portland
 Hrubetz, Florian Anne, P, 3.....Salem
 Hubbard, Willis Perion, A, 2.....Powers
 Huber, Burrell Francis, C, 1.....Portland
 Huber, John Haldebrand, V, 1.....Portland
 Huddleston, Francis M., Ch, 1.....Corvallis
 Hudson, Leonard, A, 2.....Elkton
 Hudson, Ruth M., H, 4.....Eugene
 Huebner, Heinz Papst, C, 2.....Portland
 Huerth, Evelyn, C, 1.....Oregon City
 Huffman, Emmett Venoy, C, 2.....Ontario
 Huffman, Neville G., C, 4.....Portland
 Hufford, Marietta, C, 3.....Coquille
 Hughart, Calvin Richard, EE, 4.....Corvallis
 Hughes, Charles H., C, S.....Corvallis
 Hughes, Frank Owen, C, 1.....Freewater
 Hughes, Henry Thomas, IA, N.....Corvallis
 Hughes, Margaret, C, 1.....Milton
 Hughson, Victor Elmer, C, 1.....Albany
 Hull, Donald Marion, C, 2.....Portland
 Hull, Helen Marguerite, V, 4.....Boise, Idaho
 Hull, John Frederick, A, 1.....Corvallis
 Humphrey, Frank E., A, 1.....Reno, Nev.
 Humphrey, Martha Louise, V, 3.....Portland
 Humphreys, Robert, ME, 3.....Enterprise
 Humphrys, Winifred Lois, C, 3.....Jennings
 Lodge
 Hunt, Alicia Maude, C, 1.....Corvallis
 Hunt, Fred Leroy, ME, 2.....Keating
 Hunt, Lee Oscar, F, 2.....Corvallis
 Hunt, Sarah Margaret, G, 1.....Portland
 Hunter, Byra Margaret, H, 2.....Corvallis
 Hunter, Delbert Nevin, E, 1.....Dallas
 Hunter, Harriet Helen, C, 1.....Klamath Falls
 Hunter, Robert, E, 1.....Klamath Falls
 Huntington, George Cooper, A, 4.....Altadena,
 Calif.
 Huntley, LeRoy Henry, P, 1.....Portland
 Hunting, Charles C., ME, 2.....Portland
 Hurlburt, Arthur, A, 1.....Corvallis
 Hurlburt, Don, E, 1.....Burns
 Hurlbutt, Lewis Coulter, C, 1.....Warrenton
 Hutchinson, Eldred Kelsey, C, 2.....Union
 Hutchinson, Glenn L., A, 3.....Vale
 Hutchinson, Hazel R., C, 4.....Corvallis
 Hutchinson, Robert J., E, 1.....Multnomah
 Huyer, Winifred Catherine, C, 1.....Portland
 Hyatt, Hazel Lorraine, H, 2.....Pendleton
 Hylton, Herald Carl, V, 2.....Corvallis
 Hynes, Edward Maurice, E, 1.....Silverton
 Hynes, Wildric Freeman, EE, 3.....Portland
 Hyslop, Sue, C, 3.....Corvallis
 Hystad, Sigrid Louise, V, 2.....Portland

- Ide, Hervey Verner, C, 2.....Portland
 Iliff, Robert McKee, A, 2.....Independence
 Ingalls, Alice Lockwood, V, 3.....Corvallis
 Ingels, Frank B., C, 1.....Dufur
 Ingels, James Shelby, C, 2.....Dufur
 Ingle, Marjorie Jean, H, 4.....Albany
 Inman, Claudia Maxine, H, 1.....Ilwaco, Wash.
 Inman, Frank, V, 1.....Portland
 Ireland, Henry Solon, E, 1.....Portland
 Ireland, Howard Aleck, C, 3.....Milton
 Irons, Leona Marcia, H, 2.....Corvallis
 Irons, Margaret Nancy, C, 1.....Corvallis
 Irvine, Lloyd M., F, 1.....Myrtle Creek
 Irving, Winton H., C, 2.....Placerville, Calif.
 Irwin, Agnes Edna, H, 1.....Huntington
 Irwin, Robert Clark, C, 1.....Huntington
 Isaacs, Emily Louise, H, 1.....Corvallis
 Isaacs, John Dove, Ch, 1.....Rockaway
 Isaacson, Charles Malcolm, C, 2.....Santa Ana, Calif.
 Israel, Betty, H, 2.....Dayton, Wash.
 Iverson, Herbert Kuno, IA, 1.....Corvallis
 Ivie, Helen Margaret, C, 2.....Corvallis
 Jack, Lorena Nadine, H, 4.....Corvallis
 Jackson, Elton, F, 2.....Roseburg
 Jackson, Esther Phila, H, 2.....Corvallis
 Jackson, Julia Catherine, H, 2.....Corvallis
 Jackson, Ramona Edith, H, 1.....Corvallis
 Jackson, Virginia, H, 3.....Portland
 Jacobs, Rudolph L., C, 1.....Klamath Falls
 Jacobsen, Karl F., E, 1.....Portland
 Jacobsen, Noland Adolph, A, 3.....Payette, Idaho
 Jacquot, Alfred Andrew, Ch, 2.....Bend
 Jamieson, George William, E, 1.....Oakland, Calif.
 Janeves, Daniel, E, 1.....Los Angeles, Calif.
 Janzen, Alfrida Frances, C, 1.....Corvallis
 Janzen, Enelse D., V, 3.....Corvallis
 Janzik, John Francis, C, N.....Portland
 Jardine, Helen Susanne, H, 4.....Corvallis
 Jarl, Helen, V, 4.....Boring
 Jarmon, Robert Edward, EE, 4.....Echo
 Jaroff, Albert M., ME, 2.....Portland
 Jarrett, Chester Whitney, E, 1.....Portland
 Jarvi, Simeri, F, 3.....Astoria
 Jarvis, Joe W., A, 3.....Ontario
 Javete, Louis Francis, F, 1.....Pittsburg, Calif.
 Jeffries, Velva Mae, C, 1.....Bend
 Jelinek, Elizabeth Ann, C, 2.....Dallas
 Jenkins, Clifford C., A, 2.....Hermiston
 Jenkins, Dolph Harley, CE, 2.....Portland
 Jenkins, Elizabeth R., H, 2.....Glendale, Calif.
 Jenks, Eleanor, V, 2.....Albany
 Jennings, Evelyn, C, 1.....Corvallis
 Jensen, Jens Aksel, Ch, 1.....Portland
 Jensen, Karl Joseph, C, 2.....Bakersfield, Calif.
 Jenson, Francis, F, 2.....Elmira
 Jess, Orville Edward, F, 2.....Grants Pass
 Jester, Curtis M., E, 1.....Portland
 Jewell, James R., E, 1.....Corvallis
 Jewell, Warren Ellsworth, V, 1.....Aurora
 Jewett, Edward Lewis, C, 4.....Dayton, Wash.
 Joehne, Sharold E., EE, 2.....Marshfield
 Joehne, Kathryn Elaine, H, 2.....Canby
 Johnson, Aline Esther, C, 4.....Corvallis
 Johnson, Alice Katherine, H, 4.....Forest Grove
 Johnson, Arthur Herbert, C, 2.....Pasadena, Calif.
 Johnson, Betty Karn, H, 1.....Marshfield
 Johnson, Carl, V, 3.....Bend
 Johnson, Chester, IA, 4.....Mineral, Wash.
 Johnson, Clarence E., A, 1.....Corvallis
 Johnson, Dorothy Elinore, C, 1.....Salem
 Johnson, Edith G., V, 4.....Portland
 Johnson, Edwin Dwight, P, 4.....Portland
 Johnson, Elna Annette, H, 2.....Astoria
 Johnson, Elsie Cecelia, H, 4.....Vancouver, Wash.
 Johnson, Emma Wintler, V, 3.....Corvallis
 Johnson, George Verne, ME, 4.....Portland
 Johnson, Gladys Mae, C, 1.....Corvallis
 Johnson, Harold Marx, EE, 2.....Gresham
 Johnson, Herbert Callin, IA, 2.....Astoria
 Johnson, Howard Earl, A, 1.....Seaside
 Johnson, Ila, Ch, 2.....Prineville
 Johnson, Jessie Marion, H, 2.....Portland
 Johnson, Kermit, C, 4.....Portland
 Johnson, Kirsten Gudrun, C, 1.....Portland
 Johnson, Lawrence Taylor, Ch, 2.....Garden Home
 Johnson, Lewis Henry, C, 1.....Portland
 Johnson, Marcella V., H, 1.....Pendleton
 Johnson, Margaret, A, 3.....Twin Falls, Idaho
 Johnson, Martha Augustine, V, 2.....Red Bluff, Calif.
 Johnson, Maxine, C, 1.....Tillamook
 Johnson, Naomi Mary, Ch, 4.....Wenatchee, Wash.
 Johnson, Robert Leonard, Ch, 3.....Portland
 Johnson, Ronald Lee, V, 4.....Corvallis
 Johnson, Spencer Herbert, A, 1.....Bellingham, Wash.
 Johnson, Terrell Walters, C, 1.....Portland
 Johnson, Viola Clara, C, 4.....Everett, Wash.
 Johnson, Wallace West, A, 1.....Seaside
 Johnson, Walter Leonard, E, 1.....Portland
 Johnson, Willard, C, 2.....Albany
 Jones, Creighton Benton, A, 2.....Gervais
 Jones, Doris E., C, 1.....Klamath Falls
 Jones, Edward B., C, 1.....Portland
 Jones, Freda Stanton, H, 3.....Burlingame, Calif.
 Jones, J. Paul, ME, 3.....Corvallis
 Jones, John P., C, 2.....Richland
 Jones, Kenneth Carter, V, N.....Corvallis
 Jones, Margaret Helen, H, 3.....Corvallis
 Jones, Maxine, V, 2.....Porterville, Calif.
 Jones, Norman Howard, ME, N.....Corvallis
 Jones, Roy W., EE, 2.....Cottage Grove
 Jones, Waunema Belle, C, 4.....Westwood, Calif.
 Jordan, Daniel Carrol, V, 4.....Burns
 Jordan, Edmund Andrew, C, 1.....Portland
 Jorgensen, Alga, C, 2.....Portland
 Jorgensen, Elsie Joanna, C, 1.....Toledo
 Jorgensen, Lloyd J., IA, N.....Astoria
 Joslin, Harold W., C, 1.....Corvallis
 Joy, Adena Harriette, V, 2.....Ashland
 Joy, Clifford Whitney, C, 1.....Corvallis
 Joy, Dick Cartwright, A, 2.....Ashland
 Joy, Fred L., F, 2.....Portland
 Jullum, Henry, M, 3.....Portland
 Just, John Fred, P, 2.....Corvallis
 Kaiser, James Schloth, E, 1.....Portland
 Kall, Walter Isidore, E, 1.....Portland
 Kammerer, Esther Elizabeth, H, 3.....Corvallis
 Kammerer, Helen Pauline, H, 1.....Corvallis
 Kann, George H., ME, 2.....Wendling
 Kanzler, Reinhold, P, 1.....Portland
 Karhuvaara, Edna Elmae, H, 2.....Astoria
 Kaser, Arthur J., ME, 3.....Burnt Ranch
 Kaser, R. Theodore, ME, 4.....Burnt Ranch
 Katsoulis, Takis, A, 2.....Seattle, Wash.
 Katz, Morris, C, 2.....Portland
 Kauffman, Clara Virginia, H, 2.....Corvallis
 Kaufman, Claudine, H, 1.....Marshfield
 Kaufman, Walter, IA, 2.....Portland
 Kean, Tom M., EE, 2.....Portland
 Kebbe, Stanley Ernest, E, 1.....Mohler
 Keeler, John T., EE, 2.....Santa Ana, Calif.
 Keema, Elwood J., V, 2.....Elk Grove, Calif.
 Kehrl, John Casper, ME, 2.....Portland
 Keir, Paul Edgar, P, 4.....Hood River

- Keist, Benjamin Franklin, C, 2.....Richland
 Keist, Neville Holcomb, V, 1.....Richland
 Keiser, Mabel Sylvia, H, 2.....North Bend
 Kekalainen, Bernard, Ch, 1.....Corvallis
 Kelley, Clinton Monroe, V, 2.....Corvallis
 Kelley, George Walter, C, 2.....Corvallis
 Kelly, Max Lyle, E, 1.....Albany
 Kelly, Oliver Gaufl, M, 4.....Portland
 Kemp, Norris Curtis, F, 1.....Salem
 Kempfer, Donald B., M, 2.....Baker
 Kenna, Wilfred Patrick, V, 1.....Minneapolis,
 Minn.
 Kennedy, Margaret Esther, V, 2.....Corvallis
 Kennedy, Miriam Frances, C, 2.....Corvallis
 Kennedy, Robert Edwin, E, 1.....Portland
 Kennedy, William Norman, CE, 3.....Pilot
 Rock
 Kennell, Delmar Allan, EE, 4.....Portland
 Kennelly, Ardyth Matilda, V, 2.....Albany
 Kenney, George Frederick, A, 1.....Anacortes,
 Wash.
 Kent, Fordyce Dorothy, H, 1.....Salem
 Kent, Harry Arthur, V, 2.....Corvallis
 Kerley, Robert V., ME, 4.....Eugene
 Kerley, Rova Maxine, H, 2.....Eugene
 Kern, Ruth, H, 1.....Portland
 Kernkamp, Willard Charles, M, 2.....Hermis-
 ton
 Kerns, Tom, A, 2.....Eugene
 Kerr, Evelyn Blythe, C, 1.....Corvallis
 Kerr, Frank Acton, P, 1.....Milwaukie
 Kerr, George William, EE, 2.....Corvallis
 Kerr, Howard, C, 3.....The Dalles
 Kerr, F. Leigh, A, 1.....Corvallis
 Kerr, Maurice Paul, A, 2.....Corvallis
 Kerr, Raymond J., V, 2.....Corvallis
 Kerwin, Hugh, C, 2.....Klamath Falls
 Kerzel, August, ME, 4.....Portland
 Kester, Alvin Daniel, A, 1.....Corvallis
 Kester, Floyd Luke, P, 1.....Corvallis
 Ketcham, Donald Roberts, A, 4.....Waterford,
 Calif.
 Kibbe, Stewart Henry, EE, 3.....Salem
 Kidd, Josephine Miriam, H, 1.....Corvallis
 Kimball, Jeannette, V, 3.....Philomath
 Kimberling, Ruby Inez, H, 2.....Prairie City
 Kime, Orville Leroy, ME, 4.....Vale
 Kimmy, Jim W., F, 4.....Corvallis
 Kimmy, Ray Ivan, F, 1.....Corvallis
 Kincaid, James Wheeler, C, 2.....Central Point
 King, Anne Elizabeth, H, 1.....Portland
 King, Charles William, C, 4.....Corvallis
 King, Darrell Cleut, C, 1.....Tillamook
 King, Howard Russell, C, 1.....Portland
 King, Joe J., C, 1.....Portland
 King, John W., A, 2.....Cottage Grove
 King, Warren, A, 1.....Corvallis
 Kinney, Charles Lyle, P, 1.....Medford
 Kircher, Albert Joseph Jr., M, 2.....Portland
 Kirk, Bill E., EE, 2.....Los Angeles, Calif.
 Kirk, W. Duane, C, 2.....Portland
 Kirk, Weldon H., V, 2.....Portland
 Kirkpatrick, Herbert L., C, 2.....Corvallis
 Klann, Helen Irene, H, 2.....Corvallis
 Klapotz, Caroline, C, 2.....Albany
 Klee, Paul H., F, 1.....Hood River
 Klein, Don, C, 2.....Corvallis
 Klein, Kenneth Miller, E, 1.....Salem
 Klein, William Stacy, EE, 4.....Corvallis
 Kleinsmith, Emma Grace M., V, 4.....Portland
 Kletzer, William, A, 1.....Portland
 Klinke, Edward Ernest, C, 3.....Newport
 Klock, Charlotte Fransiel, H, 4.....Corvallis
 Knapp, Archie, C, 1.....Enterprise
 Kneass, Donald, C, 1.....Portland
 Knickerbocker, Emmett N., A, 3.....Redmond
 Kniefel, Mary Inez, C, 2.....Gresham
 Knight, W. Beauford, C, 2.....Canby
 Knight, Marjorie Idella, C, 1.....Roseburg
 Knight, Richard H., C, 1.....Corvallis
 Knorr, Alvin Carl, E, 1.....Aurora
 Knowles, Donald L., E, 1.....Corvallis
 Knowles, Elizabeth, H, 2.....Eugene
 Knowlton, Dorothy Margaret, C, 2.....Cor-
 vallis
 Knowlton, Edna Martha, H, 2.....Vancouver,
 B.C.
 Knox, Jerome N., C, 2.....Corvallis
 Knutsen, George Anker, C, 4.....Portland
 Koberstein, Henry Karl, EE, 4.....Portland
 Koehler, Leighton, A, 2.....San Francisco,
 Calif.
 Koelblen, Rene August, C, 1.....Portland
 Kofoid, Melvin Julius, EE, 2.....Portland
 Kofoid, Orville, CE, 3.....Portland
 Kollas, Joseph Edward, E, 1.....Hood River
 Kolle, Louise Sarah, H, 2.....Vancouver, B.C.
 Konishi, Katuzo, ME, 2.....Portland
 Koonst, Vades Juanita, H, 1.....Portland
 Koonst, Martin, C, 1.....Halsey
 Kornouhoff, Alexis Timothy, F, 2.....Portland
 Kortge, Dorence Walter, E, 1.....The Dalles
 Kortge, Verla Rose, H, 1, 3.....The Dalles
 Koshland, Theodore Cerf, C, 2.....Portland
 Kramer, Mildred Inez, C, 4.....Portland
 Kraus, Elizabeth Louise, H, 1.....Aurora
 Kretzmeier, Lawrence D., V, 2.....Portland
 Kretzer, Katherine, C, 3.....Portland
 Krieite, Cecilia Lucretia, H, 3.....Alhambra,
 Calif.
 Krivickas, Alexander Edward, V, 1.....Chica-
 go, Ill.
 Krohn, Frederick S., C, 3.....Corvallis
 Kroner, Charles Edson, Ch, 2.....Portland
 Kruse, Eugene, C, 1.....Portland
 Kruse, Vernon Judson, Ch, 2.....Eugene
 Kudella, Edward, C, 1.....Portland
 Kuhl, Donovan, ME, 3.....Prairie City
 Kuhl, Thyra Clair, H, 2.....Agate Beach
 Kuhn, Jack Kemp, P, 1.....Salem
 Kuhn, Merton Dale, F, 2.....Union
 Kurth, Nathan Jacob, A, 3.....Tigard
 Kutch, Helen E., C, 4.....Corvallis
 Kutch, Kenneth Kidder, C, 2.....Corvallis
 Kutch, Paul, V, 1.....Corvallis
 Labbe Raymond E., C, 2.....Portland
 Lachmund, Dorothy Elsie, V, 1.....Portland
 Lackey, Harold L., EE, 4.....Vale
 Ladd, Charles Harry, F, 3.....Corvallis
 Lage, Edward Riddell, A, 4.....Hood River
 Lage, George H., A, 1.....Hood River
 Laine, Aura Engeri, C, 1.....Astoria
 Laird, Averil Irene, C, 1.....Myrtle Point
 La Mar, Sadie Evelyn, A, S.....Portland
 Lamb, Edward William, V, 1.....San Francis-
 co, Calif.
 Lamb, Georgia Claire, A, 1.....Silverton
 Lancaster, Harry Norman, C, 4.....Portland
 Landes, Alfred Valentine, IA, 4.....Corvallis
 Landriith, George James, A, 2.....Marshfield
 Lane, Mable Ardis, H, 1.....Silver Lake
 Langdon, Floyd, A, 4.....Corvallis
 Langdon, James P., A, 3.....Corvallis
 Lape, Edward Morris, E, 1.....Hood River
 Larned, Everett L., E, 1.....Corvallis
 Larowe, Albertus Eugene, C, 2.....Portland
 Larson, Donald Eugene, C, 1.....Bend
 Larson, Earl Lloyd, C, 4.....Corvallis
 Larson, Frona, H, 1.....Corvallis
 Larson, Gordon E., C, 1.....San Francisco,
 Calif.
 Larson, Gretchen Alene A., V, 2.....Los An-
 geles, Calif.
 Larson, Irving Arthur, C, 2.....St. Helens
 Larson, John Dwight, EE, 2.....Corvallis
 Larson, Lois Mildred, H, 1.....Seattle, Wash.

Larson, Noal P., A, 1.....Corvallis
 Larson, Paul Alvin, F, 1.....Pasadena, Calif.
 Larson, Sanna Irene, V, 1.....Corvallis
 Larson, Thalia Aileen, H, 1.....Marshfield
 Lassen, John William, A, 1.....Parkdale
 Lathrop, Alvord Freeman, A, 1.....Portland
 Lathrop, Sidney P., E, 1.....Portland
 Lautner, Osa Edwina, V, 4.....Portland
 Lawrence, Elwood Arthur, E, 1.....Corvallis
 Lawrence, William James, V, 2.....Corvallis
 Lawshe, Jay Earl, C, 2.....Palo Alto, Calif.
 Lawson, James Robert, C, 3.....Corvallis
 Lawton, Donald Myron, C, 1.....Portland
 Lawton, Edward Charles, P, 1.....Corvallis
 Lea, Paul E., P, 1.....St. Helens
 Leach, Ida Alice, H, 4.....Deer Island
 Leach, Irene Kathleen, H, 2.....Portland
 Leach, Jane E., H, 2.....Pendleton
 Leaf, Herman, C, 1.....Portland
 Leaming, Robert Lewis, C, 1.....Portland
 Leap, Gordon Allen, E, 1.....Corvallis
 Lee, Charles E., ME, 4.....Echo
 Lee, Donald K. C., P, 3.....Portland
 Lee, Earl George, EE, 3.....Canby
 Leggett, William Gray, C, 2.....Corvallis
 Leibbrand, Burton, A, 1.....Milton
 Leibbrand, Gladys, C, 2.....Milton
 Leidig, Glenn Fredrick, V, 1.....Carmel, Calif.
 Leidig, Martin Robert, E, 1.....Carmel, Calif.
 Leihy, Virginia Beverly, V, 1.....Portland
 Leinau, Robert Keim, A, 1.....Riverside, Calif.
 Leishman, Milton L., F, 2.....Baker
 Leissler, Frederick Jr., A, 3.....Portland
 Leist, Dorothea Iris, V, 2.....Portland
 Lemmon, Owen Keith, A, 2.....Albany
 Lenchitsky, Julius Carl, V, 1.....Nehalem
 Lenon, Waivo Loudene, H, 1.....Monitor
 Leonard, Joe, V, 4.....Drain
 Lerch, Alexander Jacob, Ch, 2.....Portland
 Lerch, Louise Marie, Ch, 3.....Portland
 Leslie, Joseph Curtis, C, 2.....Portland
 Lester, Phyllis, Claudine, H, 1.....Corvallis
 Leuthold, Leonard Douglas, C, 1.....Bandon
 Leutzinger, George Henry, C, 2.....Oakland, Calif.
 Lewis, Ariel, E, 1.....Yachats
 Lewis, Arlene Challman, C, 2.....Bremerton, Wash.
 Lewis, Charles Douglas, A, 2.....Port Angeles, Wash.
 Lewis, Edward Collins, V, 2.....Portland
 Lewis, Eleanor Susannah, C, 2.....Marshfield
 Lewis, Eunice Cynthia, V, 2.....Aumsville
 Lewis, Floyd Samuel, A, 2.....Corvallis
 Lewis, James N., C, 3.....Corvallis
 Lewis, Marjorie Nadine, H, 1.....Portland
 Lewis, Mortimer Reed, Ch, 1.....Corvallis
 Lewis, Robert Orvel, F, 2.....Wamic
 Libby, Hugo Leander, E, 1.....Eugene
 Liberty, Norman Hampton, ME, 2.....Portland
 Lightowler, George Edward, C, 2.....Oregon City
 Lillie, Gladys Loreata, V, 2.....Portland
 Lillie, Lloyd Osborne, ME, 2.....Portland
 Limacher, Francis Joseph, Ch, 2.....Corvallis
 Lincoln, Elmer D., CE, 4.....Portland
 Lindauer, George Ernest, C, 4.....Portland
 Lindh, A. G., F, 4.....Corvallis
 Lindley, Lyle Leslie, C, 1.....Medford
 Lindros, Faith Elнора, V, 4.....Corvallis
 Lindsay, Donald Edward, ME, 4.....Corvallis
 Lindsay, Elizabeth LaRue, V, 3.....Corvallis
 Lindsay, Forrest S., C, 1.....Hayward, Calif.
 Lindsay, William Harold, Ch, 2.....Portland
 Lindseth, Elnora, V, 2.....Corvallis
 Lindwall, Victor, F, 2.....Portland
 Lingelbach, Cecilia, C, 2.....Estacada

Linstedt, Kermit W., F, 1.....Santa Cruz, Calif.
 Lipps, Mary Elsie, C, 1.....Chemawa
 List, Anna Marjorie, G, 1.....Exeter, Calif.
 Little, Frank Anthony, V, 2.....Corvallis
 Little, Hollis Rudolf, E, 1.....Portland
 Little, Morris T., C, 4.....Portland
 Little, William Edward, E, 1.....Corvallis
 Littlejohn, Lester Vernon, F, 2.....Los Angeles, Calif.
 Lloyd, Dan W., E, 1.....Corvallis
 Lloyd, Omar M., V, 2.....Corvallis
 Lloyd, Phillip W., V, 4.....Corvallis
 Loback, Astor, IA, 1.....Astoria
 Locatell, Orval Eugene, Ch, 2.....Medford
 Locke, Lloyd Driver, C, 1.....Grants Pass
 Locke, Seth Barton, A, 2.....Marshfield
 Loe, Chester Amos, A, 1.....Silverton
 Loesch, Robert John, E, 1.....Medford
 Logan, Louie Hutchinson, ME, N.....Hillsboro
 Loggan, Helene Shirley, V, 2.....Burns
 Lohr, Paul H., EE, 2.....Portland
 Loken, Keith, C, 2.....Oakland, Calif.
 Lomasney, Mary Harriett, H, 3.....Multnomah
 Lombard, Creede Sears, V, 2.....Yakima, Wash.
 Long, Olney, E, 1.....Multnomah
 Long, Vernon Wade, CE, 2.....Enterprise
 Loomis, Frederick H., P, 3.....Bend
 Loomis, Porter J., C, 4.....Corvallis
 Looney, Marion Elizabeth, G, 1.....Jefferson
 Lopakka, Arvi W., IA, 3.....Astoria
 Lora, Vivien Alyse, V, 1.....Corvallis
 Losse, Betty Louise, G, 1.....Santa Clara, Calif.
 Lott, Polly F., C, 1.....Los Angeles, Calif.
 Loughary, Arline Gillett, V, 3.....Portland
 Lounsbury, Harvey Edward, C, 4.....Portland
 Lovegren, Lawrence Alfred, IA, 2.....Portland
 Lovejoy, Howard Thome, IA, 2.....Corvallis
 Loveland, Gerald Howard, EE, 2.....Multnomah
 Lowden, Merle S., F, 3.....Crawfordsville
 Lowe, Arthur Livingston, C, 2.....Corvallis
 Lowthian, Zoia D., P, 3.....Woodburn
 Lubersky, Albert Raymond, IA, 1.....Portland
 Lucas, Frank, E, 1.....John Day
 Lucas, Helen Elizabeth, H, 1.....Portland
 Lucas, Horace Allen, F, 2.....John Day
 Lucas, Luther Richard, ME, 4.....Grants Pass
 Lucas, Mildred Martha, G, 1.....Portland
 Lucas, Robert, C, 3.....Fresno, Calif.
 Luck, Margaret Scott, C, 2.....Pendleton
 Ludi, Mildred Anna, C, 2.....Fort Rock
 Luehrs, Herbert A., P, 1.....Ontario
 Luehrs, Robert O., P, 3.....Ontario
 Lui, Yu-hwang, C, S.....Loping, Kang Si, China
 Lukesh, Frank Waite, Ch, 1.....Portland
 Lumm, Marian Frances, H, 2.....Portland
 Lund, Ernest Thorwald, EE, N.....Corvallis
 Lund, Helen, V, 2.....Corvallis
 Lund, Valdemar H., EE, 2.....Portland
 Lundberg, Roy Harold, A, 1.....Hartford, Wash.
 Lundgren, Ruth Eleanor, C, 1.....Beaverton
 Lupton, Alice Louise, H, 2.....Burns
 Lutz, Lois Aileen, H, 3.....Newberg
 Lyman, Richard W., P, 3.....La Grande
 Lynch, Dick, E, 1.....Lakeview
 Lynch, D. Lester, F, 2.....Scappoose
 Lyons, Jack, E, 1.....Portland
 Lyster, Glenva Bernice, H, 1.....Reedsport
 McAdams, Margaret Clara, C, 2.....Marysville, Calif.
 McAllester, Laura Cornelia, V, 4.....Corvallis
 McAllister, James, CE, 2.....Gresham
 McAllister, Margaret, H, 4.....Corvallis
 McCabe, Francis Robert, F, 1.....Albany
 McCann, Francis Lynn, A, 2.....Portland

- McCarthy, Mary Sidonia, C, 2.....Marshfield
 McClain, Dora Caroline, A, 2.....Eugene
 McCleary, Mildred Mable, V, 4.....McCleary,
 Wash.
 McClintock, Kathleen Elizabeth, H, 4.....
 Pendleton
 McClintock, Vera Francella, H, 1.....Roseburg
 McCloskey, Agnes M. Studor, C, 4.....Cor-
 vallis
 McClung, Dorothy, C, 1.....Portland
 McClung, Tom H., E, 1.....Portland
 McClure, Del Bryan, C, 3.....Portland
 McComber, Gordon, A, 2.....Buena Park,
 Calif.
 McConnell, Melva Myrle, G, 1.....Corvallis
 McConnell, Melvin, C, 4.....Corvallis
 McCook, Robert Nelson, C, 2.....San Ber-
 nardino, Calif.
 McCord, Mabel Elizabeth, C, 1.....Baker
 McCorkle, Owen, IA, S.....Maupin
 McCorkle, Ruth, H, 4.....Maupin
 McCornack, Rodwin Condon, A, 4.....Eugene
 McCourt, Edward E., P, 1.....Hillsboro
 McCracken, Marice Roberta, C, 2.....Eugene
 McCready, Alan Arthur, F, 4.....Corvallis
 McCready, Jessie Margaret, H, 3.....Chiloquin
 McCready, Ruth Janet, H, 2.....Chiloquin
 McCumiskey, Robert Ellis, P, 2.....Pasadena,
 Calif.
 McCurdy, Winslow Iffland, CE, 2.....Port
 Townsend, Wash.
 McDaniel, Harold Edgar, C, 4.....North Bend
 McDonald, Georgia Mae, C, 2.....Portland
 McDonald, Rollin James, P, 1.....Lakeview
 McEachern, Alex Bruce, IA, 3.....Owyhee
 McElroy, Benjamin James, A, 1.....Holly-
 wood, Calif.
 McElroy, Beth Roberta, P, 1.....Bend
 McElroy, Ned Albert, Ch, 2.....Bend
 McEwen, James William, EE, 2.....Nyssa
 McFarland, Jack Stephen, F, 1.....Portland
 McGauhey, David S., ME, 3.....Corvallis
 McGilvray, Alexander S., C, 3.....Madera,
 Calif.
 McGilvray, Harry Sturrock, V, 1.....San
 Francisco, Calif.
 McGrath, Richard Vandervoort, C, 1.....
 Berkeley, Calif.
 McGrath, Ruth Hembree, V, 4.....Hillsboro
 McHenry, Ruth Louise, C, N.....Corvallis
 McIntosh, Harlan Cozad, V, 2.....Corvallis
 McIntosh, Peggy Ellen, C, 1.....Walla Walla,
 Wash.
 McIntyre, Mary Katherine, C, 1.....Portland
 McIntyre, Norman Donald, A, N.....Athena
 McIntyre, Orma Leila, C, 2.....Salem
 McKalip, William Ward, C, 4.....Corvallis
 McKee, Verna Maude, H, 3.....Jefferson
 McKeel, Merritt, V, 1.....Oregon City
 McKeen, Edwin O., V, 3.....Portland
 McKennon, Frances Eva, H, 2.....Imbler
 McKennon, Russel Melville, A, 4.....Imbler
 McKenzie, Gerald R., Ch, 3.....Hermiston
 McKenzie, Helen, V, 2.....Corvallis
 McKibben, Glen Milburn, EE, 2.....Cottage
 Grove
 McKinley, Albert Stewart, F, 1.....Joseph
 McKinney, Mark J., V, 2.....Corvallis
 McKinnie, James Robert, M, 1.....Los An-
 geles, Calif.
 McKinnon, Bain Laughlin, Ch, 3.....Corvallis
 McKinstrey, Edward Newell, CE, 2.....Grants
 Pass
 McKnight, Elwood A., V, 2.....Milton
 McKrola, Henry Charles, E, 1.....Mt. Vernon
 McKrola, Karl Frances, E, 1.....Mt. Vernon
 McKune, Edwin Arthur, A, 4.....Paisley
 McLean, Clifford Charles, V, 4.....Portland
 McLean, Harry Huntington, C, N.....Cor-
 vallis
 McLennon, Evan Rhiel, V, 1.....Corvallis
 McMaster, Margaret, H, 2.....Vancouver,
 Wash.
 McMath, C. Barton, C, 3.....Medford
 McNall, Kenneth Hiram, A, 1.....Nyssa
 McNally, May Viola, H, 1.....Altadena, Calif.
 McNamara, Donald Irving, E, 1.....Portland
 McNary, Wilson D. Jr., C, 2.....Pendleton
 McNaught, Joseph Taylor, C, 4.....Hermiston
 McNaught, Robert Roland, C, 1.....Portland
 McNicholas, Martin Lawrence, V, 2.....Port-
 land
 McPherson, Berton Farrell, A, 2.....Anacon-
 da, Mont.
 McPherson, Charles William, EE, 2.....Port-
 land
 McPherson, Maxwell B., ME, 2.....Portland
 McPherson, William Edward, A, 2.....Portland
 McQueen, William L., EE, 2.....McMinnville
 McRay, Karama, C, 1.....Myrtle Point
 McReynolds, Austin D., F, 1.....Cottage Grove
 McShatko, Harold F., CE, 3.....Portland
 McStay, Mrs. Laura May, H, 4.....Corvallis
 McWilliams, Helen Edna, V, 1.....Corvallis
 McWilliams, James DeWitt, E, 1.....Corvallis
 Mabee, George Warner, V, 2.....Corvallis
 MacCloskey, Robert William, C, 2.....Holly-
 wood, Calif.
 MacCracken, Elliott, EE, 3.....Ashland
 Macdonald, Colin Hugh, ME, 3.....Eugene
 Macdonald, Kenneth King, Ch, 2.....Mult-
 nomah
 MacDonald, William Fred, V, 2.....Medford
 MacGregor, Cecil, ME, 2.....Portland
 Mack, Charles Hollingsworth, C, 4.....Kla-
 math Falls
 Mack, Herbert Harold, P, 3.....Huntington
 Mack, John Connie, V, 1.....Huntington
 Mack, Joseph Henry, V, 2.....Corvallis
 MacKenzie, Catherine, H, 3.....Portland
 MacKenzie, Gordon S., C, 2.....Portland
 Mackey, Walter, C, 4.....Burns
 Macklin, Helen Janet, V, 2.....Pasadena, Calif.
 MacLean, Elizabeth Dillon, V, 2.....Corvallis
 MacLean, Julia Ellen, V, N.....Tacoma, Wash.
 MacLennan, Margaret Agnes, C, S.....Cor-
 vallis
 MacWhinnie, Rosalind, V, 4.....Seattle, Wash.
 Madigan, Edward John, Ch, 2.....Portland
 Madison, Fay Dalton, A, 1.....Elkton
 Magallanes, Segundo, V, 3.....Corvallis
 Mahan, Bruce, V, 1.....Tillamook
 Mahlman, Roy Vernon, E, 1.....Albany
 Mahoney, Paul Joseph, C, 4.....Monrovia,
 Calif.
 Mahoney, Wallace C., G, 1.....Pendleton
 Majors, Forest H., M, 4.....Corvallis
 Malin, Alice Genevieve, H, 1.....Multnomah
 Mallery, Harold Edwin, V, 1.....Yamhill
 Mallet, Maurine, A, 1.....Palo Alto, Calif.
 Malm, Rudolf, A, 1.....Los Angeles, Calif.
 Malmin, Jeanne Marie, H, 2.....Corvallis
 Malone, Kenneth Ernest, A, 2.....Santa Mon-
 ica, Calif.
 Maltby, Marion Isabel, H, 1.....Alsea
 Manke, George H., EE, 2.....Medford
 Mann, Louise, V, 4.....Pendleton
 Mann, Magdalene Lucinda, C, 2.....Portland
 Mansfield, Harold Robert, F, 4.....Murphy
 Mansfield, Kathryn Elizabeth, C, 4.....Portland
 Mansfield, Leola Annette, H, 2.....Murphy
 Mansur, Hope, V, 3.....Los Angeles, Calif.
 Mansur, Phil, C, 1.....Los Angeles, Calif.
 March, Grant E., F, 1.....Corvallis
 Marcus, Gerald F. C, 1.....Klamath Falls
 Marcy, Ben Hall, E, 1.....Portland

Marett, Charles Joshua, C, 2.....Portland
 Mariano, Juan A., A, 2.....Corvallis
 Mariels, Royal Algernon, C, 1.....Portland
 Marker, Elizabeth Louise, H, 4.....Downey, Calif.
 Markley, Francis, E, 1.....Cottage Grove
 Marley, Ralph, V, 2.....Corvallis
 Marquis, Hugh M., E, 1.....Portland
 Marrack, Cecil Mortimer, H, 1.....Palo Alto, Calif.
 Marsden, Wallace Franklin, C, 2.....Marshfield
 Marsh, Leonard James, C, 1.....Portland
 Marshall, Frances Patricia, V, 1.....Portland
 Marshall, George H., A, 1.....Baker
 Marshall, Phyllis Ames, H, 1.....Upland, Calif.
 Marsters, Dorothy Frances, V, 4.....Roseburg
 Martin, Bruce, V, 1.....Corvallis
 Martin, Dorothy Lorene, H, 2.....Portland
 Martin, Edwin Charles, C, 2.....Exeter, Calif.
 Martin, Glenn S., C, 2.....Corvallis
 Martin, Ivan Rogers, V, N.....Multnomah
 Martin, Kenneth Shirley, C, 4.....Grants Pass
 Martin, Lester Donovan, C, 3.....Corvallis
 Martin, Lloyd Laurence, C, 1.....Corvallis
 Martin, Margaret Merle, H, 2.....Aumsville
 Martin, Ruth Elizabeth, A, 2.....Portland
 Martin, Susan Amy, V, N.....Salem
 Martinson, Ralph E., C, 2.....Portland
 Marvin, Jean, H, 2.....Corvallis
 Mason, Donald Lyman, E, 1.....Eugene
 Mason, Draper Coolidge, E, 1.....Portland
 Mason, Helen Elizabeth, C, 1.....Klamath Falls
 Mason, Rodney Germain, C, 2.....Pasadena, Calif.
 Mason, Wayne E, 1.....Talent
 Mast, Harry, C, 2.....McKinley
 Masterson, Iver W., C, 4.....Richland
 Mather, George Kenneth, A, 1.....Corvallis
 Mather, Richard John, EE, 2.....Portland
 Mathews, Lois, V, 2.....Milwaukie
 Mathews, Robert Child, P, 3.....Huntington Park, Calif.
 Mathews, William Joseph, C, 1.....Corvallis
 Matthews, Helen L., H, 1.....Tygh Valley
 Matthews, Roger B., E, 1.....Portland
 Mathiesen, Walter Jesse, V, 1.....Banks
 Mattoon, Hubert Maxon, Ch, 1.....Portland
 Mattoon, Waldo Wendell, E, 1.....Portland
 Maxwell, Ray Lee, C, 1.....Pasadena, Calif.
 Mayback, Leland Held, IA, 2.....Portland
 Mayes, Roma Vesta, P, 4.....Corvallis
 Mayfield, Nadene, V, 4.....Milwaukie
 Mayfield, Naomi Delia, H, 2.....Portland
 Maylie, John Charles, C, 3.....Portland
 Mayo, Juan T., C, 2.....Salem
 Mazza, Mervyn, C, 2.....Corvallis
 Meade, Alvin William, C, 3.....Corvallis
 Meade, Lenore Elizabeth, V, 2.....Corvallis
 Mears, Esther Maria, H, 1.....Corvallis
 Medley, Robert Vinton, V, S.....Portland
 Meeker, Cecil Hamilton, IA, 1.....Toledo
 Meeks, G. Carroll, Ch, 1.....Canby
 Mefford, William Russell, C, N.....Corvallis
 Melanson, Marie Antoinette, H, 3.....Cornelius
 Meldrum, David Hammond, CE, 4.....Oregon City
 Melis, Charles Knowles, E, 1.....Mist
 Mellish, Frederick Lee, C, 1.....Portland
 Melott, Wayne Harold, A, 1.....Portland
 Melvin, James Albert, E, 1.....Portland
 Menear, Gordon Lyle, F, 1.....Foster
 Meng, Eileen Agatha, C, 1.....Portland
 Meola, Edmund Anthony, A, 3.....Corvallis
 Meredith, John Philip, C, 2.....Salem
 Merritt, Frank Irving, C, 2.....Corvallis
 Merrill, Howard Sewell, C, 3.....Corvallis
 Merrill, Mabry O., H, 2.....Monument

Merritt, John Rupert, P, 3.....Corvallis
 Merryfield, Ernest Chandler, C, 1.....Colton, Calif.
 Merryman, Carl Dittmar, ME, 2.....Corvallis
 Merryman, Florence Mabel, H, 3.....Silverton
 Merryman, Harold H., E, 1.....Silverton
 Merryman, Margaret Anne, V, 2.....Corvallis
 Merryweather, Dorothea Grace, H, 4.....Lebanon
 Mershon, Clarence Earl, ME, 2.....Corvallis
 Messner, Jack Paul, C, 1.....Yreka, Calif.
 Metcalf, Margaret Marian, V, 3.....Portland
 Mettler, Dorothy Grace, H, 2.....Portland
 Metzler, Ruth Evelyn, V, 2.....Corvallis
 Meyers, Averell V., A, 2.....Echo
 Meyers, Carol, G, 1.....Portland
 Meyers, Evelyn Lucile, C, 1.....Eagle Creek
 Meyers, Foster, C, 2.....Eagle Creek
 Michalicek, Arthur Fred, M, 3.....Estacada
 Miho, Hideso, ME, 2.....Portland
 Mikesell, Oscar Edwin, A, 2.....Hermiston
 Miles, Gordon, V, 1.....Portland
 Miles, Thomas Boyd, A, 1.....Honolulu, T.H.
 Millard, Glenn Edwin, C, 1.....Milwaukie
 Millen, Dean, A, N.....Santa Ana, Calif.
 Miller, Arthur George, V, 1.....The Dalles
 Miller, Byron Lee, Ch, 1.....Hood River
 Miller, Cecil Ethelbert, E, 1.....Turner
 Miller, Constance Rebham, P, 2.....Corvallis
 Miller, Edmond L., E, 1.....Hood River
 Miller, Ernest C., P, 2.....Corvallis
 Miller, Estelle E., H, 2.....Corvallis
 Miller, Felix Gray, C, 1.....Coquille
 Miller, Frank Joseph, C, 3.....Palo Alto, Calif.
 Miller, Frank Weston, V, 1.....Rockaway
 Miller, Ione A., V, 4.....Moro
 Miller, Jack Manley, F, 1.....Elgin, Ill.
 Miller, Margaret E., V, 4.....Tacoma, Wash.
 Miller, Margaret Jewell, C, 1.....Corvallis
 Miller, Mary Irene, V, 2.....Corvallis
 Miller, Max F., C, 1.....Toledo
 Miller, Oliver William, IA, 2.....Eagle Point
 Miller, Pete, C, 2.....Corvallis
 Miller, Robert B., E, 1.....Portland
 Miller, Russell Wayne, P, 2.....Portland
 Miller, Susan Helen, H, 1.....Portland
 Miller, Thora Lovene, C, 1.....Klamath Falls
 Miller, William A., EE, 2.....Corvallis
 Milletich, John Samuel, E, 1.....Portland
 Milletich, Marie Emma, O, 2.....Portland
 Millhollen, Lloyd Jr., V, 1.....Corvallis
 Millhollen, Nadine, V, 2.....Corvallis
 Mills, Brewer, E, 1.....North Bend
 Mills, Charles A., A, 1.....Ukiah
 Mills, Merle, H, 1.....Vernonia
 Mills, L. Russell, V, 4.....Vernonia
 Millsap, Sam Lester, IA, 2.....Corvallis
 Milne, John James, C, 1.....The Dalles
 Milton, Alex Lorimer, V, 2.....Corvallis
 Minear, Gladys E., P, 2.....Medford
 Mineau, Roy William, Ch, 3.....Marshfield
 Miner, Percy Marlow, V, 4.....Corvallis
 Ming, Jane Ellen, H, 1.....Fort Lewis, Wash.
 Minor, Ruth Erma, V, 3.....Silverton
 Miranian, Sarkis, G, 1.....Los Angeles, Calif.
 Misner, Lyle Ronald, P, 1.....Albany
 Misphey, Robert Graham, Ch, 4.....Sacramento, Calif.
 Mitchell, Emmett Raymond, A, 2.....Amity
 Mitchell, Mildred Beatrice, C, 4.....Lebanon
 Mize, Louis Ray, C, 1.....Portland
 Moberg, Cecil, A, 2.....Astoria
 Moe, Harold William, V, 2.....Corvallis
 Moe, Lester M., ME, 2.....Portland
 Moe, Patsy O., V, 3.....Corvallis
 Moe, Ray T. Jr., V, 4.....Corvallis
 Moeller, Therald, Ch, 1.....Toledo
 Moffitt, John Delbert, F, 3.....New Pine Creek

- Mohr, Anthony Peter, A, 2.....Hood River
 Mohr, Pearl Marie, C, 3.....Hood River
 Moiso, Walfred, F, 3.....Astoria
 Molstrom, Eldon, C, 4.....Adams
 Monroe, William Wendell, C, 3.....Portland
 Montgomery, Carroll, C, 4.....Corvallis
 Montgomery, Logan P., P, 2.....Klamath Falls
 Montgomery, Marie Loreen, H, 1.....Pasadena, Calif.
 Montgomery, Reed, Ch, 2.....Corvallis
 Moore, Dorothy Evelyn, H, 1.....Salem
 Moore, Gretchen, C, 2.....Gresham
 Moore, Helen Mary, H, 4.....Ruckles
 Moore, James Kelly, EE, 2.....Salem
 Moore, Leonard Albert, IA, 4.....Corvallis
 Moore, Merle S., F, 2.....Corvallis
 Moore, Orpha J., A, 4.....Corvallis
 Moore, Thomas William, C, 2.....Portland
 Moore, William C., P, 1.....Pasadena, Calif.
 Moore, William E., A, 1.....Long Beach, Calif.
 Moran, William Spear, ME, 2.....Portland
 Morency, Eileene Loraine, H, 1.....Portland
 Morgan, Gwendolyn Claribel, V, 2.....Corvallis
 Morgan, Willard Edward, A, 2.....Roseburg
 Morin, Claude Oren, F, 3.....Baker
 Morris, Alton, C, 3.....Oregon City
 Morris, David Edwin, CE, 4.....Portland
 Morris, David Louis, V, 2.....Pasadena, Calif.
 Morris, Ruth Evangeline, C, 1.....Cosmopolis, Wash.
 Morris, Stephen Walter, ME, 2.....Portland
 Morris, William Lester, CE, 2.....Pendleton
 Morris, Willis H., ME, 2.....Portland
 Morrison, Jessie, O, 2.....La Jolla, Calif.
 Morrison, John Arthur Jr., CE, 2.....La Jolla, Calif.
 Morrison, Ruby, V, 1.....Portland
 Morrison, Walter Bruce, E, 1.....Portland
 Moser, Albert James, A, 2.....Portland
 Moss, Lucile Lydia, H, 2.....Vancouver, Wash.
 Môte, Charles Robert, F, 2.....Salem
 Mountain, Robert Theodore, E, 1.....Aumsville
 Mowan, Roscoe Vernon, Ch, N.....Corvallis
 Mowick, John Edwards, E, 1.....Hammond
 Mozorosky, Sam, C, 2.....Portland
 Mueller, Roy Morgan, V, 1.....Portland
 Mulholland, Charles Bradley, C, 1.....Pasadena, Calif.
 Muller, Margaret Marie, C, 1.....Tangent
 Mulligan, Joe Ed, C, 3.....Portland
 Mullin, Martin William, C, 2.....Portland
 Munch, Melvin F., Ch, 1.....Portland
 Munford, Charles W., CE, 3.....Banks
 Munford, James Kenneth, C, 1.....Banks
 Murchie, Marjorie Eaton, H, 1.....South Pasadena, Calif.
 Murphy, Keith Turnidge, M, 1.....Oakville, Wash.
 Murphy, Virginia Margaret, H, 1.....Tillamook
 Murphy, Zelta Alberta, C, 2.....Merrill
 Murray, Billie Alice, C, 2.....Portland
 Murry, Roy Gilbert, A, 1.....Cottage Grove
 Mushen, Robert Linton, E, 1.....Lakeview
 Mustola, August John, EE, 4.....Clatskanie
 Myers, Carl E., C, 2.....Condon
 Myers, Edward Buchanan, C, 3.....Portland
 Myers, Fred J., E, 1.....Beaverton
 Myrnie, Robert Shryver, CE, 2.....McMinnville
 Nachand, Horace Charles, IA, 1.....Portland
 Nagel, John Edward, V, 2.....Multnomah
 Nance, Marion Nelson, F, 1.....Hood River
 Nantz, Alyce Lynn, H, 4.....Burlingame, Calif.
 Narver, Horace Harry, C, 1.....Portland
 Nash, Merritt M., V, 2.....Marshfield
 Nassit, Agnes Jensine, C, 4.....Corvallis
 Nauman, Willard C., P, 2.....Conrad, Mont.
 Naylor, Walter, C, 1.....Hamilton, Mont.
 Neale, William Owen, V, 2.....Saugus, Calif.
 Needham, Velma, V, 4.....Corvallis
 Nelson, Charles Henry, CE, 2.....Cascade Locks
 Nelson, Dudley Woodrow, V, 1.....Milwaukie
 Nelson, Everal E., F, 3.....Corvallis
 Nelson, Ione, A, 4.....St. Helens
 Nelson, Lawrence Tracy, E, 1.....Portland
 Nelson, Virginia, C, 1.....Oswego
 Nettleton, Royal M., F, 4.....Eugene
 Nevin, Elore Edward, V, 1.....Butte, Mont.
 Newberry, James Raymond, Ch, 1.....Forest Grove
 Newgard, James Theodore, V, 2.....Portland
 Newland, Glen Boyd, C, 2.....Medford
 Newport, Laurence Victor, IA, 2.....Dixonville
 Newth, Carroll R., IA, 3.....Philomath
 Newton, Gertrude Edna, H, 4.....Corvallis
 Nicholas, Ivan J., F, 4.....Corvallis
 Nichols, Jack C., P, 2.....Portland
 Nichols, Lewis, A, 4.....Dayton
 Nichols, Louise, H, 4.....San Jose, Calif.
 Nichols, Robert Ashcraft, A, 1.....Corvallis
 Nicholson, Dorothy Ada, C, 3.....Portland
 Nicholson, George Miller, C, 4.....Portland
 Nicholson, Hugh Harry, F, 1.....Corvallis
 Nicholson, Lawrence Thomas, C, 1.....Bend
 Nickels, Walter, E, 1.....Portland
 Niece, Gretchen Elaine, V, 1.....Corvallis
 Niece, Imo Jean, V, 2.....Corvallis
 Niederfrank, Eylon Joy, A, 3.....Corvallis
 Niemi, L. Sylvia, C, 1.....Astoria
 Nilsen, Margaret T., V, 3.....Eureka, Calif.
 Nims, Harold Russel, A, 2.....Portland
 Nixon, Howard Birdell, EE, 3.....Corvallis
 Nixon, Mildred Ida, H, 1.....Corvallis
 Noble, Clara Louise, V, 3.....Corvallis
 Noble, Horace Albert, C, 3.....Corvallis
 Nock, Selwyn P., C, 2.....Oswego
 Nolte, Howard Milton, IA, 1.....Lakeview
 Nomura, Howard, P, 3.....Portland
 Norberg, Oscar, CE, S.....Manzanita
 North, Francis, EE, 2.....Albany
 Nosler, Bryce John, V, N.....Hillsboro
 Nyman, Cecil C., V, 1.....Kings Valley
 O'Blisk, Gene V., IA, 1.....Portland
 O'Brien, William Michael, E, 1.....Portland
 O'Connell, Forrest Lester, V, 1.....Portland
 O'Connor, Frank Ward, C, 4.....Portland
 O'Connor, Katherine Margarete, V, 2.....Corvallis
 O'Dell, Matthew Jennings, Ch, 2.....Portland
 O'Donnell, Bert Edward, V, 1.....Portland
 O'Hair, Ernest Paul, P, 1.....Palo Alto, Calif.
 O'Leary, Kathleen Carroll, H, 4.....Butte, Mont.
 O'Neil, Alice Hester, V, 3.....Corvallis
 O'Neill, Hugh Collins, C, 1.....Portland
 Oatfield, Inez Anne, H, 1.....Milwaukie
 Ochsner, Paul Clifford, C, N.....Corvallis
 Odell, Everett Newton, C, 2.....Los Angeles, Calif.
 Oit, Homer H., A, 2.....Ontario
 Ogburn, Irene Frances, V, 1.....Portland
 Oglesby, Jean McConnaughy, C, 2.....Corvallis
 Oglesby, Loris Calmer, V, 2.....Banks
 Okada, Norihisa, E, 1.....Portland
 Oldham, Dorothy, V, 1.....Glendale, Calif.
 Olds, Clarence Russell, A, 2.....West Linn
 Olds, Jack, C, 4.....Portland
 Olin, Artha Marie, V, 3.....Bend
 Oliphant, Elwood B., CE, N.....Gold Beach
 Oliphant, Norman R., A, 4.....Portland
 Oliver, Earl, CE, 2.....Central Point
 Oliver, Edward W., C, 1.....Nehalem
 Oliver, Grace Elizabeth, V, 3.....Milwaukie
 Olsen, Carl Philip, E, 1.....Portland
 Olsen, Harold C., E, 1.....Vernonia

- Olsen, Harry Louis, F, 3.....Portland
 Olson, Helen Christine, C, 2.....Portland
 Olson, Newton Henry, Ch, 2.....Whitefish,
 Mont.
 Onorato, Horace, E, 1.....Corvallis
 Ormsby, Willard Harold, EE, 3.....Pendleton
 Orr, Alfred Eugene, C, 2.....Medford
 Osborn, Joseph D., C, 2.....Von Wert, Ohio
 Osborn, Robert Marion, A, 1.....Hillsboro, Ind.
 Osburn, John Burr, A, S.....Astoria
 Osenbrugge, Margaret Pauline, C, 1.....Med-
 ford
 Osgood, John H., C, 4.....Corvallis
 Ott, Mary Elizabeth, H, 2.....Portland
 Ott, Walther Henry, A, 1.....Hermiston
 Otto, Adheld Alfred, EE, 4.....Portland
 Overholts, Willard, CE, N.....Portland
 Owen, Elmer George, C, 1.....Marshfield
 Owsley, Ruby, P, 4.....Huntington
 Packard, F. Howard, V, 1.....Boardman
 Packer, Hazel, H, 3.....Eugene
 Paddon, Ronald H., C, 1.....Lockport, N.Y.
 Padgett, Peter Wilson, Ch, 1.....Longview,
 Wash.
 Padrick, Margaret, C, 1.....Portland
 Paetow, William Oren, IA, 1.....Astoria
 Painter, Mae, C, 3.....Corvallis
 Palmer, George Reiser, P, 3.....Hood River
 Palmrose, Edwin Gustoff, Ch, 1.....Seaside
 Palmrose, G. Victor, Ch, 4.....Seaside
 Palmrose, William, IA, 1.....Seaside
 Panek, John S., C, 2.....Amity
 Pankey, Thelma, C, 4.....Central Point
 Panzer, Helen Louise, C, 3.....Portland
 Panzer, Otto Emil, A, 1.....Portland
 Pardee, Elsie Constance, V, 3.....Medford
 Parke, William Norwood, F, 2.....Eugene
 Parker, Clarence N., C, 4.....Portland
 Parker, Edgar James, F, 3.....Corvallis
 Parker, Edward Thornburg, Ch, 1.....Portland
 Parker, Edwin Ellison, ME, 4.....Corvallis
 Parker, Frank S., C, 4.....Milwaukie
 Parker, Frank Woodburn, CE, 4.....Hammond
 Parker, John R., F, 3.....Corvallis
 Parker, Veldon Albert, F, 3.....Vernonia
 Parker, Zelma, H, 4.....Corvallis
 Parman, Janet Helen, V, 2.....Condon
 Parrish, George Claire, V, 3.....Dallas
 Parrish, Liston Dwight, E, 1.....Salem
 Parrish, Ray Leslie, P, 2.....Newberg
 Parrott, Marjorie Lucille, C, 1.....Portland
 Parsons, Clarence B., EE, 4.....Portland
 Parsons, Edith, V, 3.....Palo Alto, Calif.
 Parsons, Harold, P, 3.....Eugene
 Patch, Dennis Wilmer, F, 3.....Weiser, Idaho
 Patten, Katherine Amory, V, 2.....Eugene
 Patterson, Frances Helen, V, 2.....Albany
 Patton, Gordon Eugene, V, 2.....Portland
 Patton, John Joseph, Ch, 3.....Medford
 Paulsen, Herbert Walter, Ch, 2.....Lewiston,
 Idaho
 Paulsen, Maxine Mary, C, 1.....The Dalles
 Paulsen, Prudence Elizabeth, C, 3.....The
 Dalles
 Payne, Clifford Williams, C, 3.....Portland
 Peacock, Robert Charles, C, 4.....Pendleton
 Peal, George, G, 1.....Enterprise
 Peaper, Joe, C, 2.....Portland
 Pearce, Frank Charles, M, 2.....Portland
 Pearce, Jack B., C, 1.....Portland
 Pearce, Romney Lyle, C, 2.....Portland
 Pearl, John, EE, 3.....Brownsville
 Pearson, Alvida V., H, 3.....Raymond, Wash.
 Pease, Harvey Diers, C, 3.....Portland
 Peavy, Norbert Edwin, V, 3.....Corvallis
 Peck, Norton Lee, ME, 4.....Corvallis
 Peiffer, Karen Sayre, V, 2.....Portland
 Pemberton, Winnifred Ellen, H, 4.....Salem
 Penland, Mary E., V, 2.....Berkeley, Calif.
 Pennell, Leland Lyman, C, 4.....Portland
 Pennell, Lotus William, EE, 2.....Portland
 Penny, A. J., V, 3.....Corvallis
 Penrose, Reva Mae, H, 1.....Dayton
 Pentzer, Donald John, A, 1.....Grants Pass
 Pepin, Obert Kenneth, F, 1.....Bend
 Perkins, George J., C, 4.....Portland
 Perkins, Oliver Dix, EE, 4.....Milwaukie
 Perkins, Oliver Raymond, E, 1.....Gardiner
 Penu, Lauri Olavi, IA, 4.....Astoria
 Perrin, William R., C, 2.....Corvallis
 Perry, Charles Edgar, ME, 2.....Lakeview
 Perry, Helen Lucille, H, 3.....Estacada
 Perry, Leon Clarence, P, 1.....Salem
 Perry, Waldo, C, 1.....Portland
 Perry, Walter LeRoy, IA, 3.....Grants Pass
 Perumean, John M., EE, 3.....Downey, Calif.
 Petellin, Alexander Albert, V, 3.....Portland
 Peters, Charles Wilber, C, 3.....Redmond
 Peters, Florence Marie, H, 1.....Portland
 Peters, Robert L., C, 2.....Cayce, Calif.
 Petersen, Alfred Valdemar, E, 1.....Portland
 Petersen, Robert Fred, C, 3.....Portland
 Peterson, Alice Miriam, C, 2.....Lakeview
 Peterson, Earl Eugene, V, 1.....Peoria, Ill.
 Peterson, George Karl, V, 3.....Corvallis
 Peterson, Lillian Evangelyn, C, 1.....Portland
 Peterson, M. Maxine, G, 1.....Corvallis
 Peterson, Marie Anna, H, 1.....Lakeview
 Peterson, William Louis, C, 1.....Ontario
 Petrasek, Edwin, E, 1.....Malin
 Petterson, Waldo I., F, 1.....Colton
 Pettibone, Ciauncey Tedford, E, 1.....Burns
 Petticord, Grace Elizabeth, O, 1.....Corvallis
 Peyree, Bernice Hester, H, 1.....Independence
 Philbrick, John Rae, F, 2.....Portland
 Phillips, Alberta Isabelle, H, 2.....Palo Alto,
 Calif.
 Phillips, Clytie Helen, V, 4.....Freewater
 Phillips, Ferdinand Austin, A, 2.....Corvallis
 Phillips, Frank Rodney, ME, 2.....Corvallis
 Phillips, George E., E, 1.....Portland
 Phillips, Huber, C, 4.....Portland
 Phillips, Rex, C, 4.....Portland
 Philpott, Euel Francis, CE, 4.....Lenere
 Phipps, John, C, 2.....Portland
 Phipps, Wendell Thomas, C, 3.....Freewater
 Phipps, William Estell, CE, 2.....Medford
 Pickering, Chester Arthur, IA, 2.....Salem
 Pickthall, Walter Thomas, C, 2.....Portland
 Pierce, Theodore P., C, 1.....Jennings Lodge
 Pierson, Eric Herbert, C, 1.....Medford
 Pierson, James G., CE, 3.....Hood River
 Pietarila, Helen, C, 2.....Astoria
 Pimentel, Anacleto, A, N.....Corvallis
 Pinkerton, John, P, 3.....Corvallis
 Pinkerton, John Henry, C, 2.....Athena
 Pinkham, Edith Edwards, H, 2.....Beverly
 Hills, Calif.
 Pittam, William, Ch, 1.....North Bend
 Plank, Darrel William, E, 1.....Tillamook
 Plath, Corinne, C, 2.....Bend
 Platt, Helen Marie, H, 2.....Corvallis
 Platt, John Lester, V, 4.....Corvallis
 Platts, Raymond Arthur, G, 1.....Portland
 Pockington, Martha Jane, V, 2.....Alpine
 Poco, Alice Catherine, H, 1.....Reno, Nev.
 Pogue, Doris, H, 1.....Lemon Cove, Calif.
 Pogue, Marion M., H, 4.....Lemon Cove, Calif.
 Pollock, Clarence Elmer, E, 1.....Klamath Falls
 Pollock, Leon Elbert, P, 2.....Portland
 Pollock, Wellington Wilkes, P, 2.....Tillamook
 Pond, Margaret Denning, V, 3.....Piedmont,
 Calif.
 Ponsart, Maurice George, C, 2.....Corvallis
 Ponting, Claud Davis, A, 3.....Port Orford
 Pool, Winston Sidney, C, 2.....Hillsboro

- Poorman, John M., ME, 2.....Portland
 Pope, Eleanor May, C, 3.....Park Place
 Pope, George Albert, A, S.....Corvallis
 Pope, Kathryn E., V, 1.....Klamath Falls
 Porfily, Frank Egbert, A, 1.....Prineville
 Porter, Arthur J., ME, 3.....West Linn
 Porter, Beulah Marie, H, 4.....La Fayette
 Porter, Mildred Rowena, H, 1.....Vancouver,
 Wash.
 Porterfield, Edwin M., P, 3.....Elmira
 Post, Anita Helene E., G, 1.....Portland
 Post, Wilma Josephine, G, 1.....Portland
 Potter, James J., V, S.....McMinnville
 Powell, Dorla May, H, 2.....Piedmont, Calif.
 Powell, Eugene B., P, 3.....Toledo
 Powell, Frank Marshall, C, 3.....Silverton
 Powell, Harold G., F, 3.....Corvallis
 Powers, Ira Frost, C, 2.....Portland
 Powers, Myron John, Ch, 3.....Corvallis
 Powers, Robert, E, 1.....Aurora
 Powers, Robert Gleason, P, 2.....Albany
 Powne, W. Clark, C, 2.....Banks
 Poysky, E. Edward, C, 3.....Astoria
 Poysky, Wayne William, A, 1.....Astoria
 Pratt, Emerson Trefren, Ch, 1.....Ashland
 Pratt, Marguerite Blackman, C, 3.....Corvallis
 Pratt, Seville Jean, C, 1.....La Grange
 Prentiss, Donald C., A, 1.....Corvallis
 Prentiss, Robert Watt, A, 3.....Corvallis
 Prescott, Arthur S., A, 2.....Portland
 Presto, Joseph Michael, V, 1.....Barberton,
 Ohio
 Price, Bruce Cook, E, 2.....Portland
 Price, Harold S., V, 1.....Corvallis
 Price, Kenneth Charles, A, 2.....Santa Ana,
 Calif.
 Prizer, Irene, V, 1.....Marshfield
 Proctor, Helen Mary, C, 2.....Portland
 Proctor, Mildred Amelia, H, 2.....San Ansel-
 mo, Calif.
 Proebstel, Robert Ingersol, C, 2.....Haines
 Proffitt, Marian, V, 1.....Oregon City
 Prothero, Stephen Everett, C, 1.....Portland
 Prudhomme, Virginia E., H, 2.....Portland
 Pubols, Edwin, C, 2.....Portland
 Pubols, Emil, C, 4.....Portland
 Puckett, Dell, E, 1.....Cove
 Pugsley, Harold K., P, 1.....Corvallis
 Puhn, Walter, F, 3.....Medford
 Purdin, William, C, 3.....Corvallis
 Purdy, Lee A., C, 4.....Portland
 Purvine, Maude C., H, S.....Corvallis
 Purvis, Alice Edith, C, 2.....Vale
 Purvis, Peter, Ch, 1.....Vale
 Puustinen, Lahya, M, 2.....Svensen
 Puustinen, Toivo Usko, IA, 1.....Svensen
 Pyle, Fred G., E, 1.....Eugene
 Quigley, Alice Elizabeth, H, 1.....San Fran-
 cisco, Calif.
 Quigley, Donna Madeline, C, 2.....Portland
 Quirk, Charles John, EE, 2.....Portland
 Rackleiff, Angus N., A, 2.....Marshfield
 Radosovich, John Edward, C, 1.....Portland
 Rafferty, Earl William, C, 1.....Portland
 Rafoth, Glenn, C, 3.....Junction City
 Raigmig, Clarence, Ch, 2.....Tigard
 Raikko, Oliver Edward, V, 1.....Portland
 Raisig, Theodore John, E, 1.....Portland
 Ralston, Edward Lindsay Jr., EE, 3.....Cor-
 vallis
 Ralston, Helen, V, 1.....Corvallis
 Ramos, Alipio Manuel, A, 1.....Gamu, Isabela,
 P. I.
 Ramos, Antonio Bucago, V, 2.....Corvallis
 Ramos, Jose M., ME, 2.....Corvallis
 Ramponi, Arthur Nathan, C, 2.....Corvallis
 Ramsey, Pauline Colwell, V, 1.....Crescent
 City, Calif.
 Ramsey, Robert Wade, E, 1.....La Grande
 Rands, Marcus, C, 1.....Oregon City
 Rankin, Ardery Robert, CE, 4.....San Jose,
 Calif.
 Ransom, Kathryn Gray, P, 2.....Scio
 Rapraeger, Harold Albert, F, 2.....Corvallis
 Rase, Helen Sue, H, 1.....Corvallis
 Rase, Virginia Aurelia, C, 2.....Corvallis
 Rasmussen, Donald Jesse, Ch, 2.....Salem
 Rasmussen, Neils, E, 1.....Burns
 Rath, Crystal Ione, P, 4.....Portland
 Rawson, Ruth, C, 1.....Portland
 Ray, Allen Collett, E, 1.....Vernonia
 Ray, Leon Frank, P, 4.....Portland
 Rea, Dorothy Eleanor, H, 2.....Hanford, Calif.
 Read, Fred Burton, E, 1.....The Dalles
 Read, Irene Janette, H, 2.....The Dalles
 Reager, Frank, C, 3.....Orland, Calif.
 Redding, Martin Walter, C, 3.....Salem
 Reddy, Edith M., V, 3.....Albany
 Ree, Hugo, E, 1.....Eugene
 Reed, Allen Dean, E, 1.....Portland
 Reed, Barbara Jean, G, 1.....Portland
 Reed, Don H., V, 1.....Glendale, Calif.
 Reed, John Morgan, E, 1.....Portland
 Reed, Mary Alice, C, 3.....Estacada
 Reed, Vida Margaret, G, 1.....Portland
 Reed, Virginia Mae, H, 2.....Portland
 Reeder, Locke Morgan, C, 1.....Portland
 Reedy, Taylor, C, 2.....Los Angeles, Calif.
 Reekman, Evelyn Alice, H, 2.....Smith River,
 Calif.
 Rees, John Robert, E, 1.....Shaniko
 Reese, George Wesley, C, 3.....Corvallis
 Reetz, Norval George, EE, 4.....Corvallis
 Reeves, Richard Clair, C, 2.....Lebanon
 Reeves, George Spencer, V, 2.....Portland
 Reeves, Wanda Mae, C, 1.....Lebanon
 Rehberg, Lucille Cathryn, A, 1.....Seattle,
 Wash.
 Rehling, Marie Malinda, C, 4.....Weiser, Idaho
 Reichle, Paul Frank, F, 1.....Hollywood, Calif.
 Reichmuth, Edward Griffith, ME, 2.....Palo
 Alto, Calif.
 Reid, Frances Adelaide, C, 4.....Burlingame,
 Calif.
 Reid, George Melville, C, 2.....Ellensburg,
 Wash.
 Reid, Parlane Thomas, V, 1.....Catalina Isle,
 Calif.
 Reid, Warren Alaska, V, 1.....Corvallis
 Reierstad, Leo, EE, 4.....Portland
 Reierstad, Rolf Herbert, F, 2.....Portland
 Reinhart, Jennie Mildred, V, 4.....Foster
 Reisner, Robert H., CE, 2.....Portland
 Renner, Arthur Philip, V, 3.....Santa Monica,
 Calif.
 Renner, Randell G., C, 1.....Portland
 Renninger, Reta M., H, 2.....Albany
 Rettie, Clara Ellen, C, 2.....Fossil
 Rettman, Arthur E., F, 3.....Portland
 Reuter, Henry, A, 1.....Union
 Reynolds, Ed B., C, 4.....Portland
 Reynolds, Gail Fred, C, 1.....Lakeview
 Reynolds, Kender Bliss, V, 1.....Corvallis
 Reynolds, Lucy, H, 4.....Portland
 Reynolds, Marjorie Ruth, V, 2.....La Grande
 Reynolds, Mary MacInay, C, 3.....Portland
 Rhodes, John William, ME, 2.....Albany
 Riach, George, E, 1.....Portland
 Rice, Dorothy, H, 4.....Myrtle Creek
 Rice, Emery L., A, 2.....Eagle, Idaho
 Rice, James Moses, P, 2.....Myrtle Creek
 Rice, Neil Byron, F, 1.....Port Orford
 Richards, Charles Robert, ME, 2.....Portland
 Richards, Franklin Arthur, C, 1.....Baker
 Richardson, John A., E, 1.....Portland

Richardson, John Franklin, V, 2.....Klamath Falls
 Richardson, Louis Howard, EE, 2.....Corvallis
 Richardson, Nancy Lindsay, V, 1.....Portland
 Richmond, Belding E., ME, 3.....Eugene
 Richmond, Wilda, C, 4.....Medford
 Richter, Carlton Ernest, V, 2.....Portland
 Ricks, Estora Velma, H, 2.....Portland
 Ridder, Gilbert Henry, A, 1.....Sherwood
 Ridings, Kenneth King, A, 1.....Molalla
 Riebe, Frank Ashley, EE, 4.....Portland
 Riffe, Jesse Lewis, A, 4.....Corvallis
 Riggs, Estherleone, C, 2.....Portland
 Riggs, Robert, C, 2.....Portland
 Riley, Ione, G, 1.....Portland
 Rinehart, Beulah Martha, H, 1.....Corvallis
 Rinehart, James Carle, P, 2.....Portland
 Ripley, Dorothy Merle, H, 2.....Portland
 Ripley, Russell Reid, E, 1.....Portland
 Risley, Henry Morrow, Ch, 4.....Corvallis
 Rister, Floyd Arlington, V, 2.....Lapine
 Riter, Lear E., Ch, 1.....Portland
 Ritner, Irene, H, 1.....Salem
 Roaf, James, A, 3.....Corvallis
 Robbins, Clarence William, A, 2.....Philomath
 Roberts, Henrietta Mary, H, 3.....Portland
 Roberts, Innis, ME, 2.....Klamath Falls
 Roberts, Kingsley, C, 4.....Portland
 Roberts, Lawrence H., C, 4.....The Dalles
 Roberts, M. Rader, C, 4.....Madera, Calif.
 Roberts, Maurice Fuller, C, 1.....Redmond
 Roberts, Pauline, C, 2.....Medford
 Robertson, Betty Carrie, V, 2.....Hollywood, Calif.
 Robinson, Brehman, E, 1.....Glandale, Calif.
 Robinson, Clifford, V, 2.....Corvallis
 Robinson, Donald Franklin, A, 1.....Corvallis
 Robinson, Harvey Louis, C, 2.....Cottage Grove
 Robinson, Helen Peer, H, 3.....Corvallis
 Robinson, John Edward, Ch, N.....Portland
 Robinson, Rex Eugene, V, 4.....Corvallis
 Robinson, Thomas Harvey, E, 1.....Corsicana, Tex.
 Robley, Asa Austin, IA, 1.....Springfield
 Robley, Elizabeth, H, 4.....Portland
 Robley, Fred Grant, CE, 4.....Estacada
 Roblin, William Edward, Ch, 2.....Portland
 Robusteli, Guido Tony, C, 1.....Klamath Falls
 Robusteli, Richard James, C, 1.....Klamath Falls
 Roch, Andre, CE, 4.....Geneva, Switzerland
 Rodgers, Kenneth Ervin, P, 3.....Woodburn
 Rodman, Millard Douglas, A, 3.....Culver
 Rodriguez, Mariano P., A, 1.....Salem
 Rodwell, Wade Arnold, C, 3.....Hood River
 Rogers, Brady, IA, 1.....Corvallis
 Rohr, Ralph, E, 1.....Klamath Falls
 Rohrman, Charles Albert, Ch, 1.....Pendleton
 Rohrman, Ewald, Ch, 1.....Pendleton
 Romig, Edith Marie, H, 3.....McCoy
 Romiti, Aldo Sante, Ch, 2.....St. Helens
 Ronald, Ray Morris, E, 1.....Portland
 Roner, Fred Arnold, IA, 1.....Albany
 Roner, Joseph G., IA, 2.....Harrisburg
 Rood, Gladys Osmund, V, 3.....Hillsboro
 Root, Floyd, C, 4.....Wasco
 Ropp, Evangalyn Virginia, H, 2.....Portland
 Rose, Ann Verone, V, 1.....Oregon City
 Rose, Grace Amanda, V, 2.....Lapine
 Rose, Helen Marie, C, 3.....Oregon City
 Rose, Rowland S., ME, 2.....Portland
 Rosenberg, Floyd W., C, 2.....Tillamook
 Rosenberg, Glenn W., C, 3.....Tillamook
 Rosenberg, Vera Ardress, H, 2.....Tillamook
 Rosenoff, Hazel, C, 2.....Portland
 Ross, Alvin Christian, CE, 4.....Pendleton
 Ross, Barbara C., C, 1.....Marshfield

Ross, Mabelle Grace, H, 4.....La Canada, Calif.
 Rossier, Charles William, V, 1.....Bickleton, Wash.
 Roth, Norman Frederick, Ch, 2.....Monmouth
 Rothenberger, Robert Horan, A, 1.....Sherwood
 Rowan, Eunice Irene, C, 3.....Fort Stevens, Wash.
 Rowan, James Davies, M, 1.....Portland
 Rowe, Dorothy Helen, H, 1.....Stayton
 Rowland, Eniz Eaton, A, 2.....Merrill
 Rowland, Erwin Fredrick, C, 2.....Exeter, Calif.
 Rowland, Harriette, H, 1.....Corvallis
 Roy, Leighton Eugene, P, 1.....Portland
 Rucker, Fred Pearce, C, 2.....Sherwood
 Rudd, Charlotte Jane, H, 4.....Eugene
 Rudd, Norman N., Ch, 1.....Corvallis
 Rudesill, Clayton Rush, Ch, 1.....Portland
 Ruedy, Robert Eugene, ME, 3.....Portland
 Rueppell, Bobbie Alys, H, 1.....Corvallis
 Rueppell, W. Lewis, P, 4.....Corvallis
 Rugg, Raymond Benson, A, 4.....Pendleton
 Rumbaugh, Candace Alvira, H, 1.....Parkdale
 Runciman, Eldon George, IA, 3.....Exeter, Calif.
 Runciman, Leah, H, 2.....Exeter, Calif.
 Rusk, Marion Dresser, V, 2.....Portland
 Russell, Edna I., H, 1.....Corvallis
 Russell, Helen Marjorie, H, 3.....Corvallis
 Russell, Lyneth F., P, 2.....Portland
 Russell, Rex H., Ch, 2.....Corvallis
 Russell, Vera C., H, 4.....Riverside, Calif.
 Rust, Reg Porter, V, 2.....La Grande
 Rust, Walter James, F, 4.....Blachly
 Rutherford, Alice May, V, 3.....Portland
 Rutherford, Doris M., H, 3.....Los Angeles, Calif.
 Rutherford, John Freeman, C, 2.....Salem
 Ryan, John A., E, 1.....Orcutt, Calif.
 Ryan, Marion, C, 2.....Portland
 Ryan, Paul J., C, 3.....Nashville
 Ryland, Max Shelton, E, 1.....Albany
 St. Clair, Jean, C, N.....Portland
 Saager, John D., P, 1.....Freewater
 Sadler, Ralph Stanley, CE, 2.....Portland
 Sagar, Paul Burton, ME, 2.....Portland
 Sahlin, Robert Waldemar, C, 1.....Portland
 Saling, Earl Franklin, CE, 4.....Portland
 Saling, Fred William, C, 1.....Corvallis
 Salsler, Ruth Evelyn, C, 2.....Corvallis
 Sammons, Harold Charles, C, 2.....Portland
 Sanders, Alvin B., F, 1.....Junction City
 Sanders, Mark Edward, P, 1.....Portland
 Sandoz, Marcel Frank, A, 1.....Corvallis
 Sandoz, Paul Ernest Jr., CE, 2.....Trail
 Sandquist, Harry Rudolph, A, 1.....Roseburg
 Sandquist, Walter Emanuel, A, 1.....Roseburg
 Sandry, Doris Wray, C, 1.....Rogue River
 Sandwick, Hazen, A, 1.....Corvallis
 Sandwick, Raymond G., E, 1.....Corvallis
 Sannar, Lester David, A, 1.....Enterprise
 Sarif, Leland F., P, 2.....Corvallis
 Sargent, Howard Irving, EE, 4.....Portland
 Sargent, Loren, E, 1.....Goble
 Sarmiento, Igmedio Martinez, CE, N.....Corvallis
 Sass, John Henry, A, 1.....Richland
 Sather, Victor A., P, 4.....Silverton
 Satre, Arthur Clarence, CE, 2.....Astoria
 Saunders, Carroll William, P, 2.....Big Eddy
 Sauter, Dorothy Lilia, C, 2.....Portland
 Sawtell, Earl, V, 2.....The Dalles
 Sawyer, Barton Fletcher, Ch, 3.....Oswego
 Sawyer, Kenneth W., C, 3.....Kerby
 Sawyer, W. Arthur, A, 4.....Kerby
 Saylor, Nelma L., H, 4.....Echo
 Says, Lamer H., E, 1.....Moro

- Scales, Thomas, C, 2.....Sandy
 Scanlan, Catherine, H, 2.....Portland
 Scanlan, Lloyd Francis, C, 2.....Portland
 Schaad, Gilbert T., A, 1.....Newberg
 Schaad, Roland W., A, 4.....Newberg
 Schaefer, Bonnie Minnette, P, 3.....Salem
 Schannep, William H., V, 1.....Pendleton
 Schanno, Emile L., A, 2.....The Dalles
 Schanz, Florence Joan, H, 4.....Portland
 Scheeland, Joseph Henry, E, 1.....Portland
 Scherer, Wilma Opal, C, 1.....Corvallis
 Schierman, Ruth Ethelyn, C, 1.....Corvallis
 Schlegel, Henry Edward Jr., E, 1.....Portland
 Schlegel, Maxine Mae, C, 1.....Portland
 Schlotth, John Willard, V, 2.....Portland
 Schmeltzer, Harry, A, 1.....Sherwood
 Schmidt, Elisa Carolyn, C, 1.....Astoria
 Schmidt, Henry Edward, CE, 3.....Portland
 Schmidt, Lloyd George, C, 2.....Grants Pass
 Schmidt, Waldemar, Ch, 1.....Portland
 Schmack, Albert James, Ch, 1.....Aurora
 Schneider, Marjorie, C, 2.....Cottage Grove
 Schneider, Pauline, V, 2.....Cottage Grove
 Schneider, Robert Milton, V, 2.....San Francisco, Calif.
 Schneider, Virginia Ella, V, 4.....Corvallis
 Schoenborn, Beverly Frances, V, 3.....Oregon City
 Schrepel, Marie F., V, 4.....Corvallis
 Schroeder, George Harwood, F, 2.....Portland
 Schuele, Wmifred Josephine, H, 1.....Portland
 Schuh, Joe, A, 3.....Cornelius
 Schultz, Walter A., EE, 2.....Scappoose
 Schulze, Estella Florence, H, 2.....Brownsville
 Schumacher, Charles Valentine, EE, 2.....Portland
 Schumacher, Lila Gertrude, V, 2.....Redmond
 Schuster, Frank Edward, A, 2.....Chehalis, Wash.
 Schwabe, William Henry, V, 2.....Portland
 Schwammel, Adolph John, V, S.....Oakland, Calif.
 Schwartz, Max Eugene, EE, 3.....Portland
 Schwarz, Raymond H., ME, 2.....Myrtle Point
 Schwedler, Ise Dorothea, V, 1.....Gresham
 Schwegler, Gordon, V, 3.....Svenson
 Schwerin, William Howard, C, 1.....Portland
 schwertfeger, Anton, ME, 4.....Oregon City
 Scott, Bert Rorick Jr., E, 1.....Avalon, Calif.
 Scott, Dorris Mary, H, 1.....Corvallis
 Scott, Evelyn, H, 2.....Corvallis
 Scott, Florence Theresa, C, 3.....Corvallis
 Scott, Henry Webster, CE, 2.....Melrose
 Scott, Paulene Muriel, H, 2.....Corvallis
 Scott, Philip, C, 1.....Etiwanda, Calif.
 Scott, Raymond, EE, 3.....Marshfield
 Scott, Rodney Jerome, CE, 2.....Eugene
 Scott, Walter R., A, 3.....Portland
 scoville, Francis M., C, 2.....Elk City
 Scrafford, Austin Theodore, V, 1.....Garibaldi
 Scrafford, Dale Maurice, C, 1.....Suver
 Scritsmier, Lee A., CE, 2.....Portland
 Scurich, Stephen Robert, C, 3.....Watsonville, Calif.
 Seal, Myrtle Evalyn, C, 1.....Corvallis
 Searcy, Morris Lee, C, 4.....Moro
 Sears, Ernest Robert, A, 3.....Rickreall
 Sedgwick, Elizabeth M., H, 4.....Creswell
 Seeck, Christine, C, 4.....Lebanon
 Seeger, Harriet Annett, V, 2.....Fullerton, Calif.
 Seitel, Mary Louise, C, 2.....Portland
 Selander, Owen Wilson, Ch, 3.....Sumner
 Sellars, Florence Margaret, C, 1.....Portland
 Selz, Ralph Jerome, A, S.....Corvallis
 Sense, George Andrew, Ch, 1.....Corvallis
 Serrano, Sam, A, 4.....Portland
 Sether, Gordon F., P, 2.....Eugene
 Sexton, Holden, P, 2.....Corvallis
 Seydel, Lee Harris, V, 1.....Corvallis
 Seymour, Stanley Gardner, C, 2.....Corvallis
 Seymour, Virginia Bowen, C, 1.....Eugene
 Shadoin, Phyllis Beatrice, O, 2.....Corvallis
 Shanbaum, Sam, E, 1.....Venice, Calif.
 Shank, Floyd T., ME, N.....Brawley, Calif.
 Shank, Gladys Laura, C, 4.....Portland
 Sharpe, Malcolm M., V, 2.....Berkeley, Calif.
 Sharpe, Marian Alma, V, 2.....Berkeley, Calif.
 Shattuck, Gordon Frank, ME, 2.....Portland
 Shaug, James J., C, 2.....San Fernando, Calif.
 Shaver, Doris, H, 1.....Portland
 Shaw, Agatha Elizabeth, H, 2.....Portland
 Shaw, Dudley Edward, C, 1.....Eugene
 Shaw, Ivan Dudley, E, 1.....Eugene
 Sheelan, Frank Loftus, V, 1.....Portland
 Shellabarger, John Nicholas, E, 1.....Portland
 Shellenbarger, Marion Weston, Ch, 2.....Portland
 Shellenberger, Paul Lewis, E, 1.....Beaverton
 Shelman, Marian, A, 1.....Lompoc, Calif.
 Shepard, Maurice Lloyd, V, 2.....Salem
 Shepherd, Burchard Post Jr., E, 1.....Portland
 Sheridan, James Edward, C, 1.....Auburn, Calif.
 Sherman, Carl, EE, 2.....Forest Grove
 Sherman, Edric, V, 4.....Portland
 Sherwood, Cecil Hugh, V, 2.....La Grande
 Sherwood, Donald Henry, A, 2.....Nyssa
 Sherwood, Hugh Miller, C, 2.....Portland
 Sherwood, Marguerite Billeter, H, 1.....Portland
 Sheythe, Martin Blair, V, 2.....Kings Valley
 Shiach, Rose, C, 3.....Portland
 Shimomura, Nori Margaret, V, 4.....Portland
 Shirley, Audrey M., O, 2.....Corvallis
 Schleifer, Sam, C, 1.....Portland
 Shoesmith, Lloyd, A, 1.....Salem
 Short, Herbert, A, S.....Portland
 Shrock, Linn, A, 4.....Milwaukie
 Shull, Garland Delbert, E, 1.....Corvallis
 Shurtliff, David Charles, Ch, 1.....Vale
 Shurtliff, Waldo Norman, E, 1.....Baker
 Sidler, Dorothy-Ann, H, 1.....Portland
 Siegenthaler, Chris John, V, 2.....Linnton
 Sieflicky, Sigmond, C, 2.....Portland
 Sigourney, Doris Helene, H, 2.....Portland
 Silcher, Bruce Edward, C, 1.....Portland
 Silliman, George Perrine, C, 1.....Medford
 Simmons, William H., C, 3.....Fossil
 Simons, Floraine N., H, 2.....Corvallis
 Simpson, Charles Hugh, C, 4.....Salem
 Simpson, Donald Gerald, Ch, 2.....Portland
 Simpson, Oliver Tillman, C, 1.....Vancouver, Wash.
 Sims, Barbara Florence, C, 2.....Phoenix
 Sims, L. Wade, C, 4.....Walla Walla, Wash.
 Sinclair, Mary Irene, C, 4.....Portland
 Singer, Harold E., E, 1.....Portland
 Singer, Lewis Parmerlee, EE, 3.....Corvallis
 Sisson, Virginia Gae, H, 2.....Salem
 Sizemore, George Wesley, A, 1.....Eden, Idaho
 Sjoblom, Bertil, C, 3.....The Dalles
 Sjoblom, Karl, V, 1.....Portland
 Skaale, Bessie Marie, C, 2.....Portland
 Skaale, Jennie Louise, C, 2.....Knappa
 Skaife, Lucile, H, 3.....Silverton
 Skinner, Francis Merrill, P, 1.....Portland
 Skinner, Robert Henry, C, 4.....Portland
 Slate, Joe, C, 1.....Bend
 Slate, M. Marie, G, 1.....Tangent
 Slater, Curnow Banfield, C, 2.....Portland
 Slater, Walter David, A, 1.....Sutherlin
 Slayton, Hale Todd, F, 1.....Corvallis
 Sleppy, Madeline Mildred, C, 2.....Newberg
 Sloop, Paul S., A, 3.....Anaheim, Calif.
 Sloper, Mildred Alma, H, 2.....Independence

Sloper, Ruth Marguerite, V, 3.....Rainier
 Sloper, Willard Davis, E, 1.....Independence
 Small, Arthur Richard, IA, 1.....Portland
 Small, Hiram Fillmore, C, 1.....Corvallis
 Smiley, Arthur Cooper, C, 2.....Santa Monica, Calif.
 Smillie, James Dickson, A, 2.....San Fernando, Calif.
 Smith, Albert M., A, 2.....Portland
 Smith, Burton Merle, C, 1.....The Dalles
 Smith, Chesley Alfred, C, 1.....Astoria
 Smith, Clarence Z., C, 1.....Corvallis
 Smith, Clinton E., A, 2.....Corvallis
 Smith, Earl Irving, A, 2.....Roseburg
 Smith, Edith Bell, C, 1.....Portland
 Smith, Ernest C., M, 2.....Douglas
 Smith, Ernest L., ME, 3.....Visalia, Calif.
 Smith, Ernest P., C, 2.....Etna, Calif.
 Smith, Floyd, C, 1.....Grants Pass
 Smith, Floyd Owen, E, 1.....Portland
 Smith, Gordon N., EE, 4.....Portland
 Smith, Grace Ruth, H, 3.....Medford
 Smith, Harry Coleman, A, 1.....Portland
 Smith, Helen Douglas, H, 1.....Pasadena, Calif.
 Smith, Helen Harben, H, 2.....Corvallis
 Smith, Howard Elliott, V, 2.....Claremont, Calif.
 Smith, Howard George, A, 2.....Newberg
 Smith, Iva, P, 3.....Freewater
 Smith, James Leonard, ME, 2.....Portland
 Smith, Jessie May, C, 1.....Roseburg
 Smith, Juanita E., V, 1.....Portland
 Smith, L. Glenn, F, N, Willow Ranch, Calif.
 Smith, Lawrence K., EE, 3.....Portland
 Smith, Letha Louise, P, 1.....Corvallis
 Smith, Loren Judson, A, 4.....Corvallis
 Smith, Merton Putnam, F, 4.....Ashland
 Smith, Morris Harry, V, 2.....Portland
 Smith, Robert C., CE, 3.....Portland
 Smith, Ruth Genevieve, H, I, Forest Grove
 Smith, Shirley Elizabeth, V, 2.....Portland
 Smith, Stacy Thomas, C, 1.....Pocatello, Idaho
 Smith, Stanley, C, 1.....Los Angeles, Calif.
 Smith, Ted, C, 1.....Portland
 Smith, Ted N., M, 3.....Nampa, Idaho
 Smith, Viva Gertrude, H, 2.....Albany
 Smithburg, Edward John, F, N.....Salem
 Smullin, Joseph Dale, A, 3.....Parkdale
 Smyth, Helen May, H, 2.....Pasadena, Calif.
 Sneed, M. Harold, E, 1.....Bandon
 Snider, Lucille, H, 2.....Wenatchee, Wash.
 Snider, Mary Elizabeth, C, 1.....Medford
 Snook, Louis Farra, E, 1.....Salem
 Snyder, Charles Gustave, V, 4.....Corvallis
 Snyder, Rosmary, H, 2.....Corvallis
 Soderman, Bertel John, IA, 1.....Astoria
 Son, Earl, A, 1.....Corvallis
 Sorling, Arthur R., CE, 4.....Woodburn
 Sorling, Margaret Louise, V, 2.....Woodburn
 Soule, Irene Elsie, V, 2.....Astoria
 Soult, Kenneth Addison, E, 1.....Portland
 Soult, A. Warde, Ch, 3.....Portland
 Southam, Lois Aileen, C, 4.....Corvallis
 Southworth, Earl Edward, EE, 2.....Seneca
 Spangenberg, Norman, F, 2.....Lakeview
 Spaniol, Eugene Michael, IA, 4.....Stayton
 Sparks, Eudora Helen, C, 1.....Albany
 Sparks, Francis C., A, 3.....Astoria
 Sparks, Glenn Fuller, E, 1.....Independence
 Sparks, Lavelle Jewell, C, 2.....Pendleton
 Sparks, Victor E., V, 2.....Corvallis
 Sparre, Edith Marian, H, 1.....Tacoma, Wash.
 Sparre, Hazel Bernice, C, 1.....Tacoma, Wash.
 Spath, Glenn, P, 1.....Gresham
 Spencer, Harold Willis, C, 4.....Portland
 Spencer, Robert James, A, 4.....Walnut Park, Calif.
 Spencer, Virginia Margaret, C, 2.....Portland

Spike, John Stephen, C, 3.....Echo
 Sprague, Geraldine, C, 1.....Long Beach, Calif.
 Sprawkin, Dorothy, C, 2.....Portland
 Spring, Helen Margaret, G, 1.....Corvallis
 Springer, Marian Elizabeth, V, 4.....Umatilla
 Spurlin, Elizabeth, C, 3.....Corvallis
 Spurlin, Virginia May, H, 1.....Corvallis
 Sroufe, James Harley, C, 4.....Portland
 Stafford, James Lee, V, 2.....Portland
 Stahl, Donald Henry, P, 3.....Portland
 Stahl, Esther Elizabeth, V, 1.....Corvallis
 Staley, David A., G, 1.....Portland
 Stalker, Richard Wright, V, 4.....Portland
 Stambaugh, Adelaide Mathilda, C, 1.....Portland
 Standish, Peggy, C, 1.....Portland
 Stanfield, Hugh L., A, 3.....Portland
 Stangel, Alice Frances, H, 1.....Wilsonville
 Stangeland, Paul Anselm, CE, 4.....Astoria
 Stanley, Howard B., CE, 4.....Portland
 Staples, Ancilla Eulane, C, 2.....Portland
 Staples, Herbert Edward, F, 2.....Corvallis
 Stark, Chester Augustus, C, 2.....Sutherlin
 Stark, Richard William, C, 2.....Portland
 Stark, Robert Lawrence, E, 1.....Mohler
 Starr, Lawrence Robert, IA, 1.....Island City
 Starr, Paul H., P, 3.....Corvallis
 Starrett, S. Clyde, Ch, 1.....Portland
 Staver, Carl W., EE, 2.....Portland
 Stearns, Marjorie Loraine, C, 4.....Portland
 Stebinger, Ellen Ruth, C, 2.....Portland
 Stedman, Robert Douglas, C, 1.....Phoenix
 Steel, David F., EE, 4.....Portland
 Steel, Eunice Jeannette, O, 2.....Portland
 Steele, Alice Ruth, H, 4.....Metzger
 Steele, Clair Newcomb, IA, 3.....Creswell
 Steele, Gerald Miles, P, 3.....Albany
 Steele, Ralph C., A, 1.....Corvallis
 Steimle, Ruth N., H, 1.....Portland
 Stein, John Frederick, IA, 2.....Lakeview
 Stein, Marian Elizabeth, H, 2.....Portland
 Stein, J. Merton, A, 4.....Lakeview
 Steiner, Andrew, A, 2.....Corvallis
 Steinfeld, Ima, H, 1.....Portland
 Stenberg, Raymond Howard, ME, 2.....Portland
 Stengel, Thelma E., C, S, Los Angeles, Calif.
 Stenzel, Paul, C, 1.....Portland
 Stephens, Emmajeane, H, 2.....Moro
 Stephens, John Storer Jr., C, 3.....Palo Alto, Calif.
 Stephenson, Floyd C., C, 1.....Corvallis
 Stephenson, Lee, IA, 2.....Corvallis
 Stephenson, Lulu Mary, C, 2.....Corvallis
 Stevens, Dorothy Jane, H, 1.....Oregon City
 Stevens, Ellis John, C, 2.....Ashland
 Stevens, Howard W., C, 2.....Glendale, Calif.
 Stevenson, Glen Osborne, E, 1.....Dallas
 Stevenson, J. Renfrew, F, 1.....Glendale, Calif.
 Stevenson, Mary Elizabeth, V, 1.....Glendale
 Stevenson, Mary Elizabeth, V, 2.....Portland
 Stevenson, Myrtle Iva, H, 1.....Vancouver, B. C.
 Stevenson, Robert Noel, C, 2.....La Grande
 Stevenson, Thomas K., O, 2.....Corvallis
 Stewart, Hugh Jefferson, F, 2.....Portland
 Stewart, Loran L., F, 2.....Cottage Grove
 Stewart, Mary Lee, H, N.....Dayville
 Stewart, Opal Eleanor, C, 1.....Corvallis
 Stewart, William, A, 1.....Ontario
 Stidd, Enid Vernice, H, 1.....Portland
 Stidham, Louis George, P, 2.....Grants Pass
 Stierli, Walter, M, 1.....Norwalk, Calif.
 Stiff, Guy Nelson, P, 2.....Albany
 Stockard, Lowell Orlando, A, 1.....Hermiston
 Stockman, Charles Edward, E, 1.....Baker
 Stockman, Richard Collins, Ch, 3.....Baker
 Stockwell, Gordon, P, N.....Bend
 Stokes, James E., V, 1.....Astoria

- Stokes, William Roy, ME, 2.....Hebo
 Stokesbary, Walter Allen, M, 3.....Corvallis
 Stone, George M., C, 2.....Portland
 Stone, Robert William, Ch, 3.....Estacada
 Stone, Thelma Elaine, O, 2.....Salem
 Stone, Vaughn DeMerritt, C, 1.....Medford
 Stone, W. Phyllis, H, 1.....Portland
 Stoner, Dora, C, 1.....Corvallis
 Stoner, Eda Mary, V, 4.....Corvallis
 Stout, Charles Edgar, A, 2.....Corvallis
 Stout, Elizabeth Antoinette, V, 4.....Scappoose
 Stout, Melvin James, EE, 4.....Corvallis
 Stovall, Estel Leland, P, 2.....Maupin
 Stover, Betty, H, 1.....Corvallis
 Stowell, Janet, H, 1.....Portland
 Stradley, Dorothy Mae, C, 2.....Grass Valley
 Strain, Sylvia, V, 3.....Portland
 Strandberg, Ole Alfred, C, 3.....Banks
 Stranix, Jack Thomas, CE, 2.....Silverton
 Straw, Dorothy Maud, A, 1.....Portland
 Strawn, Mary Virginia, H, 1.....Roseburg
 Street, Donald John, ME, 2.....Sutherlin
 Stroh, Louis G., C, 2.....Los Angeles, Calif.
 Strom, John Eric, E, 1.....Tigard
 Strome, Emil B., A, 1.....Eugene
 Strong, Dwight Edmond, E, 1.....Vernonia
 Strong, Emory, ME, 3.....Boring
 Struble, Dorris Lorraine, H, 1.....Portland
 Stuart, Mary, H, 4.....San Marino, Calif.
 Sturm, Bruce Edwin, V, 1.....Portland
 Sturmer, Dale E., CE, 4.....Portland
 Stuttaford, Charlotte, H, 2.....Salem
 Suckow, Fred Erdman, EE, 2.....Portland
 Sugnet, Fred, C, 2.....Portland
 Sullivan, Lewis Charles, C, 1.....Avalon, Calif.
 Summers, Herbert Emmett, V, 1.....Corvallis
 Sumpter, Ronald Ray, Ch, 1.....Corvallis
 Sutton, Donald Leonidas, V, 2.....Los Angeles, Calif.
 Swain, Harold Merle, IA, 2.....Corvallis
 Swain, Searl, IA, 1.....Corvallis
 Swall, Lillard Trask, IA, 4.....Bend
 Swan, George Tillman, A, 1.....Wheeler
 Swank, Della Faye, H, 1.....Salem
 Swanson, Arthur E., E, 1.....Tigard
 Swarner, James Herbert, EE, 2.....Hermiston
 Sweatt, Grace Evelyn, H, 4.....Barstow, Tex.
 Swenson, Herbert Alfred, Ch, 2.....Portland
 Swenson, Richard Irving, C, 2.....Monmouth
 Swigart, Elizabeth St. John, C, 2.....Medford
 Swingler, Ralph Raymond, A, 1.....Medford
 Sylvester, Leonard N., EE, 4.....Corvallis
 Synnestvedt, Harold, V, 2.....Portland
 Tabke, Robert Stanton, Ch, 2.....Astoria
 Tabtab, Fedelino C., V, 2.....Corvallis
 Taff, Rose, C, 4.....Palo Alto, Calif.
 Taggart, Charles A., A, 2.....Portland
 Talbot, Ralph M., A, 1.....Portland
 Tallman, Charles Lucius, A, 1.....Gresham
 Taylor, Bert Raymond Jr., C, 3.....Portland
 Taylor, Esther, V, 3.....Corvallis
 Taylor, George Forrester, C, 1.....Portland
 Taylor, Gilbert Gordon, ME, 2.....Portland
 Taylor, Harley Lurton, E, 1.....Beaverton
 Taylor, Jack William, C, 1.....Los Angeles, Calif.
 Taylor, Nina Agnes, V, 2.....Portland
 Taylor, Thomas Elwood, E, 1.....Portland
 Taylor, Waldo Bruce, C, 2.....Portland
 Taylor, William Frederick, A, 1.....Corvallis
 Tedrow, A. Ward, Ch, 3.....Portland
 Tedrow, Maurice Locke, F, 3.....Marshfield
 Tefft, Beatrice Mary, C, 2.....Corvallis
 Temple, Bernard B., IA, 2.....Salem
 Terpening, Lois Adonna, C, 2.....Clatskanie
 Terry, Allen Gould, C, 3.....North Bend
 Terry, Joseph Elmo, C, 2.....Portland
 Teuscher, George Edward, C, 1.....Portland
 Thias, Edwin Paul, E, 1.....Hollywood, Calif.
 Thielemann, Rudolf Harold, E, 1.....Portland
 Thomas, Florence Estelle, C, 1.....Jefferson
 Thomas, Gerald John, A, 2.....Corvallis
 Thomas, Harold Alexander, A, 3.....Roseburg
 Thomas, Marion D., E, 1.....Scotts Mills
 Thomas, Ordie Owen, C, 1.....Weston
 Thomas, Reginald Edward, C, 1.....Klamath Falls
 Thomas, Richard Lyon, C, 3.....Los Angeles, Calif.
 Thomas, Starleigh Douglas, IA, 1.....Corvallis
 Thompson, Berneta B., H, 1.....Woodburn
 Thompson, Carolyn Isabelle, H, 3.....Pendleton
 Thompson, Clayton LeRoy, C, 1.....Portland
 Thompson, Coquelle, V, 2.....Siletz
 Thompson, Earl Arthur, E, 1.....Portland
 Thompson, Eva May, H, 1.....Wauana
 Thompson, Frances Marian, C, 2.....Silverton
 Thompson, Harold M., P, 2.....Pendleton
 Thompson, James William, F, 1.....Bend
 Thompson, John Alden, P, 2.....Medford
 Thompson, Maynard Arthur, C, 1.....Portland
 Thompson, Ralph M., A, 2.....Eugene
 Thompson, Ruth Marie, H, 1.....Wauana
 Thompson, Stephen Robert, A, 2.....Heppner
 Thomsen, Elsie, A, 1.....Philomath
 Thomson, Clark, A, 2.....Clackamas
 Thomson, Douglas Buchanan, A, 2.....Waialua, Oahu, T.H.
 Thomson, Roderick S., C, 1.....Heppner
 Thomson, Stuart D., C, 1.....Portland
 Thorall, Verna Adeline, V, 1.....Corvallis
 Thordarson, Leome Rosana, V, 4.....Corvallis
 Thorne, Betty Mae, H, 2.....Gresham
 Thurman, Lela Lucile, C, 2.....Corvallis
 Thurston, Melvin LeRoy, F, 2.....Roseburg
 Tice, Donald Edwin, Ch, 1.....Pendleton
 Tichenor, Kenneth Wilson, A, 2.....Clatskanie
 Tidball, Robert Lewis, E, 1.....Portland
 Tiedemann, Henry, F, 2.....Portland
 Tindall, James Wallace, P, 2.....Toledo
 Tinsley, William Keith, F, 2.....Salem
 Tipton, Milton H., EE, 4.....Goble
 Todd, Vernon S., F, 1.....Sherwood
 Toft, Howard Lyle, IA, 2.....Caldwell, Idaho
 Tolin, Elizabeth Dena, H, 4.....Corvallis
 Toll, Harriet A., H, 1.....Junction City
 Tolley, J. Frederick, F, S.....Corvallis
 Tomblin, Irene Mulholland, H, 2.....Portland
 Tomlinson, Donald Edward, C, 1.....Albany
 Tomlinson, Gene Frank, C, 1.....Portland
 Tompkins, Russel, A, 2.....Dayton
 Tong, Howard F., V, 4.....Clackamas
 Tonsfeldt, Hugh H., P, 2.....White Salmon, Wash.
 Tonsing, Arthur John, E, 1.....Portland
 Tonsing, Kathryn Ann, V, 4.....Portland
 Toole, Nicole Alton, CE, 3.....Portland
 Torrey, Louis Phillip, C, 2.....Portland
 Torson, James M., C, 4.....Corvallis
 Totten, Willard, C, 4.....Corvallis
 Tousey, Bertland J. G., CE, 4.....Portland
 Tower, Forrest H., EE, 2.....Portland
 Townes, Theodore Martin, Ch, 1.....Portland
 Townsend, Graham Edward, E, 1.....Portland
 Townsend, Verna Evelyn, H, 1.....Corvallis
 Trachtenberg, Isadore Nathaniel, A, 2.....Norfolk, Va.
 Trapp, Elwood Blair, C, 1.....Albany
 Tremblay, John Patterson, E, 1.....Marshfield
 Trollman, John, CE, 2.....San Francisco, Calif.
 Troyer, Charles Paul, C, 4.....Corvallis
 Truax, Merritt Wallace, C, 1.....Corvallis
 Trust, Jack S., F, 1.....Portland
 Trust, Richard Joseph, E, 1.....Portland
 Tucker, Dorothy Bess, C, 1.....Albany

- Tudor, Ione Pearl, C, 1.....Rome
 Tuggle, Wanda Leah, H, 1.....Portland
 Tupling, Charles Gordon, ME, 2.....Portland
 Turnbull, William Armstrong Jr., ME, 2.....
 Portland
 Turner, Lester L., A, N.....Ontario
 Tuttle, Loren William, C, 1.....Grants Pass
 Tweed, Carrol Taylor, C, 1.....Corvallis
 Tweed, Mildred Grace, C, 1.....Corvallis
 Twitchell, Norman S., C, 1.....Portland
 Tyberg, Florence Eleanor, C, 4.....Gearhart
 Tyler, Doris Winona, C, 2.....Portland
 Tyler, Willard P., Ch, 4.....Portland
 Udell, Ronald Stevens, A, 3.....Yakima, Wash.
 Uhrin, Clarence Herbert, EE, 3.....Algoma
 Umphrey, Donald, EE, 3.....Cottage Grove
 Umstead, Mary Gloria, C, 1.....Salem
 Underhill, Dexter B., C, 2.....Boise, Idaho
 Underwood, Leon Franklin, C, 1.....Conrad,
 Mont.
 Upham, Andrew Claude, F, 2.....Hermiston
 Upson, U. Larry, Ch, 1.....Portland
 Upton, Ethel Mae, V, 2.....Gaston
 Van Arsdale, Mary Lois, H, 1.....Redmond
 VanBlaricom, Lester, Ch, 1.....Hood River
 VanBlaricom, Lloyd, Ch, 1.....Hood River
 Vance, Edna Taylor, C, 4.....Corvallis
 Vance, Ruth, C, 2.....Corvallis
 VanCleave, Gordon Taylor, EE, 4.....Mt.
 Angel
 VanCleave, Howard Joseph, CE, 2.....Mt.
 Angel
 Van Gross, Dorothy, V, 3.....Corvallis
 Van Loan, Lucille, H, 4.....Likely, Calif.
 Van Sicklin, Roy, C, 2.....Weiser, Idaho
 Van Valin, Herbert Waldo, C, N.....Newberg
 VanZante, Herbert D., C, 2.....Oswego
 Varner, Alma Louise, P, 1.....Hillsboro
 Vaughan, Raymond Clifford, C, 2.....Marshfield
 Veal, Percy Fred, C, 2.....Albany
 Veghta, Lois Cornelia, H, 1.....Pasadena,
 Calif.
 Vennewitz, Edward Rosland, ME, 3.....Port-
 land
 Vennewitz, Morris John, CE, 2.....Portland
 Vernon, Hazel Lucille, H, 2.....Lakeview
 Viau, Malcolm, C, 1.....Sanger, Calif.
 Viera, Howard Walter, C, 3.....Corvallis
 Villalon, Roman Camacho, V, 4.....Corvallis
 Villalon, Anastasio Camacho, O, S.....Corvallis
 Vinacke, William, F, N.....Corvallis
 Vissers, Cornelis, A, 3.....Portland
 Voget, Taletta Rachel, V, 2.....Molalla
 Volkmar, Beneva, C, 1.....Myrtle Point
 Volz, Fred Emil, V, 1.....Portland
 Vreeland, Whitney, EE, 2.....Portland
 Wade, Bourke R., IA, 2.....Condon
 Wadleigh, Frank Orville, V, 1.....Van Nuys,
 Calif.
 Wadley, Frederic James, V, 2.....Los Angeles,
 Calif.
 Waggoner, Franklin, C, 2.....Corvallis
 Wagner, Don, A, 1.....Corvallis
 Wagner, Marion, A, 1.....Corvallis
 Wagner, Thomas B., EE, 2.....Portland
 Wagy, Vera Bernice, C, 1.....Tillamook
 Wahlert, William Kolle, A, 1.....Portland
 Wakefield, Alfred Sidney, V, 1.....Milwaukie
 Wakefield, Betty, C, 2.....Los Angeles, Calif.
 Walkem, Ivy Gladys, V, 1.....Portland
 Walker, Allyn Walter, F, 1.....Colusa, Calif.
 Walker, Edeythe Mary, H, 1.....Portland
 Walker, Estevan A., F, 2.....Portland
 Walker, Fletcher, Ch, 1.....Salem
 Walker, Evelyn Laurel, V, 1.....Corvallis
 Walker, Ray W., C, 1.....Waldport
 Wall, Mildred Olive, C, 3.....Tigard
 Wallan, William Lyle, ME, 2.....Moro
 Wallin, Lewis Kenton, V, 3.....Portland
 Wallmark, Dulca, A, V, 1.....The Dalles
 Wallner, Ernest Mason, C, 2.....Portland
 Wain, Alonzo Kehne, A, 2.....Salem
 Walrad, Carmen, V, 2.....Newport
 Walter, Esther Delphine, C, 2.....Milton
 Walters, Elizabeth, V, 3.....Corvallis
 Walthall, Beulah Cox, C, 3.....Corvallis
 Walton, Maurice Selwyn, A, 1.....Parkdale
 Wampler, Alice Elaine, V, 1.....Bellingham,
 Wash.
 Wandel, George G., P, 3.....Corvallis
 Wanichek, Claude, C, 4.....Bend
 Ward, Margaret Charlotte, V, 2.....Portland
 Ward, Thomas Henry, V, 2.....The Dalles
 Ward, William B. Jr., V, 1.....Portland
 Warg, Samuel Allen, F, 2.....Portland
 Warner, Joe S., C, 2.....Santa Ana, Calif.
 Warner, Mary Jean, H, 2.....Albany
 Warner, Vivian Lee, H, 2.....Pendleton
 Warnke, Ruth Elizabeth, V, 2.....Boise, Idaho
 Warnock, Frank William Parlane, E, 1.....
 Portland
 Warren, Joseph Milton, V, 3.....Portland
 Warren, Lawrence Henry, C, 4.....Portland
 Washburn, David, V, 3.....Corvallis
 Waters, Gweneth Katheleen, H, 1.....Myrtle
 Point
 Waters, Wilhma Elizabeth, H, 3.....Guper-
 ville, Calif.
 Watkins, Harlan Burnett, M, 3.....Santa Ana,
 Calif.
 Watkins, Kenneth O., M, 2.....Philomath
 Watson, Patricia Joanne, H, 3.....Wheatland,
 Calif.
 Watzling, Geraldine Agnes, H, 3.....Myrtle
 Point
 Weatherspoon, James Hayes, A, 3.....Halfway
 Webb, Delmar Orville, E, 1.....The Dalles
 Webb, Richard Burrell, ME, 2.....Dallas
 Weber, Bernhard William A., ME, 2.....Port-
 land
 Weber, Clarence R., V, 1.....Corvallis
 Weber, Vera Helen, H, 1.....Portland
 Weberg, Helen Marie, H, 1.....Maupin
 Weddle, Beulah, H, 1.....Stayton
 Wedin, Vernon Elsworth, V, 1.....Gresham
 Weeks, Wayne L., F, 1.....Salem
 Weikel, Ivan W., A, 2.....Dillard
 Weis, Edgar Allen, EE, 3.....Corvallis
 Weisgerber, John Edwin, F, 2.....Portland
 Welch, Dorothy Evelyn, H, 2.....Claremont,
 Calif.
 Welch, Imogene, V, 1.....Dairy
 Welch, Marguerite Eunice, H, 1.....Corvallis
 Wells, Anna Mae Kathrynne, G, 1.....Hillsboro
 Wells, Bruce A., EE, 2.....Portland
 Wells, George James, V, 1.....West Linn
 Wells, Howard A., P, 3.....Hillsboro
 Wells, Keith, F, 1.....Kerby
 Wells, Wilma Doris, V, 4.....Corvallis
 Wenzel, Alose E., ME, 3.....Burns
 Wessel, Louis, F, 3.....Corvallis
 Wessela, Conrad P., F, 2.....Scottsburg
 Wessling, Helen Amelia, V, 1.....Oswego
 West, Chester Willis, A, 1.....Seaside
 West, Kenneth, V, 2.....Knappa
 West, Robert Lackey, A, 2.....Corvallis
 West, Robert Thatcher, C, 1.....Portland
 Westall, Edward Francis, C, 1.....Alhambra,
 Calif.
 Wester, Bertil G. E., C, 1.....Portland
 Wester, Wauneta A., C, 2.....Terrebonne
 Wetterstrom, Louise Katherine, H, 2.....Port-
 land
 Wetzel, Martha Marie, V, 4.....Portland
 Wheaton, Thomas, C, 2.....Raymond, Wash.
 Wheeler, Alexis Ruel, EE, 4.....Eugene

- Wheeler, Charles Merlen, C, 1.....Salem
 Wheeler, Kathleen Ann, O, 2.....Palo Alto, Calif.
 Wheeler, Wallace Eugene, F, 2.....Corvallis
 Whepley, Ruth Hypatia, H, 2.....Lemon Cove, Calif.
 Whipple, Margaret Ruth, A, 2.....Vancouver, Wash.
 Whitcomb, Morrow William, E, 1.....Portland
 White, Clarence Roosevelt, C, 4.....Corvallis
 White, Dorothy Diana, H, 2.....Salem
 White, James Carlos, F, 1.....Port Orford
 White, William Palmer, E, 1.....Garibaldi
 Whitehouse, Hayden B., F, 1.....Astoria
 Whiteis, Helen Georgia, C, 2.....Prineville
 Whitelaw, Helen Margaret, V, 3.....Corvallis
 Whiteside, Harold S., C, 2.....Corvallis
 Whitlock, Gladys, C, 2.....Corvallis
 Whitlock, Louise Velma, C, 1.....Corvallis
 Whittier, M. Judson, C, N.....Juneau, Alaska
 Wicks, Louise, C, 1.....Corvallis
 Widdows, Lyle Edmond, F, 2.....Corvallis
 Wildund, Elva M. H., 2.....Corvallis
 Widmark, Alfred Eric, P, N.....Corvallis
 Wieck, Tressia Charlotte, V, 4.....Corvallis
 Wierdsma, Paul R., A, 4.....Corvallis
 Wiest, Raymond, F, 2.....Portland
 Wieting, John O. G., A, 3.....Corvallis
 Wightman, Marvin Robert, A, 4.....Heppner
 Wilbur, Norman Richard, C, 2.....Hood River
 Wilcox, Ralph R., E, 1.....Ashland
 Wilcox, Richard Holmes, C, 1.....Mosier
 Wildig, Glee, V, N.....Corvallis
 Wiley, David Robert, P, 1.....Portland
 Wiley, Gilbert, V, 1.....The Dalles
 Wiley, Merl Aldeen, C, 1.....Portland
 Wiley, Wilson S., C, 2.....Klamath Falls
 Wilhite, Elsie Doris, C, 1.....Lake Creek
 Wilkes, F. Lyman, P, 4.....Corvallis
 Wilkes, Thomas Marion, Ch, 4.....Corvallis
 Williams, Arthur Edmund, EE, 2.....The Dalles
 Williams, Beauford Richard, C, 2.....Chino, Calif.
 Williams, Brinley, P, S.....Corvallis
 Williams, Bryant Robert, A, 3.....Klamath Falls
 Williams, Charles Kennard, C, 2.....Portland
 Williams, Dermott Philip, C, 1.....Bend
 Williams, George F., Ch, 2.....Portland
 Williams, Jack Ball, C, 1.....San Francisco, Calif.
 Williams, Logan, A, 2.....Klamath Falls
 Williams, Lyle, ME, 2.....Gladstone
 Williams, Rachael, C, 2.....Portland
 Williams, Robert Edward, C, 3.....Corvallis
 Williams, Robert James, M, 1.....Portland
 Willis, Esther, H, 2.....Vancouver, B.C.
 Wilmot, Mary Elizabeth, H, 2.....Eugene
 Wilson, Adrian Arthur, M, 1.....Bend
 Wilson, Alden Reed, IA, 3.....Beaverton
 Wilson, Anne Katharine, C, 1.....Linnton
 Wilson, Ben A., Ch, 1.....Klamath Falls
 Wilson, Carl Groves, C, 2.....Palo Alto, Calif.
 Wilson, Dick Roy, A, 2.....Long Beach, Calif.
 Wilson, Earl, A, 2.....Malin
 Wilson, Frank Henry, A, 4.....Dinuba
 Wilson, Gayford Finley, IA, 4.....Beaverton
 Wilson, Homer Leonard, ME, 3.....Beaverton
 Wilson, Howard Edward, Ch, 2.....Beaverton
 Wilson, James Baker, CE, 2.....Wahiawa, T.H.
 Wilson, Janet, S., V, 3.....Ashland
 Wilson, Julius Robert, C, 2.....Salem
 Wilson, Kenneth Orien, F, 2.....Laurel
 Wilson, Leonard Thomas, M, 2.....Corvallis
 Wilson, Lucille, V, 3.....Milton
 Wilson, Melvin Clayton, IA, 2.....Independence
 Wilson, Merritt Dayton, C, 2.....Portland
 Wilson, Rex Harold, C, 3.....Milton
 Wilson, Thomas Arden, V, 3.....Corvallis
 Windsor, Henry Austin, A, 2.....Corvallis
 Wing, Harold Robert, F, 2.....Astoria
 Winkelman, Paul Frederick, EE, 2.....Portland
 Winkler, Rose Caroline, V, 3.....Portland
 Winkley, Eldon, C, 3.....Corvallis
 Winkley, Eloise Rosaly, H, 2.....Corvallis
 Winks, Gordon William, C, 4.....Portland
 Winne, George Morris, E, 1.....Medford
 Winslow, A. Goden, V, 1.....Portland
 Winters, Fred, C, 4.....Portland
 Wirkkala, Gertrude Kastell, V, 1.....Astoria
 Witcher, Dorothy Mae, G, 1.....Cottage Grove
 Withers, Carl Edward, A, 1.....Newberg
 Withers, Charles H., C, 1.....Portland
 Withers, Louis Alton, C, 1.....Paisley
 Wohlgenuth, Harold M., A, 2.....Newberg
 Wolf, Jane Louise, H, 2.....Roy, Wash.
 Wolfe, G. Kenneth, C, 1.....Corvallis
 Wolfe, Luella Mary, H, 1.....Turlock, Calif.
 Wolfe, Virginia, H, 2.....Piedmont, Calif.
 Wolff, Marian A., C, 4.....San Bernardino, Calif.
 Wood, Delpha Anita, H, 4.....Portland
 Wood, Eleanor Louise, G, 1.....Corvallis
 Wood, Frank M., C, 3.....Corvallis
 Wood, G. Burton, C, 2.....Corvallis
 Wood, Julia Esther, H, 2.....Salem
 Wood, Lyle Robert, C, S.....Mill City
 Wood, Martha Brown, V, 2.....Chehalis, Wash.
 Wood, R. Vincent, A, 2.....Portland
 Woodbury, Ralph Prescott, C, 1.....Portland
 Woodcock, Gertrude Margaret, H, 1.....Corvallis
 Woodcock, W. Darwin, C, 2.....Corvallis
 Woodford, Russell Wayne, EE, 3.....Forest Grove
 Woodgate, Cecil Leroy, C, 1.....San Pedro, Calif.
 Woodle, Charles Leslie, A, 1.....Eagle Creek
 Woodman, William Raymond, C, 1.....Portland
 Woodruff, Virginia, C, 1.....Corvallis
 Woodruff, Winifred, C, 2.....Medford
 Woods, Chester Yngve, IA, 2.....Ashland
 Woods, Ernest Lester, ME, 4.....Dufur
 Woods, Ethan, A, 2.....Moro
 Woodward, Helen Lou, V, 3.....Portland
 Woodward, Walter Alex, V, 2.....Portland
 Woodworth, Hazel Aline, C, 2.....Sixes
 Woodworth, Willard, C, 1.....Yuba City, Calif.
 Workman, Grace Irene, H, 2.....Corvallis
 Worrell, Mary Elizabeth, H, 3.....Albany
 Worth, Bliss Leonard, IA, N.....Multnomah
 Wrenn, Kenneth Eugene, C, 4.....Corvallis
 Wrenn, Robert E., C, 3.....Corvallis
 Wright, Eleanor Faye, H, 1.....Salem
 Wright, Eloise, H, 4.....Salem
 Wright, Joe Harris, E, 2.....Klamath Falls
 Wright, Kenneth Sheldon, ME, 2.....Portland
 Wright, Mary Doris, H, 1.....Mayville
 Wright, Norman Philip, V, 2.....Portland
 Wright, Richard Clifton, ME, 4.....Portland
 Wrotnowski, Adalbert, F, N.....Albany, B.C.
 Wurster, Roland Bauer, V, 2.....Aurora
 Wyckoff, Clifford, Ch, 1.....Hoquiam
 Wylie, Carroll George, P, 2.....Hagelton, Idaho
 Wyman, Daphne Ada, V, 1.....Albany
 Wymer, William Claude, V, 2.....Corvallis
 Yeates, Jesse James, V, 2.....Corvallis
 Yerian, Charles Theodore, C, 2.....Harrisburg
 Yerkovich, Simon, EE, 2.....Portland
 Yocum, Thurston Lloyd, Ch, 1.....Corvallis
 Young, Clair F., C, 2.....Ione
 Young, Frances Elizabeth, C, 4.....San Francisco, Calif.
 Young, Helen Alice, H, 1.....Ontario

Young, Inez, H, 3.....Hood River
 Young, Joseph, P, 4.....Salem
 Young, Sayles, V, 3.....Corvallis
 Young, Ted Althouse, C, 4.....Albany
 Younge, Stanford Brent, C, N.....Albany
 Yurri, Dolores Lola, C, 2.....Jordan Valley
 Yundt, Clarence Paul, C, 1.....Corvallis
 Zane, Edward William, F, N.....Corvallis
 Ziegler, Robert Bernard, P, 1.....Seattle, Wash.
 Zimmer, Elvira Mae, H, 2.....Portland

Zimmerman, Margaret Francis, H, 1.....Portland
 Zimmermann, Oswald, EE, 2.....Portland
 Zimrick, John William, EE, 3.....Roseburg
 Zinn, Robert K., A, 1.....Portland
 Zollman, Harry, F, 2.....Klamath Falls
 Zorn, Raymond Harmon, C, 1.....Claremont, Calif.
 Zumwalt, Edwin Bruce, V, 4.....Portland
 Zurcher, Glenn Werner, C, 2.....Hillsboro

SUMMER SESSION STUDENTS 1930

Aasen, Elda M.....Myrtle Point
 Aasen, Magdelene Louise.....Minneapolis, Minn.
 Abraham, Edith Margaret.....Corvallis
 Abraham, Elizabeth.....Corvallis
 Abraham, Helen.....Corvallis
 Adams, Mrs. Edna Louise.....Fresno, Calif.
 Adams, Orville Daniel.....Salem
 Adams, Francis T.....Portland
 Albert, Arthur Lemuel.....Corvallis
 Albertson, Earle F.....Halsey
 Albertson, Esther Evelyn.....Halsey
 Alcott, Arabel.....Spokane, Wash.
 Allen, Franklin Ellis.....Pendleton
 Alvin, Betty Mae.....Lebanon
 Andersen, Frances Louise.....Salem
 Anderson, Dorothy Louise.....Portland
 Anderson, E. Gertrude.....Salem
 Anderson, Leslie B.....Corvallis
 Anderson, Martin G.....Corvallis
 Aprill, Joe.....Snohomish, Wash.
 Archibald, Mrs. Hazel Hall.....Albany
 Arnold, Medford R.....Susanville, Calif.
 Ash, Alice Arnold.....Corvallis
 Ash, Ruth Ellen.....Corvallis
 Ashworth, Phillip B.....Lincoln, Neb.
 Atwood, Grace G.....Corvallis
 Atwood, Jewel Louise.....Corvallis
 Ayer, Ethel L.....Portland
 Ayres, Mildred.....Corvallis
 Bailey, Allen A.....Eugene
 Bailey, Raymond G.....Huntington Park
 Baird, Fred J.....Corvallis
 Baird, Philip M.....Corvallis
 Baker, Lloyd V.....Carlton
 Bales, Margaret Leah.....Corvallis
 Bandy, Edith C.....Corvallis
 Barnwell, Earl E.....La Grande
 Barton, Victor P.....San Gabriel, Calif.
 Bateman, Harry W.....Milton
 Beach, Kenneth.....Corvallis
 Beals, Ernest Leslie.....Corvallis
 Beals, Oliver K.....Corvallis
 Bean, Lucy Isabel.....Junction City
 Bear, Mary Lillian.....Albany
 Bear, Thelma Eugenia.....Albany
 Beck, Mary.....Corvallis
 Beckley, Vesta Bernice.....Roseburg
 Bedford, Mrs. Mary Dresser.....Lewiston, Idaho
 Beecroft, Al R.....Arroyo Grande, Calif.
 Beers, Russell Foster.....Ontario
 Beldner, Joseph.....Corvallis
 Belden, Kate Weir.....Corvallis
 Belknap, Janis Anne.....Ontario
 Benefield, Velma L.....Corvallis
 Benham, Henry L.....Airlie
 Bennett, Edith Mary.....Corvallis
 Bennett, Hazel I.....Oakland, Calif.
 Bennett, Mary.....Tangent
 Beunion, Deane.....Provo, Utah

Beougher, Ethel Olive.....Bend
 Bergholz, Mabel Cady.....Sedro Woolley, Wash.
 Berndt, Florence Ernestine.....Salem
 Bertram, Mary.....Corvallis
 Billing, Mary.....Corvallis
 Binns, Gertrude Barbara.....Gonzales, Calif.
 Binns, Mary Anderson.....Gonzales, Calif.
 Black, Robert James.....Corvallis
 Blackmore, Brian Baxter.....Oamaro, New Zealand
 Blackler, Ronald Canady.....Portland
 Blackwood, Jimmie A.....Bisbee, Ariz.
 Blake, Jean Esther.....Corvallis
 Blow, Grace Hayward.....Los Angeles, Calif.
 Boan, Ruth Harriet.....Raton, N.M.
 Boersma, Frank.....Amity
 Boileau, Marie Clerinda.....Eastside
 Bonebrake, Donald Clinton.....Corvallis
 Bonge, Mildred May.....Corvallis
 Bonney, Zaidee Elizabeth.....Tacoma, Wash.
 Booth, A. Elizabeth.....Saratoga Springs, N.Y.
 Booth, Claud L.....Indio, Calif.
 Booth, Marjorie Patsy.....Anaheim, Calif.
 Botch, Henry Kasper.....Wibaux, Mont.
 Bourhill, Elizabeth.....Portland
 Bowman, Dewey D.....Acme, Wash.
 Bowen, Elva Merle.....Silverton
 Boyle, Mamie Alberta.....Portland
 Bramwell, Mary E.....Grants Pass
 Brandt, Harriette Anne.....Corvallis
 Brew, Margaret Louise.....Evanston, Ill.
 Brown, Edwin Fuller.....Vancouver, Wash.
 Brown, Esther Louise.....Drain
 Brown, George W.....Portland
 Brown, Lois.....Corvallis
 Browne, Lillian.....Reno, Nev.
 Bryan, Norma.....Salt Lake City, Utah
 Buchanan, Alice Leah.....Corvallis
 Bump, Celia Elvira.....Gervais
 Bump, Harold Wilson.....Airlie
 Bump, Victor L.....Airlie
 Burch, Berta.....Portland
 Burgess, Gladys.....Coquille
 Burke, Mrs. Edna Lawrence.....Dallas
 Burke, Kendall E.....Dallas
 Burmaster, Clyde Howard.....Sedro Woolley, Wash.
 Bush, Marjorie Lydia.....Bridal Veil
 Butler, Wesley Homer.....Corvallis
 Calkins, Estelle Josephine.....Mount Vernon, Wash.
 Callaway, Edward C.....Corvallis
 Cameron, James William.....Sunnyvale, Calif.
 Cameron, Lelia Marguerite.....Fairfield, Calif.
 Campbell, Max.....Corvallis
 Cantril, Nelson Elmer.....Keenesburg, Colo.
 Carlike, Harold P.....Corvallis
 Carlike, Helen Roe.....Corvallis
 Carlsen, Clifford Norman.....Kent, Wash.
 Casiday, Henry Arthur.....Corvallis

Cavender, Noel Cedric.....	Portland	Eickworth, Blanche.....	Empire
Chaffee, Dorothea Lucile.....	Bloomington, Calif.	Eilers, Vernon.....	Aurora
Chamberlin, Esther Jane.....	Corvallis	Elam, Ivan L.....	Corvallis
Chandler, Mrs. Marjorie.....	Mountain View, Calif.	Elkins, Katharine Jane.....	Prineville
Charlton, Ivy E.....	La Grande	Elle, Ralph Carl.....	Portland
Chatburry, Tom.....	Merrill	Elliott, Irving Cushman.....	Corning, Calif.
Ciliax, Ralph G.....	Pasadena, Calif.	Elliott, Marian E.....	Corvallis
Claassen, Ruth L.....	Vancouver, Wash.	Elliott, Marjorie B.....	Portland
Clark, Fay Bernice.....	Rieth	Emmett, Mildred Rozetta.....	Albany
Clark, Helen.....	Valley Center, Kan.	English, Georgia M.....	Marshfield
Clemens, Gertrude.....	Portland	Esselatyn, Lillie Myrene.....	Pendleton
Clemo, L. Mae.....	Albany	Evans, Lena Sherman.....	Portland
Clinton, Harry Forest.....	Corvallis	Evans, Nell R.....	Norman, Okla.
Cochran, Helen.....	Albany	Fait, Edwin P.....	Everett, Wash.
Colbry, Vera L.....	Tangent	Fait, Eva L.....	Walla Walla, Wash.
Cole, Violette.....	Roseburg	Farr, Raymond B.....	Everett, Wash.
Coleman, Delia Garrett.....	Corvallis	Feathers, Juanita.....	Portland
Coleman, Grace Louise.....	Corvallis	Fehlman, Avalyn Lorilla.....	Corvallis
Conson, John Elliott Jr.....	East Greenwich, R. I.	Feikart, Grant.....	Corvallis
Copple, Irvin C.....	San Jose, Calif.	Finnerty, George Edwin.....	Albany
Coppoch, Madge Bernice.....	Salem	Fish, Florence.....	Pasadena, Calif.
Cordley, Dorothea McLouth.....	Corvallis	Fitch, Albert H.....	Medford
Correll, Howard Lowell.....	Corvallis	Flegel, Dorothy.....	Portland
Corry, Chester E.....	Portland	Fletcher, Edna H.....	Redlands, Calif.
Coulter, Luella Dorothy.....	Corvallis	Fletcher, Elizabeth May.....	Portland
Cowan, Anna W.....	Sacramento, Calif.	Fletcher, Homer M.....	Whittier, Calif.
Coyner, Elmer Leroy.....	Newberg	Flood, Gerhard Ragnwald.....	Westport
Crider, C. Van.....	Dallas	Foges, Aleece.....	Oakland, Calif.
Croker, Frances May.....	Salem	Fontaine, Marjorie Elizabeth.....	Jeferson
Cronquist, Elvera.....	Corvallis	Foster, Esther Gertrude.....	Powell Buttes
Crumly, Mrs. Charles L.....	Corvallis	Fox, Alice Eleanor.....	Phoenix, Ariz.
Cummins, Mildred Louise.....	Yaquina	Frame, Verda Arzella.....	Ferndale, Calif.
Dale, Helen Mary.....	Wallowa	France, Frank Lloyd.....	Corvallis
Dales, Edward Lemont.....	Cheney, Wash.	Frayer, William John.....	Los Angeles, Calif.
Dalton, Bertha.....	Corvallis	Frederick, Evert Kaempen.....	Durham, Calif.
Dalton, Charles.....	Corvallis	Fulton, Leroy.....	Longview, Wash.
Daniels, Aletha Jean.....	Franklin, Neb.	Funk, Chandos M.....	San Luis Obispo, Calif.
Davis, Doris Jeanette.....	Corvallis	Funk, Helen Faye.....	Portland
Davis, Laura.....	Corvallis	Funk, Walter A.....	San Luis Obispo, Calif.
Davis, Lempie Maria.....	Portland	Galloway, Fred C.....	Susanville, Calif.
Davis, Marion A.....	Corvallis	Gambero, Vivja Barbara.....	Corvallis
Davis, Marjorie B.....	Corvallis	Gardiner, William Benson.....	St. Helena, Calif.
Davis, Marion R.....	Anaconda, Mont.	Gardner, Doris Faith.....	Portland
Davis, Mrs. Merle Bonney.....	Corvallis	Gardner, Irma Natalie.....	Bremerton, Wash.
Davis, Verna Belle.....	Sacramento, Calif.	Garrison, Elmer Walter.....	Corvallis
Davolt, Bertha.....	Kelso, Wash.	Gates, William A.....	Silverton
Dawdy, Charles.....	Kelso, Wash.	Geddes, Robert Paul.....	Linnton
DeLay, Gale.....	Silverton	Gerlach, Walter Carl.....	Payette, Idaho
DeLay, G. W.....	Silverton	Gerou, Irene.....	Astoria
Delzell, Thelma Dorcas.....	Turner	Gilbert, Katherine Asbahr.....	Salem
DeTemple, Rita Lucille.....	Portland	Gill, Eugene L.....	Salem
Dickinson, Bessie Stoakes.....	Vancouver, B. C.	Gillespie, Evase Lewis.....	Exeter, Calif.
Dickinson, Leah Anne.....	Spokane, Wash.	Gillespie, Mrs. Jennie Murray.....	Exeter, Calif.
Digmer, Clarence E.....	Portland	Glandon, Leland Ora.....	Berkeley, Calif.
Dilley, Glyde.....	Sheridan	Glann, Mildred.....	Albany
Ding, Mae Lang.....	Corvallis	Goble, W. D.....	Edmond, Wash.
Dixon, Beatrice M.....	Molalla	Godman, John.....	Dexter
Dixon, Marvin Edward.....	Molalla	Goetz, Helen Esther.....	Albuquerque, N. M.
Dizney, Clarence Luther.....	The Dalles	Goff, Alma.....	Corvallis
Dodele, Pearl Agnes.....	Albany	Goff, Roly D.....	Oakland
Doerner, Elsa.....	Grants Pass	Goin, James S.....	Tillamook
Dougherty, Clare V.....	Corvallis	Goldman, Ysabel.....	Corvallis
Douglass, Ruth.....	Tempe, Arizona	Gollinger, Grace Inez.....	Grandview, Wash.
Dukeshier, Ruth Edith.....	Corvallis	Gordon, Irene Deborah.....	Pasadena, Calif.
Duncan, Charles Anderson.....	Seattle	Gordon, Mildred Lee.....	Dwight, Ill.
Duncan, Eugene.....	Portland	Graf, Vera Helene.....	Shedd
Dunn, Burton W.....	Corvallis	Graham, Ford Everett.....	Calgary, Canada
Dunning, Marilla Caroline.....	Stanfield	Graham, Nina Jean.....	Arcata, Calif.
Dutro, John A.....	Corvallis	Greene, Lloyd M.....	Eugene
Eddy, Edith Mable.....	Tacoma, Wash.	Griffee, Leroy Daniel.....	Corvallis
Ede, Geraldine.....	Polson, Mont.	Griffee, Mrs. Lucy W.....	Corvallis
Ede, Grace Keeler.....	Polson, Mont.	Griffin, Z. Wayne.....	Los Angeles, Calif.
Edlepen, Charlotte.....	Portland	Guderian, Clarence Alton.....	Bend
Edwards, Louis Earl.....	Chico, Calif.	Guiss, Helen McKinney.....	Woodburn
Egelston, Clay.....	Stayton	Gurley, Wayne.....	Canby
EGgebrecht, Herman William.....	Vida, Mont.	Haan, Clarence M.....	Ashland
		Hairgrove, Helen Jane.....	Glendale, Calif.
		Hairgrove, Mary Frances.....	Modesto, Calif.

Hall, Dorothy Laura.....	Portland	Kelley, Fern Elizabeth.....	Corvallis
Hall, Thomas C.....	Corvallis	Kelsey, Stella.....	Richmond, Ind.
Halston, Merga Alyce.....	Beaverton	Keltner, Claire Dryden.....	Arago
Halverson, Hazel B.....	Wapato, Wash.	Kemp, Neita Mariece.....	Corvallis
Hamilton, Mary Isabella.....	Albany	Kerwin, Hugh.....	Klamath Falls
Hamm, Robert Leland.....	Roseburg	Ketchum, Adelaide Henrietta.....	The Dalles
Hankey, Albertina S.....	Portland	Kidder, Russell.....	Chico, Calif.
Hanson, Marion.....	Portland	King, Charles William.....	Corvallis
Hardman, Vera.....	Olympia, Wash.	King, Harold William.....	Grants Pass
Harrington, Ethel.....	Corvallis	Kirkland, Eliza.....	Corvallis
Harris, Fay.....	Corvallis	Kittle, Dean F.....	Cairo, Ohio
Harris, Zola May.....	Corvallis	Kittle, Lucille W.....	Cairo, Ohio
Hart, Miriam Gertrude.....	Dallas	Klann, J. Marion.....	Madras
Harvie, David Harrison.....	Albany	Klein, Ralph E.....	Medford
Hathaway, Lela Bertha.....	Corvallis	Klitz, Alton Edward.....	Boardman
Heider, Zelda Marguerite.....	Sheridan	Klock, Charlotte Franciel.....	Seattle, Wash.
Heinbach, Ernest Robert.....	Tualatin	Knowlton, Edna Martha.....	Vancouver, B.C.
Henagin, Luella L.....	Coburg	Koogle, Millard S.....	Corvallis
Henagin, Robert Lee.....	Coburg	Koshland, Theodore C.....	Portland
Henningsen, Dorothea K.....	Portland	Kostenbauder, Miles M.....	Aristes, Penn.
Henry, Donna Belle.....	Corvallis	Kosydar, Caroline Ellen.....	Toledo
Herbert, Janet Vance.....	Corvallis	Kurtz, William Henry.....	Portland
Herrin, Thelma.....	Rye Valley	Kutch, Helen Eugenia.....	Corvallis
Hexberg, Jesse C.....	Oakland, Calif.	Kutch, Lucille Clair.....	Corvallis
Hill, Martha Helen.....	Independence	Lamar, Pauline.....	Corvallis
Hiller, Mrs. Undine Mildred.....	Corvallis	Landes, Alfred V.....	Corvallis
Hindman, Louise.....	Baker	Landes, Clarence Harvey.....	Corvallis
Hiukka, Selma Lydia.....	Cloquet, Minn.	Lauder, Lorne R.....	Stevensville, Mont.
Hoffman, Charles S.....	Vernonia	Lansing, Joy Wesley.....	Walla, Wash.
Hoffman, Isabelle.....	Oakland, Calif.	Lawrence, Jannis Harlan.....	Corvallis
Holcomb, Glenn Willis.....	Corvallis	Lawrence, Maurice William.....	Corvallis
Holzer, Charles Emil.....	Portland	Lawrence, Olive Isabel.....	Portland
Hoppin, Wilma Alta.....	Minneapolis, Minn.	Lawrence, Robert W.....	Corvallis
Horning, Alice.....	Grants Pass	Lawson, George C.....	Burlingame, Calif.
Houser, Jacob Jackson.....	Corvallis	Lay, Myrtle Edna.....	Molalla
Howard, Mabel Frances.....	Albany	Ledbetter, Victor Clarence.....	Elk Grove, Calif.
Howden, Florence Helena.....	Vancouver, B.C.	Lee, George Olin.....	Prosser, Wash.
Howey, Eva May.....	Corvallis	Lee, June M.....	Lebanon
Hudson, Loring Gardner.....	Corvallis	Lee, R. S.....	Honolulu, T. H.
Hughes, Marguerite Rowena.....	Stanford, Mont.	Leep, Phyllis La Vera.....	Corvallis
Hulac, Helen Georgia.....	Sheridan	Leland, Fleeta.....	Dundee
Hunting, E. Alvin.....	Pomeroy, Wash.	Lindros, Faith Elнора.....	Corvallis
Hyslop, Sue.....	Corvallis	Lippert, Theodore Gerhart.....	Corvallis
Imbler, Ray M.....	Dallas	Lloyd, Edith Josephine.....	Corvallis
Ingalls, Alice L.....	Corvallis	Lloyd, Josephine Cummings.....	Corvallis
Ingels, Frank Boone.....	Dufur	Lloyd, Phillip W.....	Corvallis
Ingels, James S.....	Dufur	Lockwood, Mary Cate.....	Albany
Ingle, Marjorie Jean.....	Albany	Lockwood, Percy Albert.....	Albany
Inlow, Alice Alexander.....	La Grande	Long, Mrs. Esther Tauner.....	Fullerton, Calif.
Inlow, Hope.....	La Grande	Lufkin, Zella Gertrude.....	Bakersfield, Calif.
Irvine, Fay Joice.....	Independence	Lund, Helen.....	Corvallis
Irvine, Jessie May.....	McMinnville	Lyons, Helen.....	Marshfield
Isbister, I. Annabelle.....	St. Helens	McAllister, Laura Cornelius.....	Corvallis
Jackson, Virgil D.....	Corvallis	McCall, J. T.....	Randle, Wash.
Jackson, William Ceamore.....	Corvallis	McCauley, Anetta Etta.....	Dufur
Jacobsen, Amy Elizabeth.....	Bremerton, Wash.	McCauley, Irene.....	Winslow, Ariz.
Janzen, Barbara Susanne.....	Corvallis	McCaw, Mary Dell.....	Wilder, Idaho
Janzik, John Francis.....	Portland	McClain, Mary Oakes.....	Grants Pass
Jenkins, Margaret M.....	Hanford, Calif.	McCoy, Friede.....	McMinnville
Jenks, Forena.....	Albany	McCrosen, Mrs. Genevieve.....	Chino, Calif.
Jensen, Dorothy Lillian.....	Newport	McCullough, Marian Katherine.....	Corvallis
Jensen, Jud.....	Susanville, Calif.	McDonough, Madaline Ann.....	Eugene
Johnson, Alice.....	Corvallis	McDowell, J. Paul.....	Philomath
Johnson, Alice K.....	Forest Grove	McHenry, Martha Gertrude.....	Corvallis
Johnson, Edith G.....	Portland	McKalip, William W.....	Corvallis
Johnson, Georgia Helen.....	Portland	McKillop, Donald.....	Corvallis
Johnson, Gladys Viola.....	Corvallis	McKinney, J. Mark.....	Corvallis
Johnson, Lola Ernestine.....	Wallowa	McLin, Floyd E.....	Cottage Grove
Johnson, Martin Fred.....	Eugene	McStay, Laura May.....	Corvallis
Johnson, Ronald Lee.....	Corvallis	Mackenzie, Gordon S.....	Portland
Johnson, Selma J.....	Salem	Mackenzie, Thomas T.....	Salem
Johnstone, Arthur Eugene.....	Corvallis	Madis, Margaret H.....	Seattle, Wash.
Jones, Mrs. Anna C.....	Spokane, Wash.	Maggart, Isabell.....	Burley, Idaho
Jones, Casey Stacey.....	Everett, Wash.	Malley, George Leo.....	San Francisco, Calif.
Jubitz, George.....	Portland	Mann, Magdaline Lucinda.....	Portland
Kauffman, Clara Virginia.....	Corvallis	Manning, Juanita Chaney.....	Corvallis
Keiser, Lura.....	Corvallis	Manuel, Alice.....	Grants Pass
		Marcellus, Alice Bertha.....	Vancouver, B.C.

Marcus, Helen.....	Salem	Pease, Harvey Diers.....	Portland
Marsh, Ida Belle.....	Boise, Idaho	Peck, Earl B.....	Filer, Idaho
Martin, Charlotte Mabel.....	Victoria, B.C.	Peck, Nella B.....	Corvallis
Mayne, Ada Reed.....	Portland	Perry, Rose Augusta.....	Grants Pass
Mays, Flora F.....	Vancouver, Wash.	Perry, Walter LeRoy.....	Grants Pass
Mazza, Merwyn.....	Corvallis	Peterson, John Robert.....	Turlock, Calif.
Meehan, Bessie Hoopes.....	Portland	Peterson, Sigurd Harlan.....	Corvallis
Mears, Mary Lee.....	Corvallis	Peterson, Sylvia Brice.....	Turlock, Calif.
Mellinger, Blanche.....	Newberg	Phillips, Doris.....	Marshfield
Mentzer, Leland A.....	Medford	Phillips, Carol Brown.....	Portland
Merrill, Fleta Ilo.....	Hardman	Phipps, Wendell Thomas.....	Freewater
Merrill, Frank Irving.....	Corvallis	Pike, Mildred Ann.....	Eugene
Merrill, Howard.....	Corvallis	Pinckard, Florence L.....	Banks
Merrill, Mabry O.....	Monument	Plowman, Beryl Geraldine.....	Vader, Wash.
Mickalson, Gwendolyn.....	Corvallis	Pocklington, Martha Jane.....	Alpine
Mickelson, Odine Norman.....	Eugene	Poling, Dan Williams.....	Corvallis
Milam, Laura Jo.....	Corvallis	Porter, Beulah Marie.....	La Fayette
Miler, Ruth T.....	Berkeley, Calif.	Potter, Geneva Mae.....	Redlands, Calif.
Miles, Anna Afton.....	Salem	Powell, Garland M. Schmidt.....	Corvallis
Miller, Bernice L.....	Wichita, Kan.	Powers, Myron John.....	Corvallis
Miller, Bessie May.....	Los Angeles, Calif.	Pratt, Marguerite Blackman.....	Corvallis
Miller, Estelle E.....	Corvallis	Price, Cora Natalie.....	Corvallis
Miller, Ethel McLain.....	Monmouth	Purvine, Maud C.....	Corvallis
Miller, Florence Ruth.....	Corvallis	Prizer, Robert.....	Marshfield
Miller, Mary Irene.....	Corvallis	Quocheck, Teresa Harriette.....	Enumclaw, Wash.
Miller, Paul Charles.....	Wichita, Kan.	Raber, Elsa R.....	Corvallis
Milne, Cecil R.....	Rickey, Mont.	Radford, Irene.....	Corvallis
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Moser, Esther A.....	Sherwood	Robley, Elizabeth.....	Portland
Mountjoy, Opal M.....	Chemawa	Rogers, Bob.....	Corvallis
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Nixon, Richard Alexander.....	Pilot Rock	Rygg, G. Leonard.....	Clifford, N.D.
Nordgren, Lilly M.....	Corvallis	Sandry, Gladys Clem.....	Rogue River
Notvedt, Marian Olymphia.....	Corvallis	Sargent, Elizabeth Margaret.....	Alameda, Calif.
O'Neil, Clara Elizabeth.....	Corvallis	Schaney, Florence Joan.....	Portland
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Oldham, Dan.....	Lebanon	Schepman, Echo P.....	North Bend
Oliver, Mary Elizabeth.....	Spokane, Wash.	Schepman, Fred Foster.....	North Bend
Olson, Rebecca Marie.....	Turlock, Calif.	Schepman, Helen Elizabeth.....	Grants Pass
Onorato, Horace N.....	Corvallis	Schneider, Virginia Ella.....	Corvallis
Onorato, Mrs. Rose A.....	Corvallis	Schrepel, Marie Fredereka.....	Corvallis
Osika, Clarence Stanley.....	Monmouth	Schuster, John Clement.....	Petaluma, Calif.
Owens, Graham Joseph.....	Kansas City, Mo.	Schwiening, Walter Henry.....	Corvallis
Painter, Mae.....	Corvallis	Scott, Delbert Shelby.....	Corvallis
Park, Mary Margaret.....	Sank, Wash.	Scott, Elizabeth Estelle.....	Jordan Valley
Parker, Ralph Walton.....	Corvallis	Scott, Evelyn.....	Corvallis
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Parr, E. Margaret.....	Fairfield, Calif.	Scott, George Thomas.....	Baker
Partch, Grace E.....	Greenacres, Wash.	Scott, Naomi Coleman.....	Corvallis
Partridge, Beth.....	Monmouth	Seitz, Anna Mae.....	Winlock
Patrick, Roy.....	Napa, Calif.	Senn, Virginia Elizabeth.....	Dayton
Patterson, Frank George.....	Salem	Seydel, Lee Harris.....	Corvallis
Payne, Frances Dorris.....	Alturas, Calif.	Sharrow, Bess M.....	Monmouth

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Simpson, Elizabeth Parkinson.....	Albuquerque, N.M.	Walden, Lillian E.....	San Jose, Calif.
Simpson, Scott.....	Portland	Walker, Elcy Nova.....	Forest Grove
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Smith, Anita Sayles.....	Stockton, Calif.	Walker, Nile Raymond.....	Richey, Mont.
Smith, Mrs. Irene H.....	Corvallis	Walker, Ruby A.....	Seattle, Wash.
Smith, Mahlon Brewster.....	Corvallis	Walters, Elizabeth.....	Corvallis
Smith, Margaret Ruth.....	Salem	Walthall, Beulah Cox.....	Oakland, Calif.
Smith, Margaret Wayland.....	Coupeville, Wash.	Ward, Chester Lewis.....	Corvallis
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Smith, Sylvia D.....	Salt Lake City, Utah	Warren, Betty.....	Corvallis
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Spencer, John Calvin.....	Fort Bidwell, Calif.	Wessel, Louis.....	Klamath Falls
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Stalker, Richard.....	Portland	Widlund, Elva M.....	Denair, Calif.
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Thompson, Royal Burleigh.....	Stillwater, Okla.	Wrenn, Robert E.....	Corvallis
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Thorall, Ivan.....	Corvallis	Young, Carl.....	Pocatello, Idaho
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Tolin, Elizabeth Dena.....	Corvallis	Young, Joseph.....	Salem
Tompkins, Mary A. Rogers.....	Boring	Young, Ted A.....	Albany
Torgerson, Mrs. H. J.....	Corvallis	Young, William Nelson.....	Kuna, Idaho
Treat, Lurena Alta.....	Falls City	Young, Zelma.....	Pocatello, Idaho
Turk, Eula Leone.....	Vancouver, Wash.	Youngs, Beulah M.....	Corvallis
Turk, Vivian Edith.....	Vancouver, Wash.	Zimmerdahl, Frank W.....	Clatskanie
Turnbull, James Lockhart.....	Ontario	Zimmerman, Davis Ruth.....	Portland

Enrollment Statistics

REGISTRATION, REGULAR SESSION, 1930-31

	Fr.	So.	Jr.	Sr.	Sp.	Nd.	Total
Undergraduate students—							
Agriculture	135	113	47	54	8	7	364
Chemical Engineering	54	39	22	9		2	126
Commerce	368	310	129	139	6	13	965
Engineering	270	204	81	104	9	14	682
Civil							88
Electrical							145
Industrial Arts							84
Mechanical							123
Forestry	55	64	30	23	3	7	182
General	45						45
Home Economics	169	144	58	64	2	5	442
Mines	14	13	6	4			37
Optional	6	12			2		20
Pharmacy	45	47	30	15	1	7	145
Vocational Education	158	199	78	96	5	13	549
Total undergraduate students.....	1,319	1,145	481	508	36	68	3,557
Graduate students							137
Total, Regular Session.....							3,694

REGISTRATION, ALL SESSIONS, 1930-31

Regular Session	3,694
1930 Summer Session	1,423
Short Courses and other Non-Collegiate	401
Auditors	52
Grand Total	5,570

MEN AND WOMEN STUDENTS, 1930-31

	Men	Women	Total
Regular Session	2,532	1,162	3,694
Summer Session	534	889	1,423
Short Courses	205	248	453
Totals	3,271	2,299	5,570

DEGREES CONFERRED, JUNE 1, 1931

	Men	Women	Total
Total Masters' degrees	26	8	34
Total Bachelors' degrees	325	168	493
Total other degrees and diplomas	7	5	12
Totals	358	181	539

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