OREGON
State System of
Higher Education
BULLETIN

Oregon State Agricultural College Catalog 1933-34

With List of Students for 1932-33

Corvallis, Oregon

Oregon State Agricultural College

CATALOG

1933-34

Corvallis, Oregon

Oregon State System of Higher Education

BULLETIN

Issued Monthly

No. 15 September 1933

Entered as second-class matter, Dec. 24, 1932, at the postoffice at Eugene, Oregon, under Act of August 24, 1912, with points of additional entry at Ashland, Corvallis, La Grande and Monmouth.

Published by
Oregon State Board of
Higher Education
Eugene, Oregon

TABLE OF CONTENTS

Lower Division and Service Departments

Graduate Division

State Board of Higher Education

	Term expires
C. A. Brand, Roseburg	1934
E. C. Sammons, Portland	1935
C. L. Starr, Portland	1936
B. F. Irvine, Portland	1937
C. C. Colt, Portland	1938
Herman Oliver, John Day	1939
Cornelia Marvin Pierce, LaGrande	1940
F. E. Callister, Albany	1941
G. B. McLeod, Portland	1942

OFFICERS

C. L. Starr	President
C. C. Colt	Vice-President
B. F. Irvine	Treasurer

EXECUTIVE COMMITTEE

C. L. Starr

C. C. Colt

E. C. Sammons

Oregon State System of Higher Education

THE Oregon state system of higher education, as organized in 1932 by the State Board of Higher Education following a Federal Survey of higher education in Oregon, includes all the state-supported institutions of higher learning. The several institutions, located at six different places in the state, are now elements in an articulated system, parts of an integrated whole. The educational program is so organized as to distribute as widely as possible throughout the state the opportunities for general education and to center on a particular campus specialized technical and professional curricula closely related to one another.

The institutions comprising the state system of higher education include the University of Oregon at Eugene, Oregon State Agricultural College at Corvallis, the University of Oregon Medical School at Portland, the Oregon Normal School at Monmouth, the Southern Oregon Normal School at Ashland, and the Eastern Oregon Normal School at La Grande.

Except at the Medical School, which is on a graduate basis, each institution provides the general and disciplinary studies essential to a well-rounded education. At the three normal schools these general studies are combined with professional training in two-year curricula. At the University and the State College, however, opportunity is provided for full two years of unspecialized lower division work in liberal arts and sciences.

Beyond the lower division level the work of the two institutions is distinctly differentiated. At the University are centered the advanced work in the arts, letters, and social sciences and the professional schools most closely related to these fundamental fields of knowledge. At the State College are centered the advanced work in the physical and biological sciences and the technical and professional schools resting essentially on these natural sciences.

The instruction thus developed, as shown in the following insert, comprises three classes: non-professional training in the arts and sciences; (2) professional and technical training; (3) preparation for teaching.

The Oregon State Sy

Comprising the following institutions: University of Oregon, Eugene; U
Southern Oregon Normal School, Ashland; Oregon Nor

Liberal Arts and Sciences

At University and State College

LOWER DIVISION

At both University and State College

Freshman and sophomore work in Liberal Arts and Sciences (Language and Literature, Science including Biological and Physical Science and Mathematics, and Social Science) is offered on essentially the same basis at both the University and the State College.

UPPER DIVISION AT THE UNIVERSITY

College of Arts and Letters, B.A., M.A., Ph.D. degrees

Major curricula in English Language and Literature including Drama and Play Production, German, Greek, Latin and Romance Languages.

College of Social Science, B.A., B.S., M.A., M.S., Ph.D. degrees

Major curricula in General Social Science and in the special sciences of Economics, Geography, History, Philosophy, Political Science, Psychology and Sociology.

UPPER DIVISION AT THE STATE COLLEGE

School of Science, B.A., B.S., M.A., M.S., Ph.D. degrees

Major curricula in General Science and in the special sciences of Bacteriology, Botany, Chemistry, Entomology, Geology, Mathematics, Physics and Zoology.

Professional an

AT THE UNIVERSITY OF OREGON

***Business Administration**, B.B.A., B.A., B.S., M.B.A. degrees

Accounting, Advertising, Finance, Foreign Trade, General Business, Industrial Management and Personnel Management, Labor Management; Business Administration Education; combination curriculum in Business Administration and Law.

***Education**, B.A., B.S., M.A., M.Ed., D.Ed., Ph.D. degrees

See Preparation for Teaching, High School Teacher Training.

***Fine Arts**, B.A., B.S., B.M., B.Arch., B.L.A., M.Arch., M.F.A. degrees

Architectural Design, Landscape Architecture (with one year at Corvallis), Painting, Sculpture, General Art, Applied Design, Normal Art; Music (Music Appreciation, Theory and Composition, Applied Music), Structural Design in Architecture, a joint curriculum with Engineering.

***Journalism**, B.A., B.S., M.A., M.S. degrees

Journalism including advertising and publishing.

Law, B.A., B.S., LL.B., J.D. degrees

A Law curriculum of three years above lower division (five years in all) leading to LL.B. degree; a major curriculum of three years following three-year general curriculum (six years in all) leading to B.A. and J.D. degrees; combined curricula in Business Administration and Law or Social Science and Law comprising six years, leading to J.D. degree.

***Physical Education**, B.A., B.S., M.A., M.S. degrees

Physical Education curriculum preparing specialists. Major and minor norms for part-time teachers of physical education and coaches.

In the ca
starred [*] lo
sophomore) c
Eugene and C
certificate. He
the work on
junior year,
campus at tha
or credit. Pre
Medical School
Oregon State
gon, dependin
for the third
in the natural
the College a
the University.
cation at Co
for part-time
tion and coach

AT THE UNI
MED

Medicine

A four-year pro
three-year *premedi*
Corvallis (third-ye
or *Eugene* (third-y

Nursing Educatio

Preliminary tra
lege or the Unive

Public Health Nu

stem of Higher Education

University of Oregon Medical School, Portland; Oregon State College, Corvallis;
mal School, Monmouth; Eastern Oregon Normal School, La Grande.

d Technical Curricula

se of professional schools
wer division (freshman and
ourses are offered at both
orvallis leading to the junior
ence a student may pursue
either campus up to the
transferring to the major
t time without loss of time
paration for entrance to the
l may be pursued at either
College or University of Ore-
g on the emphasis desired
year of study, specialization
l sciences being available at
nd in the social sciences at
. A minor in physical edu-
rvallis prepares the student
teaching of physical educa-
ning.

IVERSITY OF OREGON ICAL SCHOOL

fessional curriculum following a
cal curriculum offered at either
ar emphasis on natural science)
year emphasis on social science).

n, B.A., B.S. degrees
ining at either the State Col-
rsity.

ursing.

AT OREGON STATE COLLEGE

Agriculture, B.S., M.S., Ph.D. degrees
Animal Industries (Animal, Dairy, and Poultry Husbandry), Agricultural Economics including Farm Management; Plant Industries (Farm Crops, Horticulture, Landscape Horticulture, Pomology, Vegetable Crops and Soils); Agricultural Education; Agricultural Engineering; Horticultural Products; Agricultural Technology.

***Education**, B.S., M.S. degrees
See Preparation for Teaching, High School Teacher Training.

Engineering and Industrial Arts, B.S., M.S., degrees
Chemical Engineering and Industrial Chemistry, Civil Engineering (General curriculum, Highway option), Electrical Engineering (Power and Communications options), Mechanical Engineering (General curriculum, Aeronautical option), Industrial Arts Education, Industrial Administration. Major curriculum in Structural Design in Architecture, a joint curriculum with Fine Arts.

Forestry, B.S., M.S. degrees
Logging Engineering, Technical Forestry, and Wood Products.

***Home Economics**, B.A., B.S., M.A., M. S. degrees
Clothing, Textiles, and Related Arts; Foods and Nutrition; Household Administration; Institution Economics; and Home Economics Education.

Pharmacy, B.S., M.S. degrees
Pharmacy, including Pharmaceutical Analysis, Pharmacology, and Pharmacognosy; preparation for certification as registered pharmacist.

Secretarial Science, B.S.S. degree
Stenography, typewriting, office methods, and service courses in business.

Preparation for Teaching

HIGH SCHOOL TEACHER TRAINING

Through School of Education operating jointly at the University and the State College——

At the University of Oregon
General Education Courses and training for educational administrators. Major curricula preparing for teaching of Literature, Languages, Arts and Music, Physical Education, the Social Sciences, Business Administration and approved combinations of subjects.

At Oregon State College
Major curricula preparing for teaching of Biological and Physical Sciences, Mathematics, Agriculture, Home Economics, Industrial Arts, and approved combinations of subjects; educational and vocational guidance, secretarial science.

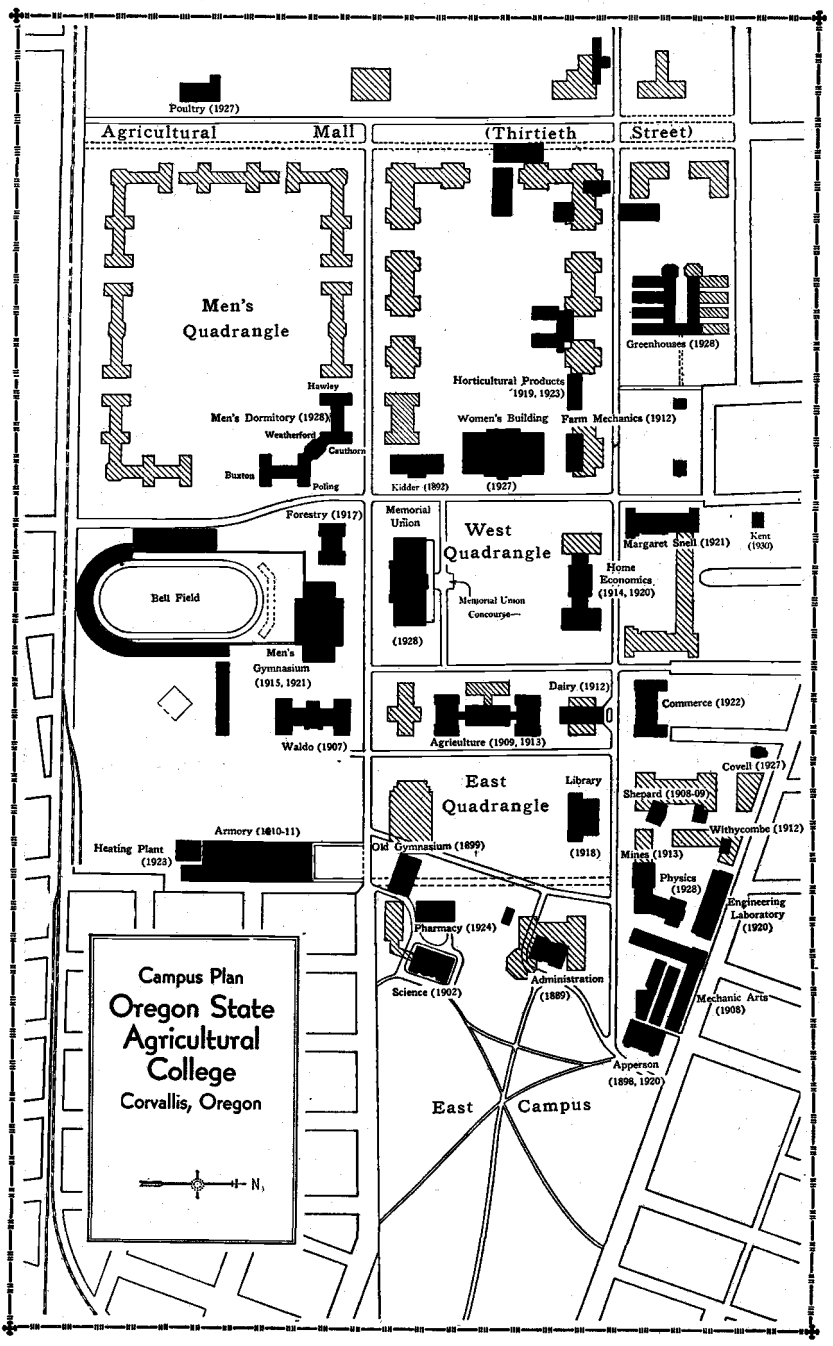
ELEMENTARY TEACHER TRAINING

On a parallel basis at the three State Normal Schools——

At Oregon Normal School
Two-year curriculum leading to the State Normal School Diploma, entitling graduates to teach in the elementary schools.

At Southern Oregon Normal School
Two-year curriculum as at Oregon Normal School. Junior college privileges within the limits of the teacher-training curriculum.

At Eastern Oregon Normal School
Two-year curriculum as at Oregon Normal School. Junior college privileges within the limits of the teacher-training curriculum.


Poultry (1927)
Agricultural Mall
(Thirtieth Street)
Men's Quadrangle
Hawley
Men's Dormitory (1928)
Westerfield
Cauthorn
Buxton
Poling
Horticultural Products (1919, 1923)
Women's Building
Farm Mechanics (1912)
Kidder (1892)
(1927)
Greenhouses (1928)
Forestry (1917)
Memorial Union
West Quadrangle
Margaret Snell (1921)
Kent (1930)
Home Economics (1914, 1920)
Memorial Union Concourse
(1928)
Bell Field
Men's Gymnasium (1915, 1921)
Dairy (1912)
Commerce (1922)
Agriculture (1909, 1913)
Waldo (1907)
Covell (1927)
East Quadrangle
Library
Shepard (1908-09)
Withycombe (1912)
Armory (1910-11)
Heating Plant (1923)
Old Gymnasium (1899)
(1918)
Mines (1913)
Physics (1928)
Engineering Laboratory (1920)
Pharmacy (1924)
Campus Plan
Oregon State Agricultural College
Corvallis, Oregon
Science (1902)
Administration (1889)
Mechanic Arts (1908)
Apperson (1898, 1920)
East Campus
N

1933

June

S	M	T	W	T	F	S
---	---	---	---	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	---

July

S	M	T	W	T	F	S
---	---	---	---	---	---	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	---	---	---	---	---

August

S	M	T	W	T	F	S
---	---	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	---	---

September

S	M	T	W	T	F	S
---	---	---	---	---	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	---	---	---	---

November

S	M	T	W	T	F	S
---	---	---	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	---	---

December

S	M	T	W	T	F	S
---	---	---	---	---	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	---	---	---	---	---	---

Academic Calendar

Oregon State
Agricultural College,
Corvallis

1933 Summer Sessions

June 19, *Monday*.....Summer session begins

July 4, *Tuesday*....Independence Day, holiday

July 28, *Friday*.....Summer session ends

July 31, *Monday*.....Post session begins, Eugene

August 25, *Friday*.....Post session ends

First Term 1933-34

September 18-23, inc., *Monday* to *Saturday*.... Freshman Week and Registration

September 25, *Monday*.....Classes begin

October 7, *Saturday*....Latest day for addition of new courses or new registrations

November 30, *Thursday*....Thanksgiving Day, holiday

December 9, *Saturday*.....Classes end

December 11-15, inc., *Monday* to *Friday*.... Final examinations

December 16, *Saturday*..... First term ends

Sixty-sixth Year

Second Term 1933-34

January 2, *Tuesday*.....Registration

January 3, *Wednesday*.....Classes begin

January 13, *Saturday*.....Latest day for addition of new courses or new registrations

March 10, *Saturday*.....Classes end

March 12-16, inc., *Monday* to *Friday*....Final examinations

March 17, *Saturday*.....Second term ends

Third Term 1933-34

March 26, *Monday*.....Registration

March 27, *Tuesday*.....Classes begin

April 7, *Saturday*.....Latest day for addition of new courses or new registrations

May 30, *Wednesday*....Memorial Day, holiday

June 2, *Saturday*.....Classes end

June 2, *Saturday*.....Alumni Day

June 3, *Sunday*.....Baccalaureate Service

June 4, *Monday*.....Sixty-fifth Annual Commencement

June 4-8, inc., *Monday* to *Friday*....Final Examinations

1934 Summer Session

June 18, *Monday*.....Summer session begins

1934

January

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

March

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Oregon State System of Higher Education

Executive Officers

WILLIAM JASPER KERR, D.Sc., LL.D. ..... Chancellor

Southern Oregon Normal School—Ashland
WALTER REDFORD, Ph.D. ..... President

Oregon State Agricultural College—Corvallis
WILLIAM ARTHUR JENSEN, M.S. ..... Executive Secretary

University of Oregon—Eugene
BURT BROWN BARKER, A.B., LL.B. ..... Vice-President
EARL MANLEY PALLETT, Ph.D. ..... Executive Secretary

Eastern Oregon Normal School—La Grande
HARVEY EDGAR INLOW, A.B., LL.B. ..... President

Oregon Normal School—Monmouth
JULIUS ALONZO CHURCHILL, M.A. ..... President

Oregon Medical School—Portland
RICHARD BENJAMIN DILLEHUNT, M.D. ..... Dean

Deans and Directors

WILLIAM ALFRED SCHOENFELD, M.B.A. ..... Dean and Director of Agriculture
CLARENCE VALENTINE BOYER, Ph.D. ..... Dean and Director of Arts and Letters
HARRISON VAL HOYT, Ph.D. ..... Dean and Director of Business Administration; Supervisor of Business Offices
GENEVIEVE GRIFFITH TURNIPSEED, M.A. ..... Director of Dormitories
JAMES RALPH JEWELL, Ph.D., LL.D. ..... Dean of Education; Director of High School Teacher Training
JULIUS ALONZO CHURCHILL, M.A. ..... Director of Elementary Teacher Training
HARRY STANLEY ROGERS, C.E. ..... Dean and Director of Engineering and Industrial Arts
ELLIS FULLER LAWRENCE, M.S., F.A.I.A. ..... Dean and Director of Fine Arts
GEORGE WILCOX PEAVY, M.S.F. ..... Dean and Director of Forestry
ALFRED POWERS, A.B. ..... Director of General Extension
GEORGE REBEC, Ph.D., ... Dean and Director of Graduate Division
AVA BERTHA MILAM, M.A. ..... Dean and Director of Home Economics
CHARLES DAVID BYRNE, M.S. ..... Director of Information
ERIC WILLIAM ALLEN, A.B. ..... Dean and Director of Journalism
WAYNE LYMAN MORSE, LL.B., J.D. ..... Dean and Director of Law
LUCY MAY LEWIS, A.B., B.L.S. ..... Director of Libraries
MAHLON ELLWOOD SMITH, Ph.D. ..... Dean and Director of Lower Division
RICHARD BENJAMIN DILLEHUNT, M.D. ..... Dean and Director of Medicine
ADOLPH ZIEFLE, Phar.D. ..... Dean and Director of Pharmacy
JOHN FREEMAN BOVARD, Ph.D. ..... Dean and Director of Physical Education
EARL LE ROY PACKARD, Ph.D. ..... Dean and Director of Science
JAMES HENRY GILBERT, Ph.D. ..... Dean and Director of Social Science

---

Each dean and director in the foregoing list is interinstitutional in function, being responsible for all work in his field wherever offered throughout the system. Deans and directors whose responsibilities are for the State College only are listed under State College officers of administration and service divisions.

Service Division Officers

BUSINESS OFFICES

HARRISON VAL HOYT, Ph.D. ..... Supervisor of Business Offices
ANDREW COMRIE ..... Head of Accounting and Auditing
EDWIN MONROE SMITH, B.S.D. ..... Head of Purchases and Claims
HARRY BENJAMIN AULD, B.S. ..... Chief Claims Clerk
ARTHUR ALONZO BROOKS ..... Chief Requisition Clerk
SAM ABRAHAM KOZER ..... Auditor
SUELL HUBBARD RONDEAU ..... Auditor
PAUL AUGUST WALGREN, B.S.A. ..... Assistant Accountant

DORMITORIES

GENEVIEVE GRIFFITH TURNIPSEED, M.A. ..... Director of Dormitories

HEALTH SERVICE

RICHARD BENJAMIN DILLEHUNT, M.D. ..... Director of Health

DIVISION OF INFORMATION

CHARLES DAVID BYRNE, M.S. ..... Director of Information
EDWIN THOMAS REED, B.S., A.B. ..... Editor of Publications
ALINE ESTHER JOHNSON ..... Secretary and Editorial Assistant

LIBRARIES

LUCY MAY LEWIS, A.B., B.L.S. ..... Director of Libraries
CARRIE HELEN THORY ..... Secretary
LILLIAN EVANGELYN PETERSON ..... Bookkeeper
ELZIE VANCE HERBERT ..... Head of Orders Department
LEWAN ADEL HENDRICKSEN, B.S. ..... Orders Assistant
BETTY MAE STAMM, A.B. ..... Orders Assistant
GLADYS VATNSDAL, A.B. ..... Clerk

STATISTICIAN

RICHARD LYLE COLLINS, B.B.A., C.P.A. ..... Statistician

ADMINISTRATIVE SECRETARIES

MARY BOWMAN HULL ..... Secretary to the Chancellor
RUTH PURDY ..... Secretary to the President, Southern Oregon Normal School
HAZEL KELSEY WESTCOTT, B.S. ..... Secretary in Administration Offices, Oregon State Agricultural College
NELLIE E. FURNISH ..... Secretary in Administration Offices, University of Oregon
MILDRED PIERCE, M.A. ..... Secretary to the President, Eastern Oregon Normal School
FAITH JEAN KIMBALL, A.B. ..... Secretary to the President, Oregon Normal School

Oregon State Agricultural College

Officers of Administration

WILLIAM JASPER KERR, D.Sc., LL.D. ..... Chancellor
WILLIAM ARTHUR JENSEN, M.S. ..... Executive Secretary

WILLIAM ALFRED SCHOENFELD, M.B.A. ..... Dean of Agriculture
COLONEL WILLIAM HENRY PATTERSON ..... Commandant
JAMES RALPH JEWELL, Ph.D., LL.D. ..... Dean of Education
HARRY STANLEY ROGERS, C.E. ..... Dean of Engineering and Industrial Arts
PAUL VESTAL MARIS, B.S. ..... Director of Federal Cooperative Extension
GEORGE WILCOX PEAVY, M.S.F. ..... Dean of Forestry
GEORGE REBEC, Ph.D. ..... Dean of Graduate Division
AVA BERTHA MILAM, M.A. ..... Dean of Home Economics
LUCY MAY LEWIS, A.B., B.L.S. ..... Librarian
MAHLON ELLWOOD SMITH, Ph.D. ..... Dean of Lower Division
ULYSSES GRANT DUBACH, Ph.D. ..... Dean of Men
ADOLPH ZIEFLE, Phar.D. ..... Dean of Pharmacy
ERWIN BERTRAN LEMON, B.S. ..... Registrar
EARL LE ROY PACKARD, Ph.D. ..... Dean of Science
KATE WETZEL JAMESON, Ph.D. ..... Dean of Women

Service Divisions

BUILDINGS AND GROUNDS

MARK CLYDE PHILLIPS, B.M.E. ..... Superintendent of Physical Plant
ELMER POLIC JACKSON, B.S. ..... Superintendent of Buildings
ARTHUR LEE PECK, B.S., B.A. ..... Superintendent of Campus
GORDON VERNON SKELTON, C.E. ..... Superintendent of Roads and Walks
DONALD BRUCE STUART, D.M.D. ..... Superintendent of Light and Power
CHARLES GEORGE WILTSHIRE ..... Superintendent of Plumbing and Steam Fitting

BUSINESS OFFICE

EDWIN MONROE SMITH, B.S.D. ..... Business Manager
HARRY BENJAMIN AULD, B.S. ..... Chief Claims Clerk
ARTHUR ALONZO BROOKS ..... Chief Requisition Clerk
MAE JOSEPHINE NUSBAUM ..... Salary Clerk
RUTH WAGNER ..... Cashier

DORMITORIES

MELISSA HUNTER, A.M. ..... Director of Dormitories
GEORGIA CHAPMAN BIBEE, B.S. ..... Director, Memorial Union Dining Service

HEALTH SERVICE

DANIEL CLYDE REYNOLDS, M.D. ..... 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
MABEL RUTH DARELIUS, R.N. ..... Nurse
MAE TORGERSON ..... Nurse
NELLE MARY GUNN ..... X-Ray Technician

DIVISION OF INFORMATION

EDWIN THOMAS REED, B.S., A.B. ..... Editor of Publications
DELMER MORRISON GOODE, B.A. ..... Associate Editor of Publications
JOHN COLE BURTNER, B.S. ..... Associate in News Service
LAURA BELLE HEATH, B.S. ..... Assistant Editor of Publications
FRED MURIEL SHIDELER, B.S. ..... Assistant in News Service
ETHEL E. ALLEN, B.S. ..... Assistant Editor of Publications

LIBRARY

LUCY MAY LEWIS, A.B., B.L.S. ..... Librarian
LUCIA HALEY, A.B. ..... Assistant Librarian
ELIZABETH PROPHET RITCHIE, A.B., B.L.S. ..... Head Cataloger
BERTHA EMMA HERSE, B.S., B.L.S. ..... Reference Librarian
ELZIE VANCE HERBERT ..... Head of Orders Department
LENNA ANNE GUTHRIE, A.B., B.S. ..... Loan Librarian
MARIE HULL JACKSON, B.A., B.S. in L.S. ..... Senior Continuations Cataloger
NELLIE REGINA HARVEY, B.S. in L.S. ..... Senior Document Assistant
KATHERINE WHIPPLE HUGHES, B.S. in L.S. ..... Senior Reference Assistant

Harriet Janet Warner, A.B. ..... Senior Reference Assistant
*Ada Elsie Blekkink, B.S. in L.S. ..... Senior Reference Assistant
Josephine Helen Halverson, A.B. ..... Senior Catalog Assistant
Constance Beall ..... Senior Circulation Assistant
Ruth Cole, B.S. in L.S. ..... Junior Circulation Assistant
Vesta Bernice Beckley, B.S. ..... Reserve Assistant
Lewan Adel Hendricksen, B.S. ..... Order Clerk
Helen Dreesen Starr, B.S. ..... Periodical Clerk

PRESSES AND MANIFOLDING SERVICE

Paul V. Womer ..... Acting Superintendent, College Press
Helen Lucile Holgate, B.S. ..... In Charge of Clerical Exchange

REGISTRAR'S OFFICE

Erwin Bertran Lemon, B.S. ..... Registrar
Eva Blackwell, B.S. ..... Assistant to the Registrar
Bess Jackson McCoy ..... Chief Clerk
Hulda Catherine Burchell, B.S. ..... Examiner
Margaret Shupe ..... Recorder

STUDENT WELFARE, PERSONNEL AND PLACEMENT

Ulysses Grant Dubach, Ph.D. ..... Dean of Men
Kate Wetzel Jameson, Ph.D. ..... Dean of Women
Carl Walter Salser, Ed.M. ..... Head of Personnel and Placement Service
Lorna Collamore Jessup, B.S. ..... Assistant Dean of Women
Clytie May Workinger ..... Personnel and Placement Secretary

STUDENT AND ALUMNI ACTIVITIES

Edward Christopher Allworth, LL.D. ..... General Secretary, Alumni Association; Manager-Secretary, Memorial Union
Carl Allen Lodell, B.S. ..... General Manager of Student Activities
Eunice Esther Courtright, B.S. ..... Records Clerk, Alumni Association

YOUNG MEN'S AND YOUNG WOMEN'S CHRISTIAN ASSOCIATIONS

Charles Leonard Crumly, Ph.B. ..... Y.M.C.A. General Secretary
Merry E. Pittman ..... Y.W.C.A. General Secretary
Lula M. Howard ..... Employment and Housing Secretary

*Resigned July 1, 1933.

Part I

Oregon State Agricultural College

Organization and Facilities

History

HISTORY of the State College dates from Oregon's territorial beginnings, when a frame building at Fifth and Madison Streets, Corvallis, projected in 1856 as a private undertaking, became the principal school of the community as well as meeting house. Instruction was coeducational and comprised all grades from the primary to the academic department. 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 purpose 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.

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. 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 order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Ninety thousand acres of land were appropriated 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.

A State College. The history of the College as a state institution thus dates from 1868. The first class was graduated in 1870. The legislature in 1870 "permanently adopted" Corvallis College "as the agricultural college of the State of Oregon." During subsequent years the catalog 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 State assumed entire control of the institution. During the summer of 1887, the cornerstone of the building erected by the citizens of Benton county was laid by the Governor of Oregon.

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 the first twenty years the annual enrollment never reached a total of one hundred students, but by 1906-07 it was eight hundred and thirty-three 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 faculty has increased from a maximum of five in 1884, to more than three hundred in addition to many other employees. 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.

"Liberal and Practical Education." 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. Special attention is given to the natural sciences and their applications. 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. State and Federal support imposes upon the College the obligation to give training for intelligent citizenship.

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.

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 neither agriculture nor engineering was a well-developed science or profession. Neither had a literature, or skilled teachers, or tested methods of instruction. At the State 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. The earliest actual

instruction in engineering was about 1888-89, in connection with the department of Mathematics.

The departments of Agriculture and Engineering 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, a School of Commerce was established, the College being among the pioneers in this field likewise.

Other schools soon followed. 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. Education, first established as a department of Industrial Pedagogy in 1909, was organized as a School of Vocational Education in 1918, and in 1932, in the reorganization of State Higher Education, was organized as a coordinate division of the School of Education, which operates jointly at the University and the State College.

Concurrently with the development of the major curricula, provision was made for instruction in the basic and non-technical subjects essential to the general education of students regardless of the careers they may follow. These subjects, until 1932 organized in the School of Basic Arts and Sciences as service courses for students in the several major schools, are now divided between the School of Science, established 1932, through which instruction in biological and physical sciences is provided at all levels (lower division, upper division, and graduate), and the Lower Division (1932), through which unspecialized freshman and sophomore work in the liberal arts and sciences is provided on a parallel basis at the State College and the University.

Location

CORVALLIS (population 7,585), situated at the head of navigation on the Willamette River, is one of the most healthful cities in Oregon. The climate is remarkably equable, and severe storms are almost unknown. The average annual temperature is about 52 degrees Fahrenheit. Rainfall averages about 42 inches annually, falling mostly during the winter. Corvallis has excellent paved streets, good schools, many churches, attractive residences, a modern sewer system, and a first-class water system supplied from mountain springs. The Coast Range mountains and the distant splendors of the Cascades present a constant panorama of picturesque mountain scenery.

Income

THE state law creating the Board of Higher Education specified that this body was to "have and exercise control of the use, distribution and disbursement of all funds, appropriations and taxes, now or hereafter in possession, levied and collected, received or appropriated for the

use, benefit, support and maintenance of institutions of higher education." By virtue of this act, and beginning July 1, 1931, the Board has administered all funds for all state-supported higher educational activities, including Oregon State College, on the basis of a unified budget.

Funds for the support of higher education in Oregon are derived primarily from the following sources: a millage tax of 2.04 mills on all taxable property; certain continuing appropriations from the State for definite purposes; specified sums from the National Government assigned for definite purposes by Congressional acts; income from student tuition and fees; and other sources such as sales and transfers, gifts and miscellaneous.

During the year 1932-33 just closed, the income of the institutions under the control of the Board totaled approximately $3,542,640. Of this total, $2,328,133 came from state sources, $264,339 from Federal sources, $77,480 from county sources, $627,434 from student fees, and $245,254 from gifts and other sources. The state support of $2,328,133 was derived largely from millages, these amounting to $2,173,213. The balance accrued through continuing appropriations for agricultural extension and research work.

Official Publications

OFFICIAL publications pertaining to public higher education in the state comprise those issued directly by the State Board of Higher Education and various institutional publications on the several campuses. The legislative act placing all the state institutions of higher education under the control of one board provided that all public announcements pertaining to the several institutions "shall emanate from and bear the name of the Department of Higher Education and shall be conducted in such a way as to present to the citizens of the state and prospective students a fair and impartial view of the higher educational facilities provided by the state and the prospects for useful employment in the various fields for which those facilities afford preparation." The announcements emanating directly from the Board are included in a bulletin series and a leaflet series.

The Bulletin of the Oregon state system of higher education is a monthly publication issued by the Board. Announcements of curricula, including the annual catalog, information for students, and official reports are included in the series.

The Leaflet Series of the state system of higher education, issued semimonthly, includes special announcements to prospective students and the general public.

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, agricul-

tural economics, farm management, marketing, 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.

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

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, and applied science. A 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 Four-H 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.

The Campus

THE campus of Oregon State Agricultural College extends from near Ninth Street westward between Monroe and Jefferson streets in a wedge shape to Sixteenth Street, 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 or Administration Quadrangle with the Engineering group immediately to the north. The West or Academic Quadrangle is the heart of the present campus. Between it and the Mall are the men's and women's quadrangles, devoted to halls of residence and recreational areas. To the north are the greenhouses with adjacent gardens. Across the Mall, facing east, are a number of agricultural buildings. Between this row of buildings and the farms are the areas assigned to the barns and stables. Each quadrangle is tastefully planted with native, exotic, and ornamental trees, shrubs and herbs, which not only contribute to the beautification of the entire campus but also serve as living laboratory material for students pursuing landscape studies. The campus proper comprises 189 acres; other college lands at Corvallis bring the aggregate acreage to somewhat more than 1,000 acres.

Farm and Forest Lands

FOR instruction and research in agriculture and forestry, the State holds title to farm and forest lands, not only at Corvallis but also at various points throughout the state. In addition to the lands west of the Mall, the South Farm, including horticultural and poultry tracts, lies just south of

the city limits of Corvallis. 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 and the Mary J. L. McDonald Forest eight miles north of the campus contain 1,600 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 a 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 government.

A tract of 100 acres about two miles from the campus is used by the United States War Department for three months each year for pasturage of ninety-two public animals of the R. O. T. C.

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. Both of these tracts are for the use of the School of Forestry.

Buildings

THE following brief descriptions, arranged alphabetically, will convey a general idea of the principal buildings at the State College and the purpose for which they are used. In each case the date of erection is indicated; if a building was erected by units, the dates of the erection for the respective units are indicated in order. The location of the various buildings is shown on the map of the campus elsewhere in the catalog. In addition to the buildings listed, various service buildings are found on the campus, and the several branch experiment stations have buildings adapted to the research and experimental work carried on.

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), an edifice of brick and sandstone, consists 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. On the first floor are the offices of the Director of the Agricultural Experiment Station and the Dean of the School of Agriculture, 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 some of the offices, classrooms, and laboratories of the department of Botany; 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, 72 by 130 feet, three stories high, is 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. This section of the building, with its basement and three floors, accommodates the central offices and various activities of the department of Horticulture, the visual instruction department of the Extension Service, and some of the laboratories, museums, lecture rooms, and offices of the departments of Botany and Zoology of the School of Science.

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 department of Electrical Engineering. 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, 1911) is built of concrete and steel and is 126 by 355 feet. The drill hall portion, with an area of 36,000 square feet, is used in inclement weather by the Infantry, the Field Artillery, the Engineers, the football team, the polo and the track teams, an excellent running track encircling the drill hall portion having been recently completed.

It is also used for Freshman Mixes, "pep" rallies, the Girls' College riding club, the Reserve Officers' riding club, the annual R.O.T.C. military tournament and horse show, and the American Legion's yearly automobile and style shows. It also has arms rooms, instrument rooms, store rooms, offices, and classrooms. In all, the facilities of the Armory afford instructional and recreational facilities for approximately 2,000 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 Chancellor and the Executive Secretary; the Dean of Men; the Dean of Women; the Editor of Publications; the Clerical Exchange; the College Press; the departments of Agricultural Economics, Secretarial Science, Modern Languages, Social Science, 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 depart-

ment 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, and research laboratories and offices of the department of Animal Husbandry. The third floor is occupied by the Department of Mathematics.

The Engineering Laboratory (1920) 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 division 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.

The Farm Mechanics Building (1912) provides drafting rooms, classrooms, and laboratories for the work in agricultural engineering. Facilities are provided for teaching and experimental work dealing with farm power, farm machinery, farm water supply and irrigation equipment, farm shop, farm building, and automobile mechanics. The building is brick with stone trim, 50 by 120 feet in dimensions and two stories high.

The Forestry Building (1917), three stories high, 80 by 136 feet, constructed of brick, contains roomy laboratories for work in silviculture, dendrology, mensuration, forest protection, technology, mapping, logging engineering, timber testing, and lumber manufacture. In addition, 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.

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

The Greenhouses (1928), constructed with steel frame and curved eaves, provides approximately 27,000 square feet under glass. 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), 52 by 80 feet in dimensions and one story high, is constructed of brick and concrete, with concrete tunnel and con-

duits 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, which joins the south end of the Armory, is designed to permit enlargement.

The Home Economics Building (1914, 1920) 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 thoroughly 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. Lecture rooms, laboratories, and offices for all phases of home economics are provided in this building. A large, well-equipped auditorium is located on the third floor of the central unit. A number of classrooms and offices are temporarily used by the department of English.

The Home Management Houses, Kent House (purchased 1930) and Withycombe House (purchased 1918), are an important part of the home economics equipment. These are residences built for family life but now used as laboratories for advanced students in home economics.

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

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-rooms, 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. In equipment and furnishings the hall is thoroughly modern and adequate and is attractive and homelike throughout.

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 thoroughly modern and effective systems of lighting, heating, and ventilating, its architecture permits stack expansion as time and growth demand it.

The basement is used for storage of documents, newspaper and periodical files. On the first floor are the Reserve Book room, an auditorium, the Order and the Catalog departments. The second floor houses the main reference room, with seating capacity of three hundred and fifty, periodical reading room, a Faculty reading room, and the office of the Director of Libraries. The third floor consists of small rooms designed

ultimately for seminar purposes, at present used for offices and laboratories of the department of Speech and Dramatics and the office of the Dean and Director of Lower Division.

The northwest part of the Library contains the fireproof steel stack room. 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 in the basement are connected by elevator with a trunk-storage room on each floor. Seventy-one 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. Throughout the building every facility is provided in keeping with good management, health, and home comfort.

The 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 mechanician. 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 woodworking 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, etc.

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. The cost to date has been $712,005. The main entrance, from the north, in the Academic Quadrangle, leads into the great memorial vestibule, under the central dome, leading across the main corridor to the lounges. The ground floor contains the ballroom, which has a stage at one end, mens' 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 extends across the entire west end of the building. In addition, the ballroom is used as a banquet room for large assemblages. 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, guest room, general offices for the manager-hostess, and council room.

The Men's Gymnasium (1915, 1921) 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 natatorium meets all requirements of the State Board of Health for a Grade A pool. 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 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 offices and laboratories of the department of Chemical Engineering. In the basement are laboratories and storage rooms assigned to the department of Chemical Engineering or reserved in part for conducting the service courses in mining engineering. Two rooms in the basement are used jointly as storage rooms by the departments of Geology and Mining Engineering and for the storage of mining equipment and supplies. The General Geology laboratory, Paleobotany, and Paleontology laboratories are located on the second floor, with lecture rooms for the use of Geology, Chemical Engineering, or other departments. On the top floor are the Mineralogical, Petrographical, Structural, Sedimentary, and Economic Geology laboratories and a classroom.

The Nursery School, in Covell House (purchased 1927), has large, pleasant rooms adapted for the work of the Nursery School of the School

of Home Economics. Adjoining is an enclosed playground equipped for outdoor activities of the school.

The **Old Gymnasium** (1899), 70 by 120, 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 first floor accommodates the collections of the College Museum.

The **Pharmacy Building** (1924) is a three-story brick structure, 62 by 123 feet. 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, Radio Broadcasting, and Highway Engineering, and office room for the Dean of the School of Science.

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 office of the Dean of the School of Science, 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 three lecture rooms, laboratories for instruction in radio, and a suite of rooms for the State-owned broadcasting station KOAC. The suite includes the general offices, an operating room, a battery room, a large studio, a small studio, an announcer's room, and a waiting room. The roof of the building is utilized as a special laboratory for the teaching of astronomy.

The **Poultry Building** (1927) is a 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.

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 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 Education. The Department of Religion also has its headquarters in Shepard Hall.

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 location, thus concentrating all barns midway between the campus proper and the College farms. These barns and farm service buildings are arranged in seven or eight groups according to their use, such as military stables, horse, beef-cattle, dairy, hog, and sheep barns, veterinary barn, poultry buildings, etc.

The Stadium. The covered stands and bleachers around Bell Field, adjacent to the Men's Gymnasium, seating approximately 20,000 people, have been built from student fees and from the receipts of athletic contests held in the Stadium and elsewhere.

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 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 lights. 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), a campus center for women's interests, 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. Equipment and facilities are such as to meet the requirements of the State Board of Health for a Grade A pool. 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.

Library

SO planned as to permit expansion as demands upon the library facilities increase, the Library Building at Oregon State Agricultural College occupies a central location in the East Quadrangle. The building is described in detail under Buildings, page 25. 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 Reserved Book 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 bound files of periodicals. The Reference Desk, where all general and technical reference questions are handled, is conveniently located here. An excellent collection of public documents and publications of learned societies is filed in adjacent stacks. Duplicates of the most used material are kept for circulation. The main Circulation Desk is also in this room. The "Culture collection" of books for general reading is shelved here.

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

The Reserve Book Reading Room is located on the main floor of the building. All reserved books and periodicals are circulated there.

Seminar Rooms. A debate seminar room is maintained 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 now used for other purposes can be released. Individual desks are placed on each deck of the stacks for the use of faculty members and advanced students engaged in special study.

Catalogs. A general catalog 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 catalog 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 catalog.

An author catalog of all books in the six institutions in the State System of Higher Education is maintained here and is available for public reference.

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 cataloged volumes, including depository set of 3,748 volumes, is 117,053. The number of different periodicals currently received is 1,435, and 108 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 cataloged 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 to 9:30 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 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, changed each month, are maintained in the various halls of residence on the campus and at the campus Y. M. C. A.

Unified Library Service. The library service of the state institutions of higher education in Oregon is organized into a single unit under the supervision of a Director, with a local librarian on each campus. The Director is also Librarian of the State College at Corvallis, where the central offices of the library system are located.

The collections at the several institutions are developed particularly to meet the type of work peculiar to each campus, but the book stock of the libraries as property of the state circulates freely to meet the needs of the curricula and to permit the fullest use of all books.

A union author list of all books and periodicals in the system is maintained in the central office to facilitate a better distribution of the book stock and to eliminate unnecessary duplication of published material. While the libraries are organized for uniformity of methods, cooperation in the use of books, and preparation of bibliographies and indexes, there is individuality in service at the several institutions.

Museums and Collections

ILLUSTRATIVE collections for use in connection with the work of instruction have been developed by the various schools and departments of the institution. These include scientific, industrial, historical, and art material classified and arranged for effective use.

The College Museum, formally opened February 20, 1925, owes its existence very largely to the personal interest and activity of Dr. John B Horner, Professor Emeritus of History and Director of Oregon Historical Research. The collections are rapidly growing in use and importance and now occupy the lower story of the Old Gymnasium. The Museum is administered by a faculty committee composed of Dr. John B Horner and Professor J. Leo Fairbanks, who solicit collections that would contribute to the historic, scientific, or artistic interest of the Museum.

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, Ore-

gon; 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; the Maggie Avery Stevenson collection of Rocky Mountain Indian relics; commercial, zoological, and botanical collections, together with many smaller collections, representing the generosity of one hundred donors. Among recent additions to the museum art collection is a life-size portrait painted by W. Maurice Ball of Colonel John D. Letcher, pioneer commandant and professor of mathematics at the College.

Other Collections. 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.

General Information

Admission

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.

ADMISSION TO FIRST-YEAR STANDING

The requirements for admission to first-year or freshman standing conform to the uniform entrance requirements adopted by all of the higher educational institutions of Oregon. The student must have at least fifteen units from a four-year high school or twelve units from a senior high school, earned by entrance examinations or evidenced by a certificate from a standard preparatory school. "Unit" means a subject taught five times a week, in periods of not less than forty minutes, for a school year of not less than thirty-six weeks.

Preparation Required. A student must conform to one of the following plans to obtain admission to first-year or freshman standing.

Plan A. Presentation of fifteen units from a four-year high school or twelve units from a senior high school. Part of these units are to be grouped into majors (a major is three units in one field) and minors (a minor is two units in one field). The distribution from a four-year high school must include two majors and three minors, of which two majors and one minor or one major and two minors must be selected from some of the following fields: English; languages other than English; mathematics; laboratory science; and social science. One of the majors must be in English. The distribution from a senior high school must include two majors and two minors, of which two majors and one minor or one major and two minors must be selected from some of the following fields: English; languages other than English; mathematics; laboratory science; and social science. One of the majors or one of the minors must be in English.

Plan B. Presentation of fifteen units from a four-year high school or twelve units from a senior high school, of which ten units in the former or eight units in the latter must be selected from some of the following fields: English; languages other than English; mathematics; laboratory science; and social science. At least three of the ten units or two of the eight units must be in English.

Plan C. Presentation of fifteen units from a four-year high school or twelve units from a senior high school by students of exceptional ability as demonstrated by superior achievement in preparatory work including

the classification of the student in the upper quartile of the graduating class and the unreserved recommendation of the high school principal. In addition the student may be required to demonstrate his ability by obtaining a high rating in a college aptitude test. Eight of the fifteen units, however, or seven of the twelve units, must be selected from some of the following fields: English; languages other than English; mathematics; laboratory science; and social science. At least three of the eight units or two of the seven units must be in English.

No credit under any of the plans is granted for penmanship, spelling, physical education, or any subject commonly classified as a student activity.

Special Requirements. In addition to the foregoing entrance requirements which must be met by all applicants for admission to the first-year or freshman class, certain special subjects are necessary for admission to some of the professional and technical schools. Students planning to major in any phase 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 a student must have one unit in elementary algebra, one-half unit in higher algebra, and one unit in plane geometry.

Admission Procedure. Evidence of preparation for entrance to first-year standing 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 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. 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. In common with the practice of most institutions of higher education throughout the country, College Entrance Board examinations are accepted. Those interested in seeking admission through these examinations should correspond with the secretary of the College Entrance Examination Board, 431 West 117th Street, New York City.

Registration. Full directions on registration procedure, and Freshman Week in particular, are furnished each applicant before the final date of registration.

ADMISSION TO UPPER DIVISION STANDING

In order to be admitted to upper division standing, a student must hold the Junior Certificate (see page 37). For specific requirements see pages of this catalog devoted to the respective schools.

ADMISSION TO GRADUATE STUDY

Graduates of standard colleges and universities are admitted to graduate study by the Dean of the Graduate Division and the College Registrar on presentation of an official transcript of the credits on which their bachelor's degree is based. But admission to candidacy for an advanced degree is determined only after a preliminary examination, given when a student has completed approximately fifteen term hours of graduate work.

Graduates of other than standard universities and colleges are expected to obtain the bachelor's degree from a standard institution before proceeding to graduate work.

Graduates of standard colleges and universities who desire to take additional work either of graduate or undergraduate character, without seeking an advanced degree, may be admitted to graduate study and be extended the privileges of such classification.

ADMISSION TO ADVANCED STANDING

Advanced standing is granted to students transferring from institutions of collegiate rank. All applications for advanced standing must be submitted to the registrar and must be accompanied by official transcripts covering both high school and college records and letters of honorable dismissal.

The amount of credit granted upon transfer is determined by the committee on academic requirements, which takes into consideration, among other things, the nature of the institution, the quality of the applicant's scholarship, the content, quality, and quantity of the courses completed and their relation to the course of study to be undertaken by the student submitting them. Credit is granted only to the extent to which courses pursued elsewhere articulate with the requirements of the school or department in which the student matriculates. Final determination of the amount of advanced standing may be deferred until after the student has been in attendance for at least three terms.

A student wishing credit for work done other than in an accredited educational institution must petition the committee on academic requirements for permission to take examinations in specified courses, as listed in the catalog. In no case may such examinations be based on work done in high school prior to high school graduation. A student becomes ineligible for such examination after having completed four terms in residence. Credit by examination in general is allowed only for work taken in regularly organized courses in non-accredited institutions of collegiate rank.

ADMISSION AS SPECIAL STUDENTS

Special students are of two classes: (a) those not qualified for admission as regular students but qualified by maturity and experience to carry

one or more subjects along special lines; and (b) those qualified for admission as regular students who are not working toward a degree and do not care to follow any of the degree curricula.

An applicant for admission as a special student must be not less than 21 years of age and must file with the registrar documentary evidence sufficient to prove his special fitness to pursue the subjects desired. Credits earned by special students shall not subsequently be counted toward a degree until the student has completed at least two years of work (93 term hours) as a regular student. In case a regular student changes to special status, work done while ranking as a special student will not count toward a degree.

Degrees and Certificates

OREGON State Agricultural College offers major curricula and degrees in the following fields:

School of Agriculture, *B.S., M.S., Ph.D. degrees.*

School of Education, *B.S., M.S. degrees.*

School of Engineering and Industrial Arts, *B.S., M.S. degrees.*

School of Forestry, *B.S., M.S. degrees.*

School of Home Economics, *B.A., B.S., M.S., degrees.*

School of Pharmacy, *B.S., M.S. degrees.*

School of Science, *B.A., B.S., M.A., M.S., Ph.D. degrees.*

*Secretarial Science, *B.S.S. degree.*

Besides the freshman and sophomore work in the several professional and technical fields, other lower division work leading to the Junior Certificate is offered at the State College in Arts and Sciences, Business Administration, Fine Arts, Journalism, Nursing Education, and Physical Education. Approved preparation is also offered for entrance to the Medical School.

REQUIREMENTS FOR DEGREES AND CERTIFICATES

For the **Junior Certificate.** The first two years of a student's time are spent in fulfilling the requirements for a junior certificate leading to upper division standing. The requirements for a Junior Certificate are as follows:

(1) Term Hours: Minimum, 93 to 102, depending upon the requirements of the school in which student is registered.

(2) Grade Point Average: Minimum, 1.00.

(3) Corrective English: A general examination in English required upon entrance. If this examination is not passed, the course designated as English K must be taken and passed.

*The four-year curriculum in Secretarial Science is offered by the School of Business Administration of the University under the direction of the Dean and Director of Business Administration.

(4) English Composition: 9 term hours unless excused. Students with a decile rating of 9 or 10 will normally be held for only 6 term hours. Any student whose work meets the standard aimed at may, at the end of any term, with the consent of the head of the department of English, be excused from the further required written English.

(5) Physical Education: 5 terms.

(6) Military Science: 6 terms for men.

(7) General Hygiene.

(8) Group requirements:

Students are required during the first two years to complete a prescribed amount of work selected from three "groups" representing comprehensive fields of knowledge. The courses in the departments intended to satisfy group requirements are numbered from 100 to 110 and from 200 to 210. The three groups are as follows:

LANGUAGE AND LITERATURE GROUP.

Art,* English, Germanic Languages, Greek, Latin, Music,* Romance Languages.

SCIENCE GROUP.

Bacteriology, Botany, Chemistry, Entomology, Geology, Mathematics, Physics, Psychology with laboratory, Zoology.

SOCIAL SCIENCE GROUP.

Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology.

The group requirements are different for freshman and sophomore students registered in Lower Division of liberal arts and sciences and for freshman and sophomore students registered in a technical or professional school. The requirements are as follows:

(1) *Freshmen and sophomores not registered in a technical or professional school*—that is, those registered in Lower Division in the liberal arts and sciences—must have completed at least 9 approved term hours in each of the three groups and at least 9 additional approved term hours in courses numbered 200-210, or equivalent, in any one of the same three groups.

In meeting this requirement, unless otherwise authorized, freshmen take two year-sequences in the 100-110 courses and sophomores take one year-sequence in the 100-110 courses and one in the 200-210 courses.

*May not be used to satisfy this group by students majoring in Fine Arts.

(2) *Freshmen and sophomores registered in one of the technical or professional schools,* including those who designate the intention of studying law, must complete at least 9 term hours in English literature or upper division foreign language or social science and at least 9 term hours in science. If a school cannot meet this requirement by the close of the sophomore year, fulfillment may be deferred by agreement between the dean of the school concerned and the Academic Requirements Committee, such agreement to be filed in the Registrar's office.

For the Bachelor's Degree. When a student has fulfilled all the requirements for a Junior Certificate he may begin upper division work in the college or school of his choice and become a candidate for a bachelor's degree. The requirements for the bachelor's degree are as follows:

(1) Junior Certificate.

(2) Term Hours: Minimum total, 186, including—

(a) The hours earned in obtaining the Junior Certificate.

(b) A minimum of 62 hours in upper division courses, except that only 45 such hours are required of majors in the professional and technical schools and in the School of Science.

(c) A minimum of 36 hours in the major department, of which 24 must be upper division.

(d) A minimum of 45 hours earned after obtaining the Junior Certificate.

(e) For B.A.: 36 hours in Arts and Letters, including two years (normally 24 term hours) in a foreign language for which college credit is received.

(f) For B.S.: 36 hours in either Social Science or Science.

(g) For B.S. in a professional or technical field: 36 hours in the professional or technical school in which the student has majored.

(h) For professional bachelor's degree: Recommendation of the dean of the student's major school for the particular degree.

(3) Grade-Point Average: Minimum, 1.00.

(4) Residence: Minimum, 45 term hours (normally the last 45).

(5) Dean's Recommendation: In addition to other requirements the student must have fulfilled requirements of his major school and department and must be recommended by the dean of his school.

For the Higher Degrees. The requirements for the Higher Degrees are indicated on another page in the announcements of the Graduate Division.

Academic Procedure

THE academic year is divided into three terms of approximately twelve weeks each. A six-week summer session supplements the work of the regular year (see special announcements). Students may enter at any term but are advised to enter in the fall. It is especially important that freshman or transferring students be present for the opening of Freshman Week. The opening and closing dates for the terms of the current year are given in the academic calendar on another page.

DEFINITIONS

A COURSE is one of the instructional subdivisions of a subject offered through a single term.

A YEAR-SEQUENCE consists of three closely articulated courses in a subject extending through the three terms of the academic year.

A CURRICULUM is an organized program of study arranged to provide definite cultural or professional preparation.

A TERM 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 lecture, recitation, laboratory, studio, or other periods per week for the respective courses is indicated in the course descriptions or the regular printed schedules.

COURSE NUMBERING SYSTEM

Courses throughout the state system of higher education are numbered as follows:

100-110, 200-210. Courses intended to satisfy the Lower Division Group requirements in the Language and Literature, Science and Social Science groups. These numbers may also be used by professional and technical schools to designate similar Lower Division courses.

111-199. Other courses offered at first-year level. (Courses in the first two years of foreign language offered for the benefit of students who did not get this foundation in preparatory school are numbered 1-99.)

211-299. Other courses offered at second-year level.

300-399. Upper division courses not applicable for graduate credit.

400-499. Upper division courses primarily for seniors but which may be taken for graduate credit provided a more exacting standard is met.

500-599. Courses primarily for graduate students but to which seniors of superior scholastic achievement may be admitted on approval of instructor and department head concerned.

600-699. Courses that are highly professional or technical in nature and may count toward a professional degree only but cannot apply toward an advanced academic degree such as M.A., M.S., or Ph.D.

Certain numbers are reserved for courses that may be taken through successive terms under the same course number, credit being granted according to the amount of acceptable work done. These course numbers are as follows:

301, 401, 501. Research or other supervised original work.

303, 403, 503. Thesis. Reading or research reported in writing.

305, 405, 505. Reading and Conference. Independent reading reported orally to instructor.

307, 407, 507. Seminar. Independent or assigned reading on current problems reported to groups, using material that never duplicates subject-matter previously covered in course.

Summer Session Courses are numbered on the following basis:

A course given during the summer session essentially identical to one given during the regular year is given the same number.

A small "s" following a course number indicates that the course, while for the most part similar to the course of that number given during the regular year, is modified in some significant respect when given during the Summer Session.

Courses given during the Summer Sessions which have no parallel with courses offered during the regular session are given numbers not attached to any course given during the regular session but conforming to the regulations indicated above. The number is followed by an "s."

REGULATIONS AND REQUIREMENTS

Students are held responsible for familiarity with the regulations governing such matters as the routine of registration, academic standards, student activities, organizations, etc. The information presented in the following paragraphs is limited to items of interest to prospective students prior to registration.

Freshman Week, comprising a program of orientation training for entering freshmen, is held annually before the return of students who have previously been in attendance. This arrangement is provided in order that the faculty may be free to devote undivided attention to this work. 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 institution. By means of general assemblies, group lectures and discussions, individual conferences, examinations and tests, constructive effort is made to assist every freshman in getting the best possible start in his new work.

Placement Examinations. As a basis for the most helpful planning of the student's entire program in college, a number of examinations are given entering students.

Psychological Examination. All entering undergraduate students are required to take a psychological examination. This test is considered to some extent a measure of college aptitude, and the results are weighed in arranging the student's course of study for the term.

Placement Examination in English. All students entering as freshmen 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 English K before registering for work in English Composition.

Placement Examination in Mathematics. All freshmen registering in any Engineering or Forestry 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.

Physical Examination. A physical examination is required of all students entering the institution. 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.

Grades and Points. The quality of student work is measured by a system of grades and grade points.

Grades. The grading system consists of four passing grades, A, B, C, D; failure, F; incomplete, INC.; withdrawn, W. Students ordinarily receive one of the four passing grades or failure. When the quality of the work is satisfactory, but the course has not been completed, for reasons acceptable to the instructor, a report of incomplete is made and additional time is granted; this additional time is only to the end of the next subsequent term that the student is registered in the institution. Students are officially withdrawn (W) from a course on filing the proper blanks with the registrar's office.

Exceptional accomplishment is denoted by the grade of A, superior by B, average by C, inferior by D, unsatisfactory by F.

Points. Grade points are computed on the basis of 3 points for each term hour of A grade, 2 for each term hour of B, 1 for each term hour of C, 0 for each term hour of D, and –1 (minus one) for each term hour of F. Marks of INC. and W, are disregarded in the computation of points. The grade point average (GPA) is the quotient of total points divided by total term hours, total term hours being the number of term hours in which grades (A, B, C, D, and F) are received.

Scholarship Regulations. The administration of the regulations governing scholarship requirements on each campus is vested in a committee of the faculty known as the scholarship committee. This committee has discretionary authority in the enforcement of rules governing probation,

and also has authority to drop a student when it appears that his work is of such character that he cannot remain with profit to himself and with credit to the institution. In general, this implies substantial progress toward meeting graduation requirements.

(1) A student of lower division rank is automatically placed on probation if his grade-point average for any term is below .50, and he shall not be released from probation until his grade-point average for a subsequent term is at least .75.

(2) A student of upper division rank is given written notice of warning if his grade-point average falls below 1.00 in any term. He is automatically placed on probation when his grade-point average for a given term falls below .75 or at any time his cumulative grade-point average falls below 1.00. He shall not be released from probation until he has made a term grade-point average of at least 1.00 and has a cumulative grade-point average of 1.00.

(3) A student on probation must withdraw from all student, extracurricular, and organization activities.

(4) No student who has been in residence six terms, or equivalent, is eligible to hold any elective office or to accept an appointment in a student activity unless he has been admitted to upper division standing. The meaning of the term "elective office" shall be interpreted by the Scholarship Committee.

(5) The rules of the Pacific Coast Intercollegiate Athletic Conference shall govern in all cases of athletic eligibility.

(6) Students who have been suspended or expelled are denied all the privileges of the institution or of any organization in any way connected with it, and shall not be permitted to attend any social gathering of students or to reside in any fraternity, sorority, or club house, or in any of the halls of residence.

Auditors. Persons not otherwise registered in the institution who desire to attend classes in any subject regularly during the term may be classified as auditors on the presentation to the registrar's office of a formal petition approved by the instructor who gives the course and the payment of a fee assessed at the rate of one dollar per term hour. Any student regularly enrolled in the institution desiring to attend a class without registering for credit may be granted this privilege on presentation to the registrar of a formal petition approved by the instructor who gives the course and the dean of the school in which the student is registered.

Visitors. A person not regularly registered as a student but who may be on the campus as a guest of the institution may be granted the privilege of attending classes on the presentation of a visitor's card signed by the registrar.

Final Examinations. At the close of each term final examinations are arranged in all courses, except in the case of subjects not readily lending themselves to written examinations. Courses in the latter classification may be exempted on approval of the Administrative Council.

Restrictions. Not more than sixty term hours of correspondence study may be applied toward a degree. Not more than forty-eight term hours of law or medicine may be applied toward any degree other than the professional law and medical degrees. Not more than twelve term hours of applied music may count toward any degree other than the Bachelor of Music degree.

Automobiles. By order of the State Board of Higher Education use of automobiles by students attending any of the institutions in the state system of higher education is subject to regulation to the end that such use shall not in any way be a detriment to the maintenance of the highest standards of scholarship, social life, and general welfare of institutions and students.

Fees and Deposits

ALL students enrolled in Oregon State Agricultural College during the regular academic year pay a uniform registration fee, irrespective of the school or curriculum in which they are classified. This charge covers all regular fees payable during the term and is collected at the time of registration.

Undergraduate Fee. Undergraduate students who are residents of Oregon pay a flat registration fee of $32.00 each term, or $96.00 a year. Non-residents pay $50.00 a term, or $150.00 a year, in addition to the fee paid by Oregon residents. The registration fee includes the Associated Students' fee of $5.00 a term, which gives the student the Associated Students' ticket, admitting to all athletic events and other activities sponsored by the student body, as well as a subscription to the student daily newspaper; the health service fee of $3.50 a term, which provides medical consultation and advice from a competent medical staff; the Building fee of $5.00 a term levied by the Associated Students to provide and maintain certain building projects and pay off other obligations initiated and voted by the students; and the class fee of fifty cents, which goes to the support of the class of which the student is a member. The remainder of the registration fee, in the amount of $18.00, is credited to the state, entitling the student to register in any school or curriculum without additional charge, and providing free use of all institutional facilities and equipment maintained for the benefit of students. Laboratory and course fees are covered by the undergraduate fee of $32.00 a term.

Graduate Fee. A graduate student is required to pay a registration fee of $26.00 each term, or $78.00 a year. This entitles the student to enroll in any school or curriculum without additional charge; free use of all institutional facilities and equipment maintained for the benefit of students; a subscription to the student daily newspaper; the Associated Students ticket; and the privileges of the health service. There is no non-resident fee for graduate students. In order to register as a graduate student, a student must be admitted to the Graduate Division or have received a bachelor's degree or have completed all requirements for a bachelor's degree.

Graduation Fee. A graduation fee of $6.50 is paid for each degree taken. The regulations of the institution prescribe that no person shall be recommended for a degree until he has paid all fees and charges due the institution, including the graduation fee. The graduation fee entitles the student to one year's membership in the Alumni Association.

Special Fees. The following fees are paid by the students under the conditions indicated:

1. Late Registration Fee.....$1.00 to $5.00

   Students registering after the scheduled registration dates of any term pay a late registration fee of $1.00 for the first day and $1.00 for each additional day until a maximum charge of $5.00 is reached.

2. Change of Program 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. Part-time Fee, per term hour.....$3.00

   Any student, either graduate or undergraduate, registering for six term hours of work or less may have an option of a reduced rate of $3.00 per term hour. This fee is payable at the time of registration and extends the permission of class attendance and free use of library, but not to any other institutional privileges.

4. Reinstatement Fee.....$2.00

   If for any reason a student has his registration canceled during a term for failure to comply with the regulations of the institution, but is later allowed to continue his work, the reinstatement fee is charged.

5. Special Examination Fee, each course.....$2.00

   If a student is granted the privilege of taking an examination for advanced credit or other special examination, this fee is charged.

6. Auditor's Fee, per term hour.....$1.00

   An auditor is a person who has obtained permission to attend classes without receiving academic credit. The fee is payable at the time of registration and entitles the student to attend classes but not to enjoy other institutional privileges.

7. Transcript Fee.....$1.00

   A fee of $1.00 is charged for each transcript issued after the first, which is issued free of charge.

Non-resident Fee. All regular undergraduate students at the State College who are not residents of Oregon pay a non-resident fee of $50.00 a term or $150.00 a year in addition to the fees paid by Oregon residents (see Regulations Governing Non-resident Tuition).

Deposits. Each student who enrolls for academic credit is required to make a deposit of $5.00 payable once each year at the time of first registration. This is required as a protection against loss or damage of institutional property made available for the use of the student, including such items as laboratory equipment, military uniforms, library books, locker keys, or against any contingencies that may arise. If at any time charges against this deposit become excessive, the student may be called on to reestablish the original amount.

Fee Refunds. Students who withdraw from the institution and who have complied with the regulations governing withdrawals will be entitled to certain refunds of fees paid, depending on the time of withdrawal. In no case shall the amount retained by the institution be less than $5.00. The amounts listed below will be refunded under the conditions indicated.

(1) Any claim for refund must be made in writing, with the student body ticket attached, before the close of the term in which said claim originated.

(2) Refunds in all cases shall be calculated from the date of application for refund and not from the date when the student ceased attending classes, except that in the case of a student withdrawing on account of illness refunds shall be calculated from the date of last class attended, provided the claim for refund is accompanied by a certificate from the attending physician.

(3) If withdrawal is requested after the student's registration has been filed, but before the close of the first week in which classes begin, $5.00 shall be retained by the institution and any amount paid by the student above $5.00 shall be refunded.

(4) If withdrawal is requested after the close of the first week in which classes begin, but before the close of the second week, a refund of three-fourths of the term fees shall be granted.

(5) If withdrawal is requested after the close of the second week of classes, but before the close of the fourth week, one-half of the term fees shall be refunded.

(6) If withdrawal is requested after the close of the fourth week of classes, and before the close of the sixth week, one-fourth of the term fees shall be refunded.

(7) After the close of the sixth week of classes no refunds shall be allowed.

Deposit Refunds. Within three weeks after the close of the academic year, or after the close of either the fall or winter term, should a student discontinue his work before the year is completed, the $5.00 deposit, less any deductions which may have been made, will be refunded.

REGULATIONS GOVERNING NON-RESIDENT TUITION

The Oregon State Board of Higher Education has defined a non-resident student as a person who comes into Oregon from another state for the purpose of attending one of the institutions under the control of the Board.

In order to draw a clear line between resident and non-resident students the Board has ordered that all students in the institutions under its control who have not been domiciled in Oregon for more than one year immediately preceding the day of their first enrollment in the institution shall be termed non-resident students, with the following exceptions:

(1) Students whose fathers (or mothers, if the father is not living) are domiciled, as defined under (1) below, in the State of Oregon.

(2) Children of regular employees of the Federal Government stationed in the State of Oregon.

(3) Students holding bachelor's or higher degrees from higher educational institutions whose work is acceptable as preparation for graduate work.

(4) Students in summer sessions.

The Board established the following rules to be 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 will 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 bcause of the Oregon 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 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.

Student Living

COMFORTABLE, healthful, and congenial living conditions for students are regarded as of great importance. Living conditions of the right kind not only aid students to do the best work in their studies but also through the experiences of group life contribute to the building of character and personality. Hence careful consideration is given to proper living conditions for students, not only through provision of institutional halls of residence, but also through supervision of the living conditions of students outside the dormitories as well.

In addition to those living in the dormitories, many students live in fraternity, sorority, or club houses accommodating groups of from twenty to fifty persons. Admission to these groups is by invitation only.

Students also live with relatives near the campus or in private homes or boarding houses.

DORMITORIES

The function of the halls of residence is to provide comfortable, democratic living conditions conducive alike to successful work as a student and to complete participation in the wholesome activities of campus life. Living conditions within the halls are made as nearly like that of a good modern home as possible. In addition, the method of government, the distribution of responsibility, and the opportunities for sharing in all the privileges and activities of a congenial social group are such as to promote social coherence and develop college spirit—that indefinable but truly memorable element in the life of a student in an institution of higher learning.

Room Deposits. A deposit of $5.00 must be sent to the Director of Dormitories at the time of application for room. On registration this deposit applies on the first month's bill for board and room.

In case a student who has applied for a room does not enter the institution, the deposit will be refunded provided notification is sent at least one week before the opening date. Rooms will not be held after the first day of registration.

The charges listed for room and board do not include vacation periods. The right is reserved to increase the price of room and board should advance in costs require. A corresponding decrease will be made whenever decreased costs make it possible.

Students are not expected to arrive at halls of residence until the day the dormitories are open, usually one day before the opening date of a term.

Men's Halls. Five halls of residence for men, Buxton, Cauthorn, Hawley, Poling, and Weatherford Halls, are maintained, accommodating a total of 344 students. The five halls are part of a single structure described elsewhere under "Buildings" as the "Men's Dormitory Building."

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. For each floor common sleeping rooms are provided, equipped with cots, mattresses, mattress-covers and pillows. Each student furnishes his own study lamp, bedding, towels, and personal furnishings. In each hall a club or social room, comfortably and tastefully furnished, is available for the use of all students in the hall. Telephone service is provided on each floor of each hall, and in the basement of each hall laundry facilities with electric irons and trunk storage accommodations are available. In addition, one of the halls contains a general reception room and guest suite for the entertainment of parents and other guests.

Women's Halls. Three halls of residence for women are provided, including Ida Kidder, Margaret Snell, and Waldo. All the halls are homelike and attractive and are supplied throughout with pure mountain water, both hot and cold, electric lights, and steam heat. The rooms are furnished with single beds, mattresses, dressers, tables, and chairs. Other furnishings, 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. Each hall contains reception and social rooms for the use of students. Laundry facilities and trunk storage accommodations are also available in each hall. Telephone service is provided. Ida Kidder Hall will not be in use during 1933-34.

Living Expenses. The rate for board and room in the halls is $25.00 for each calendar month. Making allowance for vacation periods, this amounts to about $70.00 for the first term and will not exceed $200 for the academic year.

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

Housing Regulations. The following regulations govern housing of students, with the provision that when financial reasons make it necessary the housing committee may excuse students from dormitory residence and permit them to live in approved homes when rates for board and room are lower.

All freshman women at the College are required to live in the dormitories during the first year.

All women students, other than freshmen, who do not live with their relatives in Corvallis or in sorority houses are required to live in the dormitories.

Upperclass women at the College may move to the sorority houses at the beginning and end of any term. At the beginning of the term, moving will take place on the second Saturday.

Freshman and sophomore men not living with relatives in Corvallis or in the present organized fraternities must live in the dormitories. Any exemptions from this requirement must be approved by the Housing Committee.

Any student reserving a room in the men's halls must occupy it until the end of the term. If he moves out of the dormitory before the end of the term without proper permission, he must pay his room and board to the dormitory for the remainder of the term or forfeit his registration. A student who pledges to a fraternity may move to a fraternity house at the end of either the first or the second term if he substitutes a student in his place at the dormitory, if he petitions the Director of Dormitories to be released in his turn as new students enter the dormitory, or if on proper authority he is released on account of serious financial condition of his fraternity.

All women students living in the dormitories must take their meals at the dormitories.

All men students living in the dormitories must take their meals in the dining-room provided for them in the Memorial Union.

PRIVATE BOARD AND ROOM

Board and room can be obtained in private homes or boarding houses at rates from $20.00 to $40.00 a month. The Housing Committee exercises general supervision over student living. This committee endeavors to see that all students have comfortable rooms and wholesome living conditions.

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. The following table gives as nearly as possible the average expenses incurred by a student during an academic year. Board and room costs are based on charges in the halls of residence. The incidental item varies greatly with the individual. Cost of clothing is not included. The expenses of the first term are listed also, since the first term involves expenses not incurred during the second and third terms.

Items	First Term	Year
Fees	$32.00	$96.00
Deposit	5.00	5.00
Books, supplies, etc.	25.00	50.00
Board and room	70.00	200.00
Incidentals	35.00	100.00
	$167.00	$451.00

SELF-SUPPORT

Many students earn a large part of their expenses by work in the summers and during the academic year. Some students are entirely self-supporting. In some cases students devote an occasional term or two to regular employment in addition to vacation periods, thus taking more than the usual number of years to complete a course.

The work available during the academic year consists of such tasks as janitor work, typewriting, reporting, tutoring, waiting on table, clerking, clothes pressing, caring for children, odd jobs, etc.

Organized effort is made to assist those desiring to find work. Remunerative employment cannot be guaranteed to all who may desire it, and the new student should have sufficient funds to cover the expenses of at least the first term. It is difficult to earn one's way while carrying a program of studies and only capable students of good health should attempt it. 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. Work of any kind is much more readily obtained after the student has had opportunity to familiarize himself with the 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 the campus a day or two before the term opens to talk the matter over with the employment secretary. Positions for part-time employment are not listed, as a rule, until about the time the term 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 oversupply 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 needs 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 three and one-half hours of work a day.

EMPLOYMENT BUREAUS

The employment bureau for men is conducted by the Young Men's Christian Association in Shepard Hall. The employment bureau for women is conducted by the Dean of Women's office in Commerce Hall.

Health Service

PROVISION is made for the safeguarding of student health at the State College through the organization of a health service. 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 remediable defects through the medium of complete medical examinations, and by appropriate medical attention for acute disease conditions.

The College 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. The staff comprises three full-time physicians, one of whom is a woman; four nurses and a technician.

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 five days in any one term during 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, on 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.

Loan Funds

As an aid to students in financing a part of their residence study at the State College a number of loan funds have been established. In addition to the general "Student Loan Fund," to which there are many donors, a number of special loan funds have been established. A special faculty committee with offices in the Memorial Union is charged with the responsibility of administering the Student Loan Fund and cooperates in the administration of the other loan funds available for students at the State 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, Mrs. Clara Humason Waldo, Mr. Ashby Pierce, Mr. R. M. Johnston, Mr. L. J. Simpson, Mr. 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 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.

Federation of Women's Clubs Educational Fund. This fund provides loans to women students who are well recommended.

Royal Arch Masons' Loan Fund. 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.

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 institution and the approval of the master and wardens of the lodge located in the same place as the institution. 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 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.

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 draw four per cent 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 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 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 lent 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.

The Arthur Palmer Tifft Memorial Loan Fund. By the will of the late Mrs. Joan C. Palmer Tifft, 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 Tifft, Portland attorney, who died on January 14, 1919. The fund is irreducible and all interest accruing therefrom is added to the fund.

The Oregon State Pharmaceutical Association 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 Joseph N. Teal Loan Fund. By bequest 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."

A. W. S. Emergency Loan Fund for Women Students. The Associated Women students set aside a sum of money which is available to women students who are in need of small amounts of money for short periods of time. This fund is under the auspices and administration of the Dean of Women.

Oregon State College Chamber of Commerce Loan Fund. The Oregon State College Chamber of Commerce has placed six hundred dollars with the Loan Committee for the assistance of worthy students. This money is to be administered by the Student Loan Board with special consideration for students in Business Administration.

1933 Senior Class Gift. The Class of 1933 has set aside a substantial sum as a perpetual revolving fund to help worthy students, especially seniors, who need financial assistance.

Honors and Prizes

IN addition to the various honor societies listed elsewhere in this catalog which have as a primary purpose the recognition of superior scholarship and other qualities, honors and prizes have been provided to be awarded to students of unusual achievement.

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 per cent 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 Adolphe Wolfe Prizes, totaling two hundred dollars annually, were established in 1927 with the object of recognizing students showing superior business ability. Two prizes of fifty dollars each, two of thirty dollars, and two of twenty dollars are provided for the man and the woman respectively in the senior, junior, and sophomore classes, who in the opinion of the faculty committee on honors and awards gives the greatest promise of applying business principles to the advancement of industrial and social institutions. In awarding the prizes, character and scholarship as well as qualities of leadership are considered.

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 in 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 upon her associates.

The **E. D. Ressler Memorial**. This award, given by the Oregon State Teachers Association is presented to the junior preparing to enter the teaching profession who in the judgment of the Education faculty, as approved by the committee on honors and awards, has made the best all-around record as an undergraduate.

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.

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

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** of twenty-five, fifteen, and ten dollars respectively are 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 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.

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) formerly of McCoy, Polk county, Oregon. The income from this gift is awarded annually to the graduate or undergraduate student who during the year has had published the best article or series of articles dealing with 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 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.

Scholarships

A NUMBER of scholarships and fellowships have been established largely through the generosity of private donors, providing funds in varying amounts for the encouragement of students showing special promise. Some of these are general scholarships, while others are limited to special fields.

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, following a qualifying examination held in Lake county.

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.

Fleischmann Fellowship. A grant of nine hundred dollars for the year for chemical research on yeast is given by Standard Brands, Inc., of New York, successor to the Fleischmann Company. Seven hundred and fifty dollars of this amount is the stipend of the Fleischmann Fellowship. It is awarded and the research carried on under the direction of Dr. Roger J. Williams of the Chemistry department.

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.

Kingery Dermatological Research Fellowship in Chemistry. A research fellowship is awarded for the study of chemical means of combating pathogenic yeast infections. The stipend of six hundred dollars is given by Dr. Lyle B. Kingery of Portland, and the work is to be directed by Dr. Roger J. Williams.

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 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 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 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.

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

IMPORTANT in rounding out the benefits of college training is the formation of civic habits of responsibility and leadership through student clubs, associations, and societies. The activities of these organizations involve the practice of citizenship in the campus community, the development of friendship through congenial associations, and the broadening of outlook and sympathies. As a result of the diverse interests of campus life and the varying tastes of the students, the following activities and organizations, among others, are maintained by students and faculty.

Student Self-Government

STUDENT self-government places the responsibility of student life, conduct, habits, development, and experience with the entire student body as a group. The students, in accepting the institution of self-government, have perfected an organization known as the Associated Students. Student officers are chosen by general election.

The activities of the Associated Students cover a wide range: the operation of intercollegiate athletics, student publications, forensics and dramatics, musical organizations, professional and technical organizations, honor societies, and class and social activities generally. Within the general student body organization the Associated Women Students is responsible for all activities sponsored or participated in by women.

The Classes

EACH entering group of students forms an organization that retains its identity throughout the four years at the State College and after graduation. Class reunions are regularly held by alumni at Homecoming and Commencement.

During their undergraduate days students in the different classes uphold various distinctive traditions. Graduating classes usually leave a class gift to their Alma Mater. Classes returning for their silver anniversary or jubilee also may make gifts as an expression of their loyalty and appreciation toward the institution at which they received their undergraduate education.

Alumni Association

FOSTERED by the graduates and former students of the College, the Oregon State Alumni Association includes 8,106 graduates and approximately 16,000 former students. 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, where complete files are kept of all graduates of the College.

The officers of the Association for 1933-34 are as follows:

Charles H. Reynolds, '13, La Grande.....President
Don W. Holgate, '97, Portland.....Vice-president
Arthur K. Berman, '07, Corvallis.....Treasurer
Edward C. Allworth, '16, Corvallis.....Secretary
David A. Wright, '08, Salem, Oregon.....Director
Kenneth C. Poole, '23, Portland, Oregon.....Director

R. Earl Riley, '12, Portland, Oregon.....
Roy A. Clark, '09, Portland, Oregon.....
E. E. Wilson, '89, Corvallis, Oregon.....
F. Earl Price, '22, Corvallis, Oregon.....
} Alumni Members Memorial Union Board of Governors

J. M. Reynolds, '10, Corvallis, Oregon.....Alumni Member Board of Control
J. F. Porter, '12, Corvallis, Oregon.....Alumni Member Memorial Union Board of Directors

Miscellaneous Organizations

ON the following pages are listed various classifications of student organizations at the State College. In addition, a large number of miscellaneous organizations are maintained. Examples are the Bernard Daly Club, composed of those students holding Bernard Daly scholarships, Masonic and Eastern Star organizations, and clubs composed of students affiliated with certain religious denominations, such as the Newman Club, Westminster Association, and Wesley Association.

The American Association of University Women maintains a Corvallis branch. The Oregon State Dames, a social organization for wives and mothers of students, is affiliated with the national organization of University Dames. The College Folk Club includes women connected with the staff directly or through immediate family connection. The Faculty Men's Club, the Biology Club, the Sigma Xi and Phi Beta Kappa associations are primarily faculty organizations.

The Young Men's Christian Association aims to give encouragement and effective expression to the highest Christian idealism, to render helpful service to promote social and religious activities on the campus and to develop interest in world problems. The organization cooperates with many institutional student welfare agencies and with the churches. In carrying out programs of religious education, outstanding leaders representing different religious and racial points of view are brought to the campuses. Friendly international and interracial relations are fostered. Many personal and group conferences are held. The "Y" headquarters constitutes a recreational and social center for men students.

The Young Women's Christian Association provides women students with opportunities for religious education, social activity, friendship, study and entertainment. The Association cooperates with other student welfare agencies on the campus and with the local churches. Open forums, discus-

sion groups, services of worship, personal conferences, and social gatherings are held.

The **Cosmopolitan Club**, a local chapter of the Association of Cosmopolitan Clubs of the World, includes in its membership representatives of all foreign countries represented on the campus together with many Americans interested in world relations. The organization provides social and educational advantages for its members and seeks to promote international friendship.

Athletic Organizations

CLOSELY related to the instruction in physical education, athletic organizations are maintained both for men and for women students. The State College is a member of the Pacific Coast Athletic Conference composed of ten leading universities and colleges of the coast. In addition to intercollegiate athletics, a comprehensive program of intramural sports is sponsored. The athletic organizations listed below supplement the organized sports.

The **Minor "O" Association** includes all men who have been awarded a letter in any of the minor sports.

The **Varsity "O" Association** includes all men who have been awarded a major-sport letter in recognition of service on the intercollegiate athletic team and who have been duly voted upon and initiated into the Association. Annual reunions are held at Homecoming.

The **Women's Athletic Association** sponsors women's athletic contests. Members are chosen for achievement in athletics and outstanding character. The Association develops student leadership, furnishes student athletic managers, stimulates and regulates participation. As a member of the Athletic Conference of American College women, it correlates its program with a nation-wide effort to maintain women's athletics on a high educational level.

Forensic and Dramatic Organizations

FORENSIC and dramatic activities are fostered at the State College not only for the benefits which such activities bring to those participating but also for their intellectual and cultural value to the campus generally. The State College is a member of the Pacific Forensic League, composed of the leading colleges and universities of the coast, and of the Intercollegiate Forensic Association of Oregon, composed of ten of the colleges and universities of the state. Chapters of the national societies, Delta Sigma Rho and National Collegiate Players, are maintained.

Play Presentation. In connection with the instruction in community drama, groups of short plays are regularly presented. The National Collegiate Players present three major plays each year.

Forensic Division of the Associated Students. This organization brings together for cooperative activity all campus organizations and individuals interested in any phase of forensics.

Intercollegiate Debate and Oratory. From thirty-six to forty Oregon State teams, supporting both the negative and the affirmative of many questions, each year participate in approximately seventy intercollegiate debates. The College participates in the old-line State Oratorical Contest, the state Peace oratorical contests, and the state and Pacific Coast extempore speaking contests.

Local Debate and Oratory. Interclass and interorganization contests are held in debate, oratory, and extempore speaking. Approximately forty teams participate each year, the winners receiving loving cups.

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 of 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 State College:

Phi Kappa Phi (All-College, men and women).
Alpha Zeta (Agriculture, men).
Cap and Gown (Senior women).
Delta Sigma Rho (Forensics, men and women).
Eta Kappa Nu (Electrical Engineering).
Euterpe (Music, women).
Gamma Sigma Delta (Agriculture).
Kappa Kappa Alpha (Art, men and women).
Kappa Kappa Psi (Band).
Mu Beta Beta (4-H Clubs, men and women).
National Collegiate Players (Dramatics, men and women).
Omicron Nu (Home Economics).
Parthenia (Physical Education, women).
Phi Lambda Upsilon (Chemistry).
Rho Chi (Pharmacy, men and women).
Sigma Alpha (Physical Education, men).
Sigma Tau (Engineering).
Spurs (Sophomore women).
Tau Beta Pi (Engineering).
Theta Sigma Phi (Journalism, women).

Musical Organizations

EFFORT is made at the State College to stress the cultural benefits of music as an extra-curricular activity. Musical organizations are recognized not only as of great value to the students participating but as essential agencies for developing musical appreciation.

The **College Band.** Membership in the 75-piece, uniformed R.O.T.C. Band is open to students passing a satisfactory examination in the elements of music and ability to perform on a band instrument. Individual practice and attendance at rehearsals are required. The Band furnishes basses, baritones, altos and drums; otherwise, members must furnish their own instruments, which must be in low pitch.

The **College Orchestra.** Students and faculty members who play violin, viola, cello, or double bass as well as wood-wind and brass instruments are eligible to membership in the orchestra on passing an individual test given by the conductor. The orchestra prepares regular programs of orchestral music of a type suitable to the proficiency of the members and also assists in the programs of the College Chorus and at the Commencement exercises.

The **Glee Club** is a student men's organization, membership in which is determined by the conductor through individual examination of candidates. Programs of male choruses, glees, and compositions of a lighter nature are prepared.

The **Madrigal Club** is a student women's organization, membership in which is determined by the conductor through individual examinations of candidates. Compositions for women's voices of various types are studied. Concerts are given alone and in conjunction with the Glee Club at various times during the year.

The **College Chorus.** Besides attending regular rehearsals of the Club to which they belong, the members of the Glee and Madrigal Clubs are required to attend additional rehearsals of the combined Glee and Madrigal Clubs, at which numbers are rehearsed for concerts given at Christmas time, Easter time, and Commencement. Occasionally the two clubs unite in the production of a light opera.

The **Mandolin and Guitar Club** gives opportunity to students proficient on instruments of this nature to play in ensemble under the instructor in small-stringed instruments. Regular weekly rehearsals are held.

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 in scholarship. Election to mem-

bership is as a rule on the basis of special fitness or attainment in the respective departmental or professional fields. The professional societies at present comprise the following:

Alpha Delta Sigma (Advertising, men).
Alpha Kappa Psi (Commerce, men).
Beta Alpha Psi (Accounting).
Chi Alpha Chi (Advertising).
Epsilon Pi Tau (Industrial Arts).
Kappa Delta Pi (Education, men and women).
Kappa Psi (Pharmacy).
Phi Chi Theta (Commerce, women).
Scabbard and Blade (Military).
Sigma Delta Chi (Journalism, men).
Sigma Delta Psi (Physical Education, men).
Xi Sigma Pi (Forestry).

Social Organizations

THROUGH social organizations, particularly through living groups, students enjoy association with fellow students and personal contact with members of the faculty. The contacts thus afforded constitute one of the pleasantest features of campus life. All students have opportunity to belong to some type of social organization. Students living in halls of residence are organized into groups with their own officers and social programs. Faculty counsel is provided for all such groups.

Independent Students. Students living outside the halls of residence include independent students and those belonging to fraternities or sororities. Independent students are organized for social activities on plans varying somewhat at the different institutions. Independent women are organized in Phrateres, national society for independent women, and independent men maintain a group of clubs. All independent students, including those residing in the dormitories, are represented in the Independent Student Council, which is a member of the Independent Intercollegiate Student Association.

Fraternities and Sororities. Similarly, the fraternities 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.

Fraternities at the State College are: Alpha Chi Rho, Alpha Gamma Rho, Alpha Sigma Phi, Alpha Tau Omega, Beta Kappa, Beta Theta Pi, Chi Phi, Delta Chi, Delta Sigma Phi, Delta Tau Delta, Delta Upsilon, Kappa Delta Rho, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Phi Mu Delta, Phi Sigma Kappa, Pi Kappa Alpha, Pi Kappa Phi, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Sigma Phi Sigma, Sigma Pi, Tau Kappa Epsilon, Theta Chi, Theta Kappa Nu, Theta Xi.

Sororities at the State College are: Alpha Chi Omega, Alpha Delta Pi, Alpha Gamma Delta, Alpha Omicron Pi, Alpha Xi Delta, Beta Phi Alpha, Chi Omega, Delta Delta Delta, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Kappa, Zeta Tau Alpha.

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, Farm Crops Club, Forestry Club, 4-H Club, Home Economics Club, Horticultural Club, Industrial Arts Club, Miners' Club, Pharmaceutical Association, Soils Club, Withycombe Club (Animal Husbandry).

Student Publications

STUDENT and alumni periodicals are published at the State College as indicated below. In addition, the official publications of the State Board of Higher Education and institutional publications are listed on another page.

The **Oregon State Barometer**, published as a four-page, eight-column daily, chronicles campus news together with selected items of general and educational news. Every student receives the paper free.

The **Beaver**, a carefully compiled, illustrated, substantially bound volume published annually, gives a comprehensive record of the campus year.

The **Oregon State Monthly**, edited and issued by the Alumni Association of the College in cooperation with the undergraduate student bodies of the several schools, is devoted to the up-building of the College and 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 **Oregon State Technical Record** is a quarterly magazine devoted to engineering and industry. The magazine is a member of Engineering College Magazines Associated.

The **Oregon State Directory** comprises a complete directory of all the members of the institution's students, faculty, and employees.

The **Annual Cruise**, an illustrated annual magazine published by the Forestry Club, aims to unite more closely the forestry and lumbering industries of the Pacific Northwest and to advance scientific forestry and lumbering.

The **Student Handbook** is a pocket-size booklet issued by the Associated Students giving information for new students, especially regarding the organizations, regulations, and traditions for which the students are primarily responsible. It includes the constitution and by-laws of the Associated Students, as well as some of the established songs and cheers.

Part II
Resident Instruction

Lower Division

MAHLON ELLWOOD SMITH, Ph.D., Dean and Director of Lower Division, Oregon State System of Higher Education.
GERTRUDE FULKERSON, Secretary to the Dean.

FRESHMAN and sophomore work in the liberal arts and sciences is unspecialized and is offered through the Lower Division organization at both the University and the State College on a parallel basis leading to the Junior Certificate. At the close of the sophomore year the student selects a major course of study.

For students who plan to complete work for the bachelor's degree the two lower division years provide breadth of general education and the foundation for specialization in some major field on the upper division level of liberal arts and sciences or in the professional or technical curricula. Students explore several fields of lower division study with a view to determining special interests and aptitudes. For students who complete no more than the first two years of college or university, the lower division aims to afford a balanced cultural program and preparation for intelligent citizenship.

Purpose

THE primary purpose of the lower division organization in the Oregon State System of Higher Education, as established by the State Board of Higher Education, is as follows:

(1) Basic Education.
Insuring to all students the elements of a sound general education during their first two years; delaying specialization until the junior and senior years and then encouraging it to a high degree.

(2) Orientation.
Providing students with a period of exploratory contact which will enable the institution to assist them to make a wise selection of specialization on the basis of their abilities and aptitudes.

Lower Division "Groups"

FOR the purpose of adjusting the work to the two-fold objectives of basic education and orientation, subjects have been arranged in three groups, each representing a comprehensive field of knowledge, as follows: Language and Literature, Science (including the biological and physical sciences and mathematics), and Social Science.

Students are required during the first two years to complete a prescribed amount of work selected in these groups. The purpose of the group requirements is to provide both breadth and depth to the student's lower division curriculum. In the Lower Division, students must complete at least 9 approved term hours in each of the three groups and at least 9 additional approved term hours in courses numbered 200-210, or equivalent, in any one of the same three groups. Unless otherwise authorized, freshmen take two year-sequences in the 100-110 courses and sophomores take one year-sequence in the 100-110 courses and one in the 200-210 courses.

Besides fulfilling group requirements, all lower division students must take required work in English Composition, Hygiene and Physical Education. Men are required to take Military Science and Tactics. Students must also take the required aptitude and placement examinations, and make the adjustments indicated as a result of standing achieved in these tests. Those students who have determined on a major subject will take the prerequisites prescribed by the major school or department. Students who are uncertain of their dominant interest or their vocational intentions, or who do not plan to pursue major specialization later, take a program of studies, approved by the Dean of Lower Division, designed to aid them in self-exploration and individual development.

Junior Certificate

STUDENTS who have met the group requirements and completed a total of at least 93 term hours of required and elective freshman and sophomore work, qualify for one of three certificates, depending on their objectives and attainments:

(1) The **Junior Certificate**, which admits to upper division standing and the opportunity to pursue a major curriculum leading to a degree. It requires a minimum grade-point average of 1.00.

(2) The **Junior Certificate with Honors Privileges**, which admits to the privilege of working for Honors in those schools providing Honors work. It requires a grade-point average fixed by the Honors Council, usually about 1.75, represented by a scholastic average slightly below B.

(3) The **Lower Division Certificate**, which recognizes the successful completion of two years of lower division work and which is granted upon request to students whose desire has been only to round out their general education. It does not admit to upper division standing or classification as a junior, however, and hence does not require the higher scholastic average required of students who earn the other two certificates.

Lower Division Curriculum

THE general distribution of work for Lower Division students is shown in the curriculum outlined on the next page. Besides the group courses and the required subjects, students complete their study programs by electing, with the approval of the Dean of Lower Division, departmental or school requirements or exploratory subjects according to their respective interests and aptitudes.

Freshman Year	Term hours 1st	2d	3d
Year-sequence in any one of the three groups	3–4	3–4	3–4
Year-sequence in another of the three groups (may be deferred until sophomore year)	3–4	3–4	3–4
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
[2]Departmental or school requirements or exploratory electives	5–3	5–3	5–3
	16	16	16

Sophomore Year			
Sophomore year-sequence in one of the groups begun in the freshman year	3–4	3–4	3–4
Year-sequence in a third group	3–4	3–4	3–4
Military Science	1	1	1
Advanced Physical Education	1	1	1
[2]Departmental or school requirements or exploratory electives	8–6	8–6	8–6
	16	16	16

Lower Division Courses

THE courses offered to meet group requirements (numbered 100-110 and 200-210) and other courses available in arts and science departments as Lower Division requirements and electives are offered on substantially the same basis at both the University and the State College. In the lists of courses below, all courses are offered at both institutions with the exception of those courses marked *, offered at the State College only, and those marked †, offered at the University only.

The courses are listed below under two divisions:

Courses Applicable in Satisfying Group Requirements

Other Lower Division Courses

Description of the courses are printed under the respective departments.

Courses Applicable in Satisfying Group Requirements

LANGUAGE AND LITERATURE GROUP

English

†Eng 101, 102, 103. Literature Survey, 3 hours each term.
*Eng 101, 102, 103. English Survey, 3 hours each term.
†Eng 104, 105, 106. The Appreciation of Literature, 3 hours each term.
*Eng 104, 105, 106. Introduction to Literature, 3 hours each term.
†Eng 107, 108, 109. Introduction to Literature, 3 hours each term.
Eng 201, 202, 203. Shakespeare, 3 hours each term.
†Eng 208, 209, 210. Literature of the Ancient World, 3 hours each term.

Germanic Languages

GERMAN

*Ger 101, 102, 103. German Literature (Third Year German), 3 hours each term.
*Ger 201, 202, 203. German Literature (Third Year German), 3 hours each term.
†Ger 205, 206, 207. Introduction to German Literature (Given in English), 3 hours each term.

[1]Physical Education two terms (1 hour each term); General Hygiene one term (2 hours) uniform for both men and women at State College.

[2]Chosen with the approval of the Dean of Lower Division. If one of the year-sequences in group requirements is deferred to the sophomore year, the opportunity for school requirements or electives is correspondingly increased. The elections may well be used for fulfilling requirements in a third group.

Latin

†Lat 101, 102, 103. Latin Literature: the Augustan Age, 3 hours each term.
†Lat 201, 202, 203. Latin Literature: the Silver Age, 3 hours each term.

Romance Languages

FRENCH

RL 101, 102, 103. French Literature, 3 hours each term.
RL 201, 202, 203. French Literature, 3 hours each term.
†RL 204, 205, 206. Seventeenth Century French Literature, 3 hours each term.

SPANISH

RL 107, 108, 109. Spanish Literature, 3 hours each term.
RL 207, 208, 209. Spanish Literature, 3 hours each term.

SCIENCE GROUP

Bacteriology

BiS 101, 102, 103. Biological Science Survey, 4 hours each term.
*Bac 201, 202, 203. Elementary Bacteriology, 3 hours each term.
*Bac 204. General Bacteriology, 3 hours first or second term.
*Bac 205. General Bacteriology, 3 hours second or third term.
*Bac 206. General Bacteriology, 3 hours third term.

Botany

BiS 101, 102, 103. Biological Science Survey, 4 hours each term.
Bot 201, 202, 203. General Botany, 3 hours each term.
†Bot 204. Plant Activities, 4 hours first term.
†Bot 205. Plant Groups, 4 hours second term.
†Bot 206. Plant Classification, 4 hours third term.

Chemistry

PhS 101, 102, 103. Physical Science Survey, 4 hours each term.
Ch 201, 202, 203. Elementary Chemistry, 3 hours (Corvallis), 4 hours (Eugene), each term.
Ch 204, 205, 206. General Chemistry, 5 hours (Corvallis), 4 hours (Eugene), each term.
*Ch 208, 209. General Chemistry, 5 hours second and third terms.

Entomology

BiS 101, 102, 103. Biological Science Survey, 4 hours each term.
*Ent 201, 202, 203. General Entomology, 3 hours each term.

Geology

PhS 101, 102, 103. Physical Science Survey, 4 hours each term.
†G 201, 202, 203. General Geology, 3 hours each term.
*G 201, 202, 203. Geology, 3 hours each term.
†G 204, 205, 206. General Geology Laboratory, 1 hour each term.
*G 204, 205, 206. Geology Laboratory, 1 hour each term.

Mathematics

*Mth 100. Intermediate Algebra, 4 hours one term.
*Mth 101, 102, 103. Unified Mathematics, 4 hours each term.
†Mth 104, 105, 106. Unified Mathematics, 4 hours each term.
†Mth 104, 105, 108. Unified Mathematics, 4 hours each term.
†Mth 105, 106, 107. Unified Mathematics, 4 hours each term.
†Mth 105, 106, 108. Unified Mathematics, 4 hours each term.
†Mth 104, 110, 108. Unified Mathematics, 4 hours each term.
†Mth 110, 106, 108. Unified Mathematics, 4 hours each term.
Mth 108. Mathematics of Finance, 4 hours one term.
Mth 109. Elements of Statistics, 4 hours one term (Not offered 1933-34 at Eugene).
†Mth 110. College Algebra, 4 hours one term.
†Mth 200. Analytical Geometry, 4 hours first term. (For students entering with advanced algebra and geometry; may be applied to satisfy group requirements in combination with Mth 201, 202.)
*Mth 201, 202, 203. Differential and Integral Calculus, 4 hours each term.
†Mth 201, 202. Differential and Integral Calculus, 4 hours each term, second and third terms.
†Mth 203, 204, 205. Differential and Integral Calculus, 4 hours each term.
*Mth 204, 205, 206. Differential and Integral Calculus, 4 hours each term.

Physics

PhS 101, 102, 103. Physical Science Survey, 4 hours each term.
Ph 201, 202, 203. General Physics, 4 hours each term.
†Ph 204, 205, 206. Descriptive Astronomy. 3 hours each term. (Not offered 1933-34).

Psychology

Psy 201, 202, 203. Elementary Psychology, 3 hours each term. (Applicable in satisfying group requirements in Science group if accompanied by Psy 204, 205, 206.)
Psy 204, 205, 206. Elementary Psychology Laboratory, 1 hour each term.
Other lower division courses in psychology are listed under SOCIAL SCIENCE *group.*

Zoology

BiS 101, 102, 103. Biological Science Survey, 4 hours each term.
Z 201, 202, 203. General Zoology, 3 hours each term.
Z 204, 205, 206. Vertebrate Zoology, 4 hours each term.

SOCIAL SCIENCE GROUP

Social Science

SSc 101, 102, 103. Background of Social Science, 3 hours each term.
Ed 101, 102, 103. Education Orientation, 3 hours each term. (Applicable in satisfying group requirements for Social Science group. Students may substitute HAd 101 for Ed 103.)

Economics

Ec 201, 202, 203. Principles of Economics, 3 hours each term.

Geography

†Geo 205, 206, 207. Introductory Geography, 3 hours each term.
†Geo 208, 209, 210. Introductory Geography Laboratory, 3 hours each term.

History

*Hst 201, 202, 203. History of Western Civilization, 3 hours each term.
†Hst 204, 205, 206. World History, 4 hours each term.
†Hst 207, 208, 209. English History, 3 hours each term.
*Hst 207, 208. England and the British Empire, 3 hours first and second terms.
*Hst 209. The World Since 1914, 3 hours third term.
} Hst 207, 208, 209 constitute a year sequence.

Philosophy

†Phl 201, 202, 203. Introduction to Philosophy, 3 hours each term.

Political Science

*PS 201, 202, 203. Modern Governments, 4 hours each term.
†PS 201. American National Government, 4 hours first term.
†PS 202. American State and Local Governments, 4 hours second term.
†PS 203. European Governments, 4 hours third term.

Psychology

Psy 201, 202, 203. Elementary Psychology, 3 hours each term.
Psy 204, 205, 206. Elementary Psychology Laboratory, 1 hour each term.

Sociology

Soc 201, 202, 203. Elements of Sociology, 3 hours each term.

Other Lower Division Courses

LANGUAGE AND LITERATURE GROUP

English

LITERATURE

†Eng 160. History of the English Language, 3 hours third term.
Eng 161. American Literature, 3 hours any term.
†Eng 162. English Poetry, 3 hours second term.
†Eng 163. William Morris, 3 hours first term.
Eng 164. Browning, 3 hours second term.
†Eng 165. Wordsworth, 3 hours third term.
†Eng 168, 169. Contemporary Literature, 3 hours each term, first and second terms.
†Eng 260. Ruskin, 3 hours third term.
†Eng 261, 262, 263. The English Essay, 3 hours each term.
*Eng 261, 262. Individual Authors, 3 hours each term, second and third terms.
*Eng 263. Great Books, 3 hours first term.
†Eng 264, 265, 266. Literature of the Modern World, 2 hours each term.
*Eng 264, 265, 266. Continental European Literature, 3 hours each term.
†Eng 267, 268, 269. Classical, Romantic, and Victorian Poets, 3 hours each term.
*Eng 271, 272, 273. Contemporary Literature, 3 hours each term.
*Eng 274. The Short Story, 3 hours third term.
*Eng 275. The Bible as Literature, 3 hours third term.

WRITTEN ENGLISH

Eng K. A one-term course for students failing to pass the English Placement examination. One hour first or second term.
Eng 111, 112, 113. English Composition, 3 hours each term.
Eng 211. Essay Writing, 3 hours first and third terms (Eugene), first term (Corvallis).
Eng 212. Advanced Essay Writing, 3 hours second term (Corvallis), second or third term (Eugene).
Eng 213, 214, 215. Short Story Writing, 2 hours each term.
*Eng 216. Advanced English Composition, 3 hours third term.
Eng 217. Business English, 3 hours any term.

SPEECH

*Sp 111, 112, 113. Extempore Speaking, 3 hours each term.
†Eng 130, 131, 132. Extempore Speaking, 3 hours each term.
†Eng 136. Parliamentary Procedure, 1 hour third term.
*Sp 211, 212, 213. Oratory Squad, 2 hours each term.
*Sp 214, 215, 216. Extempore Speaking Squad, 2 hours each term.
*Sp 217, 218, 219. Debating, 2 hours each term.
*Sp 220. Argumentation, 3 hours first or third term.
*Sp 221. Speech Composition, 3 hours first term.
*Sp 222. The Extended Address, 3 hours third term.
†Eng 230. Argumentation, 3 hours first or third term.
*Sp 231. Parliamentary Procedure, 3 hours third term.
†Eng 233. Speech Composition, 3 hours first term.
*Sp 234. Radio Speech, 3 hours any term.

DRAMA

*Sp 121, 122, 123. Interpretation, 3 hours each term.
†Eng 141, 142, 143. The Speaking Voice, 3 hours each term.
†Eng 241, 242, 243. Interpretation, 3 hours each term.
*Sp 244. Stagecraft and Lighting, 3 hours any term.
†Eng 244, 245, 246. Theater Workshop, 2 or 3 hours each term.
*Sp 247, 248, 249. Community Drama, 3 hours each term.

Germanic Languages

GERMAN

Ger 1, 2, 3. First Year German, 4 hours each term.
Ger 4, 5, 6. Second Year German, 4 hours each term.
†Ger 7, 8. First Year German, 6 hours each term, second and third terms.
†Ger 111, 112, 113. Classical German, 3 hours each term.
†Ger 114, 115, 116. German Fiction and Contemporary Literature, 3 hours each term.
†Ger 117, 118, 119. Modern German Drama, 3 hours each term.

SCANDINAVIAN

†Ger 11, 12, 13. Elementary Norse, 3 hours each term. } Given alternate years.
†Ger 21, 22, 23. Elementary Swedish, 3 hours each term. }

Greek

†Gr 1, 2, 3. Beginning Greek, 4 hours each term.
†Gr 111, 112, 113. Greek Literature, hours to be arranged.

Latin

†Lat 1, 2, 3. First Year Latin and Caesar, 4 hours each term.
†Lat 4, 5, 6. Cicero and Vergil, 4 hours each term.
†Lat 211, 212, 213. Latin Literature: Comedy, 3 hours each term.

Romance Languages

FRENCH

RL 1, 2, 3. First Year French, 4 hours each term.
RL 4, 5, 6. Second Year French, 4 hours each term.
†RL 7, 8. First Year French, 6 hours each term, second and third terms.

SPANISH

RL 11, 12, 13. First Year Spanish, 4 hours each term.
RL 14, 15, 16. Second Year Spanish, 4 hours each term.
†RL 17, 18. First Year Spanish, 6 hours each term, second and third terms.

ITALIAN

†RL 31, 32, 33. First Year Italian, 3 hours each term.
†RL 34, 35, 36. Second Year Italian, 3 hours each term.

SCIENCE GROUP

Chemistry

†Ch 220. Continuation Chemistry, 4 hours first term.
*Ch 221. Organic Chemistry, 5 hours first term.
Ch 226, 227. Organic Chemistry, 5 hours each term, first and second terms (Corvallis); 4 hours two terms (Eugene).
Ch 231. Qualitative Analysis, 4 hours first term (Eugene), 3 to 5 hours first term (Corvallis).
Ch 232. Quantitative Analysis, 3 to 5 hours second or third term.
Ch 233. Quantitative Analysis, 3 to 5 hours third term.
*Ch 251. Elementary Biochemistry, 5 hours second term.

Entomology

*Ent 211. Principles of Economic Entomology, 3 hours any term.
*Ent 223. Elementary Entomology, 3 hours third term.
*Ent 234. Entomology for Engineers, 2 hours, first or third term.
*Ent 235. Bee Culture, 3 hours third term.

Geology

G 280, 281, 282. Introduction to Field Geology, 1 or 2 hours each term.

Mathematics

*Mth 120. Intermediate Algebra for Engineers, 5 hours one term.
*Mth 121, 122, 123. Trigonometry and Elementary Analysis, 5 hours each term.
*Mth 131, 132, 133. Mathematical Analysis, 5 hours each term.
†Mth 214. Higher Algebra, 3 hours one term. (Not offered 1933-34.)
†Mth 215. Analytical Trigonometry, 3 hours one term.
†Mth 216. Synthetic Geometry, 3 hours one term. (Not offered 1933-34.)
†Mth 217. Elements of Projective Geometry, 3 hours one term.
†Mth 219. History of Elementary Mathematics, 3 hours one term. (Not offered 1933-34.)

Physics

*Ph 111, 112, 113. Engineering Physics, 3 hours each term.
*Ph 161. Rudiments of Photography, 2 hours one term.
†Ph 211, 212, 213. Advanced Physics, 3 hours each term.
*Ph 291, 292, 293. Astronomy and Meteorology, 3 hours each term.

Zoology

*Z 130. Principles of Zoology, 5 hours second term.
*Z 211. Elementary Human Physiology, 5 hours second or third term.
Z 213. Field Zoology, 4 hours third term. (Not given 1933-34 at Eugene.)
†Z 240, 241, 242. Evolution, Heredity, and Eugenics, 2 hours each term.

SOCIAL SCIENCE GROUP

Economics

*Ec 211. Outlines of Economics, 4 hours any term.

History

*Hst 224, 225, 226. History of American Civilization, 3 hours each term.

Philosophy

†Phl 111. Introduction to Reflective Thinking, 3 hours each term.

Psychology

*Psy 111. Mental Hygiene, 3 hours any term. (No credit allowed to students who have taken Ed 101.)
*Psy 112, 113, 114. Introduction to Reflective Thinking, 3 hours each term.
*Psy 211. Outlines of Psychology, 4 hours any term.
*Psy 212, 213, 214. Logic, 3 hours each term.

Sociology

Soc 211. General Sociology, 4 hours any term.
†Soc 213, 214. Introduction to Modern Social Problems, 2 hours first and second terms.
†Soc 215. Modern Movements for Social Betterment, 2 hours third term.
†Soc 224. Elements of Statistics, 3 hours any term.

School of Science

Faculty

EARL LEROY PACKARD, Ph.D., Dean of the School of Science.
GLADYS LEIBBRAND, Secretary to the Dean.

Bacteriology

GODFREY VERNON COPSON, M.S., Professor of Bacteriology; Head of Department.
JOSEPH ELLSWORTH SIMMONS, M.S., Associate Professor of Bacteriology.
WALTER BENO BOLLEN, Ph.D., Assistant Professor of Bacteriology.

Botany

HOWARD PHILLIPS BARSS, S.M., Professor of Botany; Head of Department.
WINFRED MCKENZIE ATWOOD, Ph.D., Professor of Plant Physiology.
CHARLES ELMER OWENS, A.M., Professor of Botany and Plant Pathology.
WILLIAM EVANS LAWRENCE, B.S., Associate Professor of Plant Ecology.
HELEN MARGARET GILKEY, Ph.D., Associate Professor of Botany; Curator of Herbarium.
ETHEL IDA SANBORN, Ph.D., Associate Professor of Botany.

Chemistry

JOHN FULTON, M.S., Professor of Chemistry; Head of Department.
EARL C GILBERT, Ph.D., Professor of Physical Chemistry.
J. SHIRLEY JONES, M.S.A., Professor of Agricultural Chemistry.
ROGER JOHN WILLIAMS, Ph.D., Professor of Chemistry.
WILLIAM ELMER CALDWELL, Ph.D., Assistant Professor of Chemistry.
LEO FRIEDMAN, Ph.D., Assistant Professor of Chemistry.
ADOLF HENRY KUNZ, Ph.D., Assistant Professor of Chemistry.
CHARLES S PEASE, Ph.D., Assistant Professor of Organic Chemistry.
JOSEPH PARKE MEHLIG, Ph.D., Assistant Professor of Analytical Chemistry.
BERT EINAR CHRISTENSEN, Ph.D., Instructor in Chemistry.
GLEN CHASE WARE, M.S., Instructor in Chemistry.
HENRY GEORGE RUPPEL, M.A., Instructor in Chemistry.
COWIN COOK ROBINSON, A.M., Instructor in Organic Chemistry.
EUGENE HARVEY HUFFMAN, M.S., Instructor in Chemistry.
EDWARD CLEVELAND CALLAWAY, M.S., Instructor in Chemistry.

Entomology

DON CARLOS MOTE, Ph.D., Professor of Entomology; Head of Department.
*HERMAN AUSTIN SCULLEN, M.A., Associate Professor of Entomology.
WILLARD JOSEPH CHAMBERLIN, Ph.D., Associate Professor of Entomology.

Geology

EARL LEROY PACKARD, Ph.D., Professor of Geology; Head of Department.
EDWIN THOMAS HODGE, Ph.D., Professor of Geology.
IRA SHIMMIN ALLISON, Ph.D., Professor of Geology.
WILLIAM DONALD WILKINSON, Ph.D., Assistant Professor of Geology.

Mathematics

WILLIAM EDMUND MILNE, Ph.D., Professor of Mathematics; Head of Department.
CHARLES LESLIE JOHNSON, B.S., Professor of Mathematics.
EDWARD HIRAM MCALISTER, A.M., Professor of Mathematics.
EDWARD BENJAMIN BEATY, M.A., 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.
WILLIAM JOHN KIRKHAM, A.M., Instructor in Mathematics.

Physics

WILLIBALD WENIGER, Ph.D., Professor of Physics; Head of Department.
WILLIAM PINGRY BOYNTON, Ph.D., Professor of Physics.
ALBERT EDWARD CASWELL, Ph.D., Professor of Physics.
WILLIAM BALLANTYNE ANDERSON, Ph.D., Professor of Physics.
EDWIN ARTHUR YUNKER, Ph.M., Assistant Professor of Physics.
JOHN CLIFTON GARMAN, B.S. in E.E., Instructor in Physics.

Zoology

NATHAN FASTEN, Ph.D., Professor of Zoology; Head of Department.
†ARTHUR RUSSELL MOORE, Ph.D., Research Professor of General Physiology.
KENNETH LLEWELLYN GORDON, M.A., Assistant Professor of Zoology.
JOHN LYNN OSBORN, A.M., Instructor in Zoology.
EDITH LIDA BENEDICT, M.A., Instructor in Zoology.

*On sabbatical leave July to December, 1933.
†On leave of absence as Visiting Instructor to the Tohoku Imperial University, Sendai, Japan.

General Information

MAJOR work in all the natural sciences is centered in the School of Science. Instruction is offered at all levels—lower division, upper division, and graduate—in bacteriology, botany, chemistry, entomology, geology, mathematics, physics, and zoology. Opportunities are afforded students who desire to prepare for teaching, research, or technical positions in these fields, and adequate facilities are available for carrying on upper division and graduate work.

The School of Science performs a three-fold function. In the first place, it provides major curricula in science for students who proceed to a degree of Bachelor of Arts or Bachelor of Science. The objective of such students is a liberal education. In the second place, the School of Science provides professional preparation for those students who plan to enter some scholarly occupation in the realm of science. Such students, in addition to taking an undergraduate major, take from one to three or more years of graduate study in science. In the third place, the School of Science provides basic and service courses for students majoring in some other field. All students need some instruction in science; those entering certain technical and professional curricula must take science courses as prerequisite to their professional training.

The instruction in the first two years is made as broad and liberalizing as possible, laying a solid foundation for upper division and graduate work in the various fields of science or affording preparation in basic sciences necessary for entrance to professional schools requiring science training as a prerequisite.

Entering Students Register in the Lower Division. Students entering as freshmen with the definite intention of specializing in science or mathematics or of preparing to enter a medical school register in the Lower Division for the first two years, designating Science as their "group" of principal interest. The Science advisers, representing the different departments in which upper division students may major, help students in the selection of specific courses prerequisite to major work. In the Science curricula printed below, suggested lower division curricula are included designed to aid lower division students in the selection of those courses which will best prepare them for majoring in the several sciences.

Science at the University. By action of the State Board of Higher Education March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Biological Science, Physical Science, and Mathematics was confined to the School of Science at the State College. Lower division work comprising instruction in the freshman and sophomore years was assigned to both the State College and the University. The lower division work in botany, chemistry, geology, mathematics, physics, and zoology at the University constitutes essentially the equivalent of lower division work at the State College, and students finding it more convenient to spend their freshman and sophomore years at the University may transfer to the State College for their major work without loss of credit and with fundamental requirements for upper division work in these subjects fully met.

The lower division program in science at both institutions, besides laying a broad foundation for specialization, is intended also to serve the needs of students majoring in other fields. In addition, certain upper division service courses prescribed as required subjects, or available as electives for students registered in other fields, are given as needed at the University.

Complete course offerings in Science at the University are listed on page 116.

Curricula in Science

B.A., B.S., M.A., M.S., Ph.D. Degrees

CURRICULA covering required work requisite to the degree of Bachelor of Arts or Bachelor of Science in General Science, Bacteriology, Botany, Chemistry, Entomology, Geology, Mathematics, Physics, and Zoology are outlined below. These curricula include suggested programs for the freshman and sophomore years for students in the Lower Division interested in Science.

The curricula as outlined are designed to show the student the most satisfactory sequence of courses leading to a degree and to indicate the minimum courses required for graduation in a given department. Each curriculum permits election of at least one-half of a student's work outside of the School of Science, thus enabling the student to obtain a broad college training even though he may be preparing for specialized work in some field of science. It is possible for students to utilize these electives to follow some special interest or to meet a specific purpose. The student may elect a technical minor, or he may prepare to teach science, in which latter case he may major in General Science or a specified science and fulfill the educational requirements for a State teacher's certificate. Under the School of Education are printed the State certification requirements, together with approved major and minor norms in Biological Science, Mathematics, and Physical Science.

Articulated with the work of the Medical School, curricula are outlined for students preparing to meet the entrance requirements of the Medical School and for students in the first two years of the five-year Nursing Education curriculum.

Requirements for Graduation. A student may be granted the degree of Bachelor of Arts or Bachelor of Science by meeting the institutional requirements for the respective degrees and completing 192 term hours, of which 45 must be in upper division work and at least 24 in the major department. The School of Science grants degrees in General Science or in the various special sciences—Bacteriology, Botany, Chemistry, Entomology, Geology, Mathematics, Physics, and Zoology.

In order to insure as broad training as possible, the curricula have been so planned that no student need take more than 90 term hours within the School of Science itself nor more than 50 term hours in the major

department in order to meet the requirements in any field. A student is thus enabled to follow his own interests outside the School of Science while obtaining adequate training in science, including preparation for graduate work leading to advanced degrees.

For the requirements for the M.A., M.S., and Ph.D. degrees see the section of the catalog devoted to Graduate Division.

Suggested Curriculum for Lower Division Students Interested in Science

Freshman Year	Term hours 1st	2d	3d
Year-sequence in any one of the three groups	3–4	3–4	3–4
Year-sequence in another of the three groups (may be deferred until sophomore year) and/or electives	0–3	0–3	0–3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
Two courses in Physical or Biological Science or exploratory electives	6–9	6–9	6–9
	14–18	14–18	14–18
Sophomore Year			
Sophomore year-sequence in one of the groups begun in the freshman year	3–4	3–4	3–4
Year-sequence in a third group and/or electives	3–6	3–6	3–6
Military Science	1	1	1
Advanced Physical Education	1	1	1
Two courses in Physical or Biological Science or exploratory electives	6–9	6–9	6–9
	14–18	14–18	14–18

Curricula in General Science

Suggested Lower Division Curriculum

Freshman Year	Term hours 1st	2d	3d
Group requirement in either Language and Literature or Social Science	3	3	3
Group requirement in Science	3–5	3–5	3–5
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[2]Unified Mathematics (Mth 101, 102, 103)	4	4	4
[1]Physical Education	1	1	1
	15–17	15–17	15–17
Sophomore Year			
Two year-sequences in Science	6–10	6–10	6–10
Military Science	1	1	1
Advanced Physical Education	1	1	1
[3]Electives	7–5	7–5	7–5
	15–17	15–17	15–17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[2]Upon approval of the Dean another science or mathematics course may be substituted for Mth 101, 102, 103.

[3]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

UPPER DIVISION MAJOR CURRICULUM

Junior Year	Term hours 1st	2d	3d
Year-sequence in Science	3–5	3–5	3–5
[1]Upper Division Science	4	4	4
[2]Electives	8	8	8
	15–17	15–17	15–17

Senior Year			
[1]Upper Division Science	4	4	4
[2]Electives	11–13	11–13	11–13
	15–17	15–17	15–17

SCIENCE MAJOR AT THE MEDICAL SCHOOL

A student may meet the requirements for a major in science in the first year in medical school, in which case he receives the bachelor's degree from the School of Science. The basic sciences constituting the work of the first year in medical school are of upper division character and, in conjunction with the preceding science work which the student has taken in meeting the requirements for entrance to medical school, are accepted by the School of Science as the full equivalent of a major in science.

	Term hours
Anatomy	18
Histology	6
Embryology	4
Bacteriology	8
Biochemistry	11
Physiology	5
	52

Curricula in Special Sciences

Bacteriology
Botany
Chemistry
Entomology
Geology
Mathematics
Physics
Zoology

BACTERIOLOGY

SUGGESTED LOWER DIVISION CURRICULUM

Freshman Year	Term hours 1st	2d	3d
Unified Mathematics (Mth 101, 102, 103)	4	4	4
General Zoology (Z 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[3]Physical Education	1	1	1
General Chemistry (Ch 204, 205, 206)	5	5	5
	17	17	17

[1]These courses should be in fields related to work taken in the Lower Division. G 330, 331, 332, G 340, 341, and Bot 410 apply as either biological or physical science.

[2]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

[3]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Sophomore Year	Term hours 1st	2d	3d
[1]General Bacteriology (Bac 204, 205, 206)	3	3	3
[2]Group requirement in either Language and Literature or Social Science	3	3	3
[3]General Physics (Ph 201, 202, 203)	4	4	4
Military Science	1	1	1
Advanced Physical Education	1	1	1
Organic Chemistry (Ch 226, 227)	5	5	---
Elementary Physiological Chemistry (Ch 330)	---	---	5
	17	17	17

UPPER DIVISION MAJOR CURRICULUM

Junior Year			
Systematic Bacteriology (Bac 321)	5	---	---
Physiology of Bacteria (Bac 322, 323)	---	5	5
[4]Electives	10	10	10
	15	15	15

Senior Year			
Bacteriological Technique (Bac 431)	3	---	---
Bacteriological Problems (Bac 432, 433)	---	5	5
Seminar in Current Topics (Bac 407)	1	1	1
[4]Electives	11	9	9
	15	15	15

BOTANY

SUGGESTED LOWER DIVISION CURRICULUM

Freshman Year			
[5]Group requirement in either Language and Literature or Social Science	3	3	3
General Botany (Bot 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[6]Physical Education	1	1	1
[7]Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
[8]Electives	3	3	3
	17	17	17

Sophomore Year			
The Lower Plants (Bot 301)	4	---	---
The Higher Plants (Bot 302)	---	4	---
Systematic Botany (Bot 303)	---	---	4
General Zoology (Z 201, 202, 203)	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
[8]Unified Mathematics (Mth 101, 102, 103)	4	4	4
[2]Electives	3–4	3–4	3–4
	16–17	16–17	16–17

[1]Or Bac 204, 332, 333.

[2]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

[3]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[4]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

[5]The Botany department requires a year-sequence in Language and Literature and in Social Science before graduation. At least one of them must be taken in the freshman or sophomore year except that if two years of German or French are elected in the freshman and sophomore years, requirements in Language and Literature or Social Science may be postponed until after the sophomore year.

[6]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[7]Students interested in physiological and chemical aspects of plant life should take Ch 204, 205, 206 and elect Ch 221, 251, and 340 or their equivalent as early as convenient.

[8]May be postponed to junior year in favor of second year German or French or Chemistry.

Upper Division Major Curriculum

Junior Year

	Term hours 1st	2d	3d
Principles of Plant Pathology (Bot 351)	4	----	----
Principles of Plant Ecology (Bot 341)	----	4	----
Principles of Plant Physiology (Bot 331)	----	----	4
General Physics (Ph 201, 202, 203)	4	4	4
[1]Electives and/or Group Requirements	7	7	7
	15	15	15

Senior Year

Microtechnique (Bot 472)	----	3	----
Seminar in Current Topics (Bot 407)	1	1	1
Geology (G 201, 202, 203)	3	3	3
[1]Electives	11	8	11
	15	15	15

CHEMISTRY

Suggested Lower Division Curriculum

Freshman Year

[2]Group requirement in Language and Literature or Social Science	3	3	3
General Chemistry (Ch 204, 205, 206)	5	5	5
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[3]Physical Education	1	1	1
Unified Mathematics (Mth 101, 102, 103)	4	4	4
	17	17	17

Sophomore Year

Qualitative Analysis (Ch 231)	5	----	----
Quantitative Analysis (Ch 232, 233)	----	5	5
[4]Group requirement in Language and Literature or Social Science	3	3	3
General Physics (Ph 201, 202, 203)	4	4	4
Military Science	1	1	1
Advanced Physical Education	1	1	1
Differential and Integral Calculus (Mth 201, 202, 203)	4	4	4
	18	18	18

[1]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year. Botany majors should elect work in bacteriology and entomology and, if possible, advanced work in the botanical field of chief interest. Hrt 311 is advised for second term of junior or senior year.

[2]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[3]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[4]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

Upper Division Major Curriculum

Junior Year

	Term hours 1st	2d	3d
[1]Organic Chemistry (Ch 430, 431, 432)	4	4	4
[1]Physical Chemistry (Ch 440, 441, 442)	4	4	4
[2]Electives	8	8	8
	16	16	16

Senior Year

[2]Electives	13	13	13

ENTOMOLOGY

Suggested Lower Division Curriculum

Freshman Year

Group requirement in Language and Literature or Social Science	3	3	3
General Zoology (Z 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[3]Physical Education	1	1	1
[4]Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
[5]Electives	3	3	3
	17	17	17

Sophomore Year

General Entomology (Ent 201, 202, 203)	3	3	3
General Botany (Bot 201, 202, 203)	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
[6]Electives or Group Requirements	9	9	9
	17	17	17

Upper Division Major Curriculum

Junior Year

Advanced Entomology (Ent 471, 472, 473)	3	3	3
Insect Taxonomy (Ent 451, 452, 453)	3	3	3
Entomological Nomenclature and Literature (Ent 352)	---	2	---
Historical Entomology (Ent 353)	3	---	---
Principles of Plant Pathology (Bot 351)	4	---	---
Elementary Bacteriology (Bac 201)	---	3	---
[2, 7]Electives	2	4	9
	15	15	15

[1]Both of these sequences need not be taken in junior year.

[2]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year. The choice of electives in the junior and senior years is governed by the student's objective.

[3]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[4]Students interested in physiological or chemical aspects of applied entomology should elect more chemistry later. A course in General Physics also is advised.

[5]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[6]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

[7]Students interested in the statistical phases of applied entomology should elect Unified Mathematics and Statistical Methods. Prospective professional entomologists should elect Ch 221, 251, and 340 or their equivalent as early as convenient. Entomology majors should also elect courses in Geology.

Senior Year

	Term hours 1st	2d	3d
Entomological Field Work (Ent 311, 312, 313)	2	2	2
Seminar in Current Topics (Ent 407)	1	1	1
[1], [2]Electives	12	12	12
	15	15	15

GEOLOGY

Suggested Lower Division Curriculum

Freshman Year

[3]Group requirement in Language and Literature or Social Science	3	3	3
Unified Mathematics (Mth 101, 102, 103)	4	4	4
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[4]Physical Education	1	1	1
Elementary General Chemistry (Ch 201, 202, 203) *or* General Chemistry (Ch 204, 205, 206)	3–5	3–5	3–5
	15–17	15–17	15–17

Sophomore Year

Geology (G 201, 202, 203)	3	3	3
Geology Laboratory (G 204, 205, 206)	1	1	1
Group requirement in Language and Literature or Social Science	3	3	3
Military Science	1	1	1
Physics or Zoology	3–5	3–5	3–5
Advanced Physical Education	1	1	1
[5]Electives	3–4	3–4	3–4
	15–17	15–17	15–17

Upper Division Major Curriculum

Junior Year

Methods for the Determination of Materials (G 312, 313, 314)	4	4	4
[6]Structural Geology (G 321) *or* Physiography (G 322)	---	4 *or*	4
Stratigraphy (G 323)	4	---	---
[7]Invertebrate Paleontology (G 340, 341)	4	4	---
Paleobotany (Bot 410)	---	---	4
[2]Electives	4	4–8	4–8
	16	16	16

Senior Year

Earth Materials (G 412, 413, 414)	4	4	4
[2]Electives	12	12	12
	16	16	16

[1]Students interested in the statistical phases of applied entomology should elect Unified Mathematics and Statistical Methods. Prospective professional entomologists should elect Ch 221, 251, and 340, or their equivalent as early as convenient. Entomology majors should elect also courses in Geology.

[2]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

[3]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[4]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[5]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

[6]This course also serves as one of a sequence of elective junior courses of general interest to students expecting to teach or those majoring in General Science. This series is G 322, 350, 352.

[7]This is a technical course; the student having a general interest in paleontology would normally elect the sequence G 330, 331, 332.

MATHEMATICS

Suggested Lower Division Curriculum

Freshman Year

	Term hours 1st	2d	3d
Group requirement in Language and Literature or Social Science	3	3	3
Unified Mathematics (Mth 101, 102, 103)	4	4	4
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
[2]Electives	4	4	4
	16	16	16

Sophomore Year

Differential and Integral Calculus (Mth 201, 202, 203)	4	4	4
Group requirement in Language and Literature or Social Science	3	3	3
Physical or Biological Science	3–4	3–4	3–4
Military Science	1	1	1
Advanced Physical Education	1	1	1
[3]Electives	3–4	3–4	3–4
	15–17	15–17	15–17

Upper Division Major Curriculum

Junior Year

Differential Equations (Mth 421, 422) and other upper division mathematics courses	6	6	6
Physical or Biological Science	3–4	3–4	3–4
[4]Electives	7	7	7
	16–17	16–17	16–17

Senior Year

Upper Division Mathematics	3	3	3
[5]Electives	13	13	13
	16	16	16

PHYSICS

Suggested Lower Division Curriculum

Freshman Year

Group requirement in Language and Literature or Social Science	3	3	3
Unified Mathematics (Mth 101, 102, 103)	4	4	4
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
General Chemistry (Ch 204, 205, 206)	5	5	5
	17	17	17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[2]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[3]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

[4]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

[5]Includes supporting science courses for students planning graduate work in Mathematics.

Sophomore Year	Term hours 1st	2d	3d
General Physics (Ph 201, 202, 203)	4	4	4
[1]Group requirement in Language and Literature or Social Science	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
Differential and Integral Calculus (Mth 201, 202, 203)	4	4	4
[2]Electives	3–4	3–4	3–4
	16–17	16–17	16–17

Upper Division Major Curriculum

Junior Year			
Physical Measurements (Ph 311, 312, 313)	3	3	3
Classical Theories (Ph 411, 412, 413)	3	3	3
[3]Electives	9	9	9
	15	15	15

Senior Year			
Introduction to Modern Physics (Ph 471, 472, 473)	3	3	3
Modern Physics Laboratory (Ph 474, 475, 476)	1	1	1
[3]Electives	11	11	11
	15	15	15

ZOOLOGY

Suggested Lower Division Curriculum

Freshman Year			
Group requirement in Language and Literature or Social Science	3	3	3
General Zoology (Z 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[4]Physical Education	1	1	1
[5]Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
[1]Electives	3	3	3
	17	17	17

Sophomore Year			
Vertebrate Zoology (Z 204, 205, 206)	4	4	4
Unified Mathematics (Mth 101, 102, 103)	4	4	4
Military Science	1	1	1
Advanced Physical Education	1	1	1
[2, 6]Electives		7	7
	17	17	17

[1]Students expecting to meet the language requirements for a B.A. degree or to obtain a reading knowledge of German or French in preparation for graduate work may elect a language in the freshman and sophomore years. If two years of German or French are elected in the freshman and sophomore years, the completion of the group requirement in either Language and Literature or Social Science may be postponed until the junior year.

[2]For State teacher's certificate Psy 201, 202, 203 should be elected in sophomore year as it is prerequisite to upper division courses in Education. Psy 201, 202, 203 meets the Social Science group requirement.

[3]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

[4]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[5]Students interested in becoming professional zoologists take Ch 204, 205, 206.

[6]Ch 226, 227, Ch 232, and Bot 101. 102, 103 are recommended for those wishing a physiological major.

UPPER DIVISION MAJOR CURRICULUM

Junior Year	Term hours 1st	2d	3d
Genetics (Z 314)	3	----	----
Evolution and Eugenics (Z 315)	----	----	3
Histology (Z 375)	3	----	----
Microtechnique (Z 376)	----	3	----
Vertebrate Embryology (Z 377)	----	----	3
General Physics (Ph 201, 202, 203)	4	4	4
[1]Electives	5	8	5
	15	15	15

Senior Year			
General Physiology (Z 411, 412)	----	4	4
Invertebrate Zoology (Z 431, 432)	4	4	----
[2]Electives	11	7	11
	15	15	15

Preparatory Medical and Nursing Education Curricula

Courses prescribed by the American Medical Association for entrance to standard medical schools are offered by the State College. The approved curriculum for entrance to the University of Oregon Medical School is outlined below, together with the first two years of the Nursing Education Curriculum as given at the State College.

Preparatory Medical Curriculum. The University of Oregon Medical School requires for admission a three-year preparatory course in which there is a balance in elective preparation between courses in liberal arts and social sciences and courses in the natural sciences particularly pertinent to the study of medicine. A special faculty advisory committee representing the School of Science, the School of Medicine, and the Lower Division has been provided to assure such a selection of studies as will meet the specific interests or needs of the medical student. After receiving the junior certificate the student may select, with the approval of his faculty premedical advisory committee, a major in the School of Science at the State College, the College of Arts and Letters at the University, or the College of Social Science at the University. If he selects a major in Arts and Letters or Social Science, he will transfer to the University. In the Lower Division and the junior year the student shall complete all requirements for a bachelor's degree other than those which he can obtain at the Medical School in order that after meeting the additional year's requirements at Portland he may receive the bachelor's degree. A student may meet the requirements for a major in science in the first year in Medical School, in which case he receives the bachelor's degree from the School of Science.

[1]Ent 351 and G-340, 341 are suggested electives outside of the department.
[2]Students wishing to qualify for a State teacher's certificate should elect 12 term hours in prescribed Education courses in the junior year and at least 11 term hours in the senior year.

The suggested curriculum given below is recommended as meeting the needs of the majority of students preparing for entrance to the Medical School.

Freshman Year	Term hours 1st	2d	3d
General Zoology (Z 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
General Chemistry (Ch 204, 205, 206)	5	5	5
[2]Electives	4	4	4
	17	17	17

Sophomore Year			
Vertebrate Zoology (Z 204, 205, 206)	4	4	4
Organic Chemistry (Ch 226, 227)	5	5	----
Quantitative Analysis (Ch 232)	----	----	5
German or French	4	4	4
Military Science	1	1	1
Advanced Physical Education	1	1	1
[2]Electives	3	3	3
	18	18	18

Junior Year			
General Physics (Ph 201, 202, 203)	4	4	4
German or French	4	4	4
[2]Electives	8	8	8
	16	16	16

Nursing Education. The University of Oregon Medical School offers a five-year curriculum in nursing education leading to the degree of Bachelor of Science and preparing the student for nursing registration. The first two years of the curriculum are given at both the State College and the University. The special faculty advisory committee representing the School of Science, the School of Medicine, and the Lower Division aids students in the first two years in the selection of studies. The remaining three years, at the Medical School in Portland, comprise two years in a hospital school of nursing and a fifth year as an elective in public health nursing, hospital administration, or some other type of nursing education.

The curriculum for the first two years as given at the State College is as follows:

First Year	Term hours 1st	2d	3d
General Zoology (Z 201, 202, 203)	3	3	3
Background in Nursing	3	3	3
French or German	4	4	4
English Composition (Eng 111, 112, 113)	3	3	3
[3]Physical Education and General Hygiene	1	1	1
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
	17	17	17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[2]Students should confer with their premedical adviser in the selection of all electives. Nine hours in Language and Literature or Social Science must be completed in the freshman and sophomore years.

[3]Students in this curriculum take Personal Hygiene, 3 hours, in Portland during the summer term.

Second Year	Term hours 1st	2d	3d
Elements of Sociology (Soc 201, 202, 203)	3	3	3
Shakespeare (Eng 201, 202, 203)	3	3	3
French or German	4	4	4
Physical Education	1	1	1
Organic Chemistry (Ch 221)	5	---	---
Elementary Biochemistry (Ch 251)	---	5	---
Elective	---	---	4–5
	16	16	15–16

Summer (Portland)

(Following Second Year)

Anatomy and Physiology	6
Bacteriology	5
Drugs and Solutions	2
Personal Hygiene	3
	16

The Medical School. The University of Oregon Medical School, one of the six units in the State System of Higher Education, is located in Portland. It was established in 1887 and since 1913 has been the sole medical school in the Pacific Northwest.

The Medical School, which is rated Class A by the American Medical Association, offers a four-year professional curriculum in medicine (M.D. degree), following a three-year preparatory medical curriculum as described above. The curriculum in medicine thus comprises a total of seven years beyond the high school. The number of students admitted to the Medical School each year is limited.

As an integral part of the Medical School, the Department of Nursing Education offers training for the professional field of nursing.

Bacteriology

INSTRUCTION in bacteriology is planned to afford a foundation for the applied fields and a thorough training in bacteriological subjects. Such training is essential to the appreciation of the importance these subjects occupy in our civilization and serves as a foundation for advanced work leading to the graduate degrees. Since agriculture and allied fields are of vital importance to the State of Oregon, a very valuable and practical field of research is open to the student seeking advanced work of this nature in bacteriology.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

BiS 101, 102, 103. **Biological Science Survey.** Three terms, 4 hours each term.

A non-technical non-laboratory year-sequence presenting the fundamental principles of biology as they apply to both plants and animals. Three lectures; 1 demonstration-quiz period. Professor Atwood.

Bac 201, 202, 203. **Elementary Bacteriology.** Three terms, 3 hours each term.

The fundamental principles of the bacteriology of food and water supplies; sanitation and hygiene; infectious disease; sewage disposal, etc. Designed to meet the needs of students who have had no training in chemistry but who desire a general knowledge of bacteriology. Two lectures; 1 two-hour demonstration period.

Bac 204. **General Bacteriology.** First or second term, 3 hours.

A series of lectures, recitations, and laboratory experiments to familiarize students with the fundamental principles of bacteriology. Prerequisite: one year of chemistry. Two lectures; 2 two-hour laboratory periods.

Bac 205. **General Bacteriology.** Second or third term, 3 hours.

A continuation of Bac 204. A course adapted to the 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. Two lectures; 2 two-hour laboratory periods.

Bac 206. **General Bacteriology.** Third term, 3 hours.

A continuation of Bac 205.

UPPER DIVISION COURSES

Bac 321. **Systematic Bacteriology.** First term, 5 hours.

History of bacteriological classifications; the *International Rules of Nomenclature* as applied to bacteriology; development of classifications of bacteria based on relationships. Prerequisite: Bac 206. Three lectures; 2 two-hour laboratory periods.

Bac 322, 323. **Physiology of Bacteria.** Second and third terms, 5 hours each term.

Characteristics of bacterial environments; influence of physical and chemical environments on changes produced by microorganisms; enzymes and fermentations. Prerequisite: Bac 206. Two lectures; 3 two-hour laboratory periods.

Bac 332. **Pathogenic Bacteriology.** Second term, 3 hours.

A course confined strictly to the micro-organisms associated with disease in man. Prerequisite: Bac 204. Two lectures; 2 two-hour laboratory periods.

Bac 333. **Immunity and Serum Therapy.** Third term, 3 hours.

A study of the theories of immunity and their application to serum therapy; preparation of toxins, anti-toxins, vaccines, etc.; study of normal and pathological blood. Prerequisite: Bac 204 or 332. Two lectures; 2 two-hour laboratory periods.

Bac 401. **Research.** Terms and hours to be arranged.

Bac 403. **Thesis.** Terms and hours to be arranged.

Bac 405. **Advanced Studies.** Terms and hours to be arranged.

Bac 407. **Seminar in Current Topics.** One hour each term.

Bac 411. **Dairy Bacteriology.** First term, 3 hours.

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. Two lectures: 2 two-hour laboratory periods.

Bac 412. **Dairy Bacteriology.** Second term, 3 hours.

A continuation of Bac 411. A more thorough study of specific problems in dairy bacteriology and practice in special technique. Prerequisites: Bac 204, 411. One lecture; 2 two-hour laboratory periods.

Bac 413. **Agricultural Bacteriology.** Third term, 3 hours.

(Advanced course.) A 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 204, Ch 251. One lecture; 2 two-hour laboratory periods.

Bac 421. **Soil Bacteriology.** First term, 4 hours.

A study of micro-organisms of the soil and their relation to soil fertility; biochemistry of the decomposition of humus; nitrogen-fixation; ammonification, etc. Prerequisite: Bac 204 or Ch 330. Two lectures; 3 two-hour laboratory periods.

Bac 422. **Soil Bacteriology.** Second term, 3 hours.

A continuation of Bac 421. A review of literature on soil bacteriology. Prerequisite: Bac 421. One lecture; 2 two-hour laboratory periods.

Bac 431. **Bacteriological Technique.** First term, 3 hours.

An intensive study of the fundamental principles underlying methods used in the study of bacteria. A detailed study of the *Manual of Methods for Pure Culture Study of Bacteria.* Prerequisite: Bac 206. Two lectures; 2 two-hour laboratory periods.

Bac 432, 433. **Bacteriological Problems.** Second and third terms, 5 hours each term.

For students qualified to study intensively some of the problems concerned with systematic bacteriology and to carry on research studies concerned with the principles underlying some of the physiological activities of bacteria. Prerequisites: Bac 321, 322, 323.

Bac 441. **Sanitary Bacteriology.** Third term, 3 hours.

Lectures, recitations, and laboratory experiments to familiarize the student with the principles of bacteriology as applied to problems of community and municipal sanitation. Prerequisite: Bac 205. Two lectures; 2 two-hour laboratory periods.

Bac 442. **Microscopy of Waters.** Third term, 3 hours.

Planned to give a thorough knowledge of the micro-organisms found in surface waters. Study of the treatment of water by chemicals aeration, etc. Prerequisite: Bac 441. One lecture; 2 two-hour laboratory periods.

GRADUATE COURSES

Bac 501. **Graduate Research.** Term and hours to be arranged.

Bac 503. **Graduate Thesis.** Terms and hours to be arranged.

Bac 505. **Graduate Studies.** Terms and hours to be arranged.

Bac 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

Botany

THE courses in botany provide comprehensive basic and advanced training in the various branches of plant science. Excellent opportunities are afforded students who desire to prepare for botanical teaching and research or for technical positions that demand botanical training. The department provides an essential 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 as plant pathologists, physiologists, ecologists, taxonomists, etc., in agricultural experiment stations or in the U. S. Department of Agriculture under civil service. Training in botany is an essential requirement or valuable asset for agricultural extension workers, horticultural inspectors, district agriculturists, grazing assistants, seed analysts, and pure-food experts.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

BiS 101, 102, 103. **Biological Science Survey.** Three terms, 4 hours each term.

Complete course description is printed under Department of Bacteriology.

Bot 201, 202, 203. **General Botany.** Three terms, 3 hours each term.

An introductory study of plant life. First term, structure and functions of higher plants. Second term, chief groups of plants. Third term, principles of plant reproduction and heredity with practice in plant identification. Prerequisite to further work in botany. Three two-hour class periods.

UPPER DIVISION COURSES

Bot 301. **The Lower Plants.** First term, 4 hours.

Typical structure and life-histories of the algae, fungi, hepatics, and mosses. Two lectures; 3 two-hour laboratory periods.

Bot 302. **The Higher Plants.** Second term, 4 hours.

Typical structure and life-histories of the ferns, fern allies, gymnosperms, and flowering plants. Two lectures; 3 two-hour laboratory periods.

Bot 303. **Systematic Botany.** Third term, 4 hours.

Principles of plant classification; a study of common plant families; collection and identification of Oregon higher plants. Two lectures; 3 two-hour laboratory periods.

Bot 304. **Range and Pasture Botany.** First term, 3 hours.

Grasses and other forage plants of range and pasture and stock poisoning plants with practice in identification. Principles of range and pasture management for maintaining ranges and pastures. Methods of preventing stock poisoning. Three two-hour periods.

Bot 305. **Forest Pathology.** Second term, 3 hours.

Elementary study of parasitic and saprophytic fungi which attack forest trees and destroy structural timber; their effects on wood; preventive measures. Two lectures; 2 two-hour laboratory periods.

Bot 331. **Principles of Plant Physiology.** Third term, 4 hours.

Elementary study of the physiology of living plants with the aid of laboratory and greenhouse experiments. Prerequisite: at least one year of chemistry. Two lectures; 3 two-hour laboratory periods.

Bot 341. **Principles of Plant Ecology.** Second term, 4 hours.

Principles governing the interrelations of plants and environment; influence of living agencies and of light, heat, and other atmospheric and soil factors on the native vegetation and cultivated crops. Of particular interest to students in Forestry and Agriculture. Not open to freshmen or sophomores. Two lectures; 2 two-hour laboratory periods.

Bot 351. **Principles of Plant Pathology.** First term, 4 hours.

Causes, symptoms, effects, methods of spread and principles of control of plant diseases with laboratory examination of typical speci mens. Two recitations; 3 two-hour laboratory periods.

Bot 401. **Research.** Term and hours to be arranged.

Bot 403. **Thesis.** Term and hours to be arranged.

Bot 405. **Advanced Studies.** Term and hours to be arranged.

Bot 407. **Seminar in Current Topics.** Any term, 1 hour.

Bot 410. **Paleobotany.** Third term, 4 hours.

History of fossil plants with special reference to those found in Oregon. Two lectures; 2 three-hour laboratory periods.

Bot 411, 412, 413. **Comparative Morphology.** Three terms, 3 hours each term.

The comparative structure and life-history of the chief plant groups with evolutionary trends and the basic principles of phylogeny and classification. First term, Thallophytes; second term, Bryophytes and Pteridophytes; third term, Spermatophytes, with evolution of stele and strobilus from Pteridophytes. Prerequisites: Bot 301, 302, or equivalent. One lecture; 2 three-hour laboratory periods. Offered alternate years. Not offered 1933-34.

Bot 421, 422, 423. **Advanced Systematic Botany.** Three terms, 3 hours each term.

Studies of special groups of higher plants. Prerequisite: Bot 303. One lecture; 2 three-hour laboratory periods. Offered alternate years. Not offered 1933-34.

Bot 431, 432, 433. **Advanced Plant Physiology.** Three terms, 3 hours each term.

Studies of the physiological processes and relations of plants with reviews of literature. Prerequisites: Bot 331, organic chemistry. Offered in alternate years. Not offered 1933-34.

Bot 441, 442, 443. **Advanced Plant Ecology.** Three terms, 3 hours each term.

First term, plant formations, successions, and geographic distribution of plants. Second term, the adjustments between plant structures and the environmental complex. Third term, methods employed in ecological work with practice in the field, with reference to agricultural and forestry ecology problems; the structure of the plant community. Each term may be taken separately. Prerequisite: Bot 341. Two lectures; 1 laboratory period. Offered alternate years. Offered 1933-34.

Bot 451. **Plant Pathological Technique.** First term, 3 hours.

The methods used in the isolation, culture, inoculation, and study of organisms causing plant diseases. Prerequisite: Bot 351. One lecture; 2 three-hour laboratory periods. Offered alternate years. Offered 1933-34.

Bot 452. **Field and Truck Crop Diseases.** Second term, 3 hours.

The chief diseases of field crops and vegetables and the principles of control. Especially for students in farm crops and vegetable crops. Prerequisite: Bot 351. Two lectures; 2 two-hour laboratory periods. Offered alternate years. Offered 1933-34.

Bot 453. **Fruit Diseases.** Third term, 3 hours.

The chief diseases of fruits and their control, especially for students in horticulture. Prerequisite: Bot 351. Two lectures; 2 two-hour laboratory periods. Offered alternate years. Offered 1933-34.

Bot 461, 462, 463. **Introduction to Mycology.** Three terms, 3 hours each term.

First term, mushrooms, smuts, rusts, and other Basidiomycetes. Second term, Ascomycetes and imperfect fungi. Third term, Phycomycetes. Prerequisite: Bot 301. One lecture; 2 three-hour laboratory periods. Offered alternate years. Offered 1933-34.

Bot 471. **Plant Anatomy.** First term, 3 hours.

Microscopic anatomy and development of plant tissues. One lecture; 2 three-hour laboratory periods. Offered alternate years. Not offered 1933-34.

Bot 472. **Microtechnique.** Second term, 3 hours.

Principles and practice in fixing, embedding, sectioning, staining, and mounting plant tissues for permanent study. One lecture; 2 three-hour laboratory periods. Offered alternate years. Not offered 1933-34.

Bot 473. **Plant Cytology.** Third term, 3 hours.

Structure of the plant cell with special attention to cell division and chromosome behavior. Of special interest in plant genetics. Two lectures; 2 two-hour laboratory periods. Offered alternate years. Not offered 1933-34.

GRADUATE COURSES

Bot 501. **Graduate Research.** Terms and hours to be arranged.

Bot 503. **Graduate Thesis.** Terms and hours to be arranged.

Bot 505. **Graduate Studies.** Terms and hours to be arranged.

Bot 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

Chemistry

THE Department of Chemistry aims to prepare its major students for (1) governmental service; (2) teaching positions in colleges, universities, junior colleges, and secondary schools; (3) positions as chemists and technical experts in commercial laboratories of all sorts, having to do with all types of manufactured articles; (4) positions as chemists in various food industries, dairying, experiment stations, etc.

For the better positions in any of these fields the Ph.D. degree is almost universally necessary for younger men. Research or original investigation plays a very important part in these better positions whether the work is that of governmental chemist, university professor, or industrial chemist. A strong fundamental training in all the main branches of chemistry is therefore essential. Specialization can come only after a very substantial amount of fundamental work is covered.

Positions for which the full training of the doctorate degree may not be required include junior chemists in the government service, teachers in

secondary schools, holders of minor positions in colleges, analysts, and control chemists in various branches of industry, or experiment stations. Even in a minor position an advanced degree is highly advantageous.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

PhS 101, 102, 103. **Physical Science Survey.** Three terms, 4 hours each term.

A general introductory course in the field of the physical sciences, embracing cosmic relations, principles of physics and chemistry, geologic processes and man's reaction to them. Special emphasis is laid upon the development and application of the scientific method. Three lectures; 1 quiz period. Assistant Professor Wilkinson.

Ch 201, 202, 203. **Elementary General Chemistry.** Three terms, 3 hours each term.

A short introductory course designed to fit the needs of students intending to major in Home Economics, Agriculture, Physical Education, etc. One lecture; 1 recitation; 1 three-hour laboratory period.

Ch 204, 205, 206. **General Chemistry.** Three terms, 5 hours each term.

A thorough course intended for students whose major interest is in chemistry or allied fields. In the third term the laboratory work consists mainly of qualitative analysis. Two lectures; 1 recitation; 2 three-hour laboratory periods.

Ch 208, 209. **General Chemistry.** Second and third terms, 5 hours each term.

A two-term course designed to cover the same material as Ch 201, 202, 203 for students starting at the beginning of the winter term. Two lectures; 1 recitation; 2 three-hour laboratory periods.

Ch 221. **Organic Chemistry.** First term, 5 hours.

A study of the natural occurrence, laboratory methods of preparation, characteristic reactions, chemical and physical properties of the more common compounds of the aliphatic series. Prerequisite: Ch 203. Two lectures; 1 recitation; 2 three-hour laboratory periods.

Ch 226, 227. **Organic Chemistry.** First and second terms, 5 hours each term.

A substantial two-term sequence in the chemistry of the carbon compounds; the aliphatics, aromatics, and derivatives. Prerequisite: Ch 206. Two lectures; 1 recitation; 2 three-hour laboratory periods.

Ch 231. **Qualitative Analysis.** First term, 3 to 5 hours.

Classification, separation, identification of the common ions and cations. Prerequisite: Ch 206 or equivalent.

Ch 232. **Quantitative Analysis.** Second or third term, 5 hours.

Elementary quantitative analysis. Two lectures; 3 three-hour laboratory periods.

Ch 233. **Quantitative Analysis.** Third term, 3 to 5 hours.

Continuation of Ch 232.

Ch 251. **Elementary Biochemistry.** Second term, 5 hours.

A study of proteins, carbohydrates, fats, and other compounds having biochemical significance; qualitative and quantitative analyses of materials containing them; a study of the chemical changes which they undergo in processes of digestion and metabolism. The subject-matter varies somewhat with group needs and interests of students enrolled. Prerequisite: Ch 221 or 226. Two lectures; 1 recitation; 2 three-hour laboratory periods.

UPPER DIVISION COURSES

Ch 320. **Elementary Chemical Microscopy.** One term, 3 hours.

Use of the microscope in analysis of diverse materials. Prerequisites: Ch 206 and physics.

Ch 321, 322, 323. **Metallurgical Chemistry.** Three terms, 3 hours each term.

Chemical processes in metallurgy. Properties of metals, metallurgy of special metals and theory and practice in leaching of ores and the precipatation of metals from solution. Prerequisite: Ch 232.

Ch 330. **Elementary Physiological Chemistry.** Third term, 5 hours.

Designed for students in Home Economics and Pharmacy. Prerequisite: Ch 251 or 227. Three lecture-recitation periods; 2 three-hour laboratory periods.

Ch 340. **Elementary Physical Chemistry.** One term, 3 hours.

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 203 or equivalent.

Ch 351, 352, 353. **Agricultural and Biochemical Analysis in Specialized Fields.** Three terms, 3 hours each term.

Students registering in these courses are supposed to have some special interest, as in fertilizers, insecticides and fungicides, feeding stuffs, creamery products, horticultural products, irrigation and drainage waters. Intensive reading is required in addition to laboratory work on principles involved in manufacturing and utilization. Prerequisite: Ch 232. Three three-hour laboratory periods.

Ch 370. **Glass Blowing.** One term, 1 hour.

Elementary practice in the manipulation of glass. One laboratory period.

Ch 401. **Research.** Term and hours to be arranged.

Ch 403. **Thesis.** Terms and hours to be arranged.

Ch 405. **Advanced Studies.** Term and hours to be arranged.

Ch 407. **Seminar in Current Topics.** One hour each term.

Ch 411, 412, 413. **Advanced Inorganic Chemistry.** Three terms, 2 hours each term.

The chemical elements are first discussed as regards their practical and theoretical importance. Finally, such topics as radioactivity, the periodic table, and atomic structure are taken up. A minimum of two-years' work in chemistry is prerequisite. Two lectures a week.

Ch 414, 415. **Inorganic Preparations.** Terms and hours to be arranged.

The preparation and purification of typical inorganic compounds.

Ch 418. **History of Chemistry.** Second term, 2 hours.

Rise and development of chemical theories and laws. Prerequisite: Ch 206 or equivalent.

Ch 420, 421, 422. **Advanced Analytical Chemistry.** Three terms, 3 hours each term.

This laboratory course acquaints the student with special analytical procedure such as those of electro-analysis, fuel analysis, water, iron and steel, etc.

Ch 423. **Microchemical Analysis.** One term, 3 hours.

Quantitative analysis by micro-methods. Prerequisite: Ch 233.

Ch 424. **Gas Analysis.** One term, 3 hours.

Prerequisite: Ch 233.

Ch 425. **Optical Methods of Analysis.** One term, 3 hours.

Basic principles and laboratory practice in the use of optical instruments in chemical analysis and in the investigation of physiochemical phenomena.

Ch 430, 431, 432. **Organic Chemistry.** Three terms, 4 hours each term.

The chemistry of the compounds of carbon. Deals with compounds which are important from the theoretical, technical, and biological standpoints. The first two terms are devoted to aliphatic compounds and the third term to those of the aromatic series. Prerequisite: two years of college chemistry. Three lectures; 1 laboratory period.

Ch 433. **Organic Analysis.** Third term, 5 hours.

Qualitative tests and analysis of organic compounds and mixtures. Prerequisites: Ch 227, 232, 432. Two lectures; 3 three-hour laboratory periods.

Ch 434. **Organic Combustion Analysis.** One term, 3 hours.

Quantitative analysis of organic compounds. Prerequisites: Ch 227, 232, 432.

Ch 435, 436. **Organic Preparations.** Terms and hours to be arranged.

The more important methods of synthesis, such as Girgnard's, Friedel-Craft's, Perkins' reaction, and others are studied. Prerequisite: Ch 227 or Ch 432.

Ch 437, 438. **Organic Chemistry.** First and second terms, 2 hours each term.

A continuation of Ch 430, 431, 432. Emphasis placed upon the methods of synthesis, interpretation or reactions, and structure of organic compounds. Two lectures.

Ch 440, 441, 442. **Physical Chemistry.** Three terms, 4 hours each term.

A study of the more important principles of physical and electrochemistry. The laboratory work includes molecular weight determinations, properties of liquids, conductance of solutions, velocity of reactions, and electrochemical measurements. Two lectures; 2 three-hour laboratory periods.

Ch 443. **Chemical Literature.** First term, 1 hour.

A course designed to give the student facility in the use of source material in chemistry and chemical technology.

Ch 444. **Special Topics in Physical Chemistry.** One term, 2 hours.

Ch 445, 446. **Chemical Thermodynamics.** Two terms, 3 hours each term.

A study of chemical equilibrium and electrochemistry from the standpoint of free energy. Three lectures.

Ch 447. **Electrochemistry.** One term, 3 hours.

A study of theoretical and applied electrochemistry.

Ch 448, 449. **Colloidal Chemistry.** Two terms, 3 hours each term.

A study of the properties and preparation of substances in the colloidal state. Laboratory courses Ch 467 and 468 accompany this course. Three lectures.

Ch 450, 451. **Biochemistry.** First and second terms, 3 to 5 hours each term.

A general course dealing with the chemistry of both plant and animal organisms, their tissue constituents, nutrition and metabolism. Prerequisite: organic chemistry.

Ch 452. **Animal Physiological Chemistry.** Third term, 3 to 5 hours.

Prerequisite: Ch 451.

Ch 453. **Plant Physiological Chemistry.** Third term, 5 hours.

Prerequisite: Ch 451.

Ch 460, 461, 462. **Pulp and Paper Chemistry.** Three terms, 3 hours each term.

A study of the chemistry of cellulose and of the fundamental, chemical processes of the pulp and paper industry.

Ch 467, 468. **Colloidal Chemistry Laboratory.** Two terms, 1 hour each term.

GRADUATE COURSES

Ch 501. **Graduate Research.** Terms and hours to be arranged.

Ch 503. **Graduate Thesis.** Terms and hours to be arranged.

Qualified students will have all the facilities of the laboratory at

their disposal and will receive the advice and assistance of the department.

Ch 505. **Graduate Studies.** Terms and hours to be arranged.

Ch 507. **Graduate Seminar in Current Topics.** Any term, 1 hour each term.
A reading knowledge of German and French is expected.

Ch 520, 521, 522. **Advanced Analytical Chemistry.** Three terms, hours to be arranged.
Special analytical procedures adapted to those enrolling.

Ch 530, 531, 532. **Advanced Organic Chemistry.** Three terms, 2 hours each term.
The theoretical aspects of the subject are emphasized by discussion of theories of valence, chemical reactivity, free radicals, catalysis, etc., as these are related to particular groups of compounds.

Ch 540, 541, 542. **Advanced Physical Chemistry.** Three terms, 2 hours each term.

Entomology

ENTOMOLOGY courses are planned to acquaint the student with the proper relationship of entomology to general agriculture and forestry and to train students for commercial honey production, 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.

Advanced courses are planned to equip students specializing in entomology with a fundamental ground-work in the science sufficient to prepare them for effective service in applied entomology and to fit them for advanced research study.

The student who intends to engage in research work or college teaching should clearly appreciate the fact that the four-year curriculum does not give him adequate preparation for a career in these fields. Additional study at the graduate level of from one to three years is essential. Certain types of commercial and inspection work may not require more training than is represented by the bachelor's degree.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

BiS 101, 102, 103. **Biological Science Survey.** Three terms, 4 hours each term.
Complete course description is printed under Department of Bacteriology.

Ent 201, 202, 203. **General Entomology.** Three terms, 3 hours each term.

Designed as basic instruction for students planning to take a major or a minor in entomology. Foundation work in morphology, taxonomy, general technique, and principles of insect control are included. Two lectures; 1 three-hour laboratory period.

Ent 211. **Principles of Economic Entomology.** Any term, 3 hours.

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. Two recitations; 1 three-hour laboratory period.

Ent 223. **Elementary Entomology.** Third term, 3 hours.

Designed primarily for prospective teachers of high school biology and others interested in insects from the biological point of view. Insects in their relation to human welfare, their collection, preservation, classification, and the rearing of living forms are emphasized. Laboratory work includes field trips. Two recitations; 1 three-hour laboratory period.

Ent 234. **Entomology for Engineers.** First or third term, 2 hours.

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. Two lectures.

Ent 235. **Bee Culture.** Third term, 3 hours.

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. Two recitations; 1 three-hour laboratory period.

UPPER DIVISION COURSES

Ent 311, 312, 313. **Entomological Field Work.** Terms and hours to be arranged.

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.

Ent 321. **Principles of Forest Entomology.** First term, 3 hours.

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. Two lectures; 1 two-hour laboratory period.

Ent 322, 323. **Forest Entomology.** Second and third terms, 3 hours each term.

An intensive study of insects injurious to forests and forest products, forest insect surveys, and the principles of forest insect control. Prerequisite: Ent 321. Three lectures; 1 two-hour laboratory period.

Ent 331, 332, 333. **Commercial Bee Culture.** Three terms, 3 hours each term.

Designed primarily for the student planning to take up commercial honey production. Study of the selection and preparation of equipment; biology and life-history of the honey-bee; honey flora; fall, winter, spring, and summer management; marketing; disease control. Two recitations; 1 three-hour laboratory period.

Ent 352. **Entomological Nomenclature and Literature.** Second term, 2 hours.

A survey of rules, regulations, and practices in entomological nomenclature; the International Code; sources of entomological literature; Bureau of Entomology; periodicals and books; bibliographies.

Ent 353. **Historical Entomology.** First term, 3 hours.

The insects of the ancients; early works on entomology; beginnings in America; early entomological workers in America; introduced pests; development of the Bureau of Entomology; early work in Oregon.

Ent 401. **Research.** Term and hours to be arranged.

Ent 403. **Thesis.** Term and hours to be arranged.

Ent 405. **Advanced Studies.** Term and hours to be arranged.

Ent 407. **Seminar in Current Topics.** Any term, 1 hour each term.

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.

Ent 411, 412, 413. **Economic Entomology.** Three terms, 3 hours each term.

An intensive consideration of specific insect pests of farm, garden, and orchard, man, and domestic animals, particularly of the Pacific Coast, and their control; latest developments in insecticides and their uses. Two recitations or lectures; 1 three-hour laboratory period.

Ent 415. **Principles of Insect Control.** Term and hours to be arranged.

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.

Ent 423. **Advanced Forest Entomology.** Any term, 4 hours.

An intensive study of the bark beetles injurious to forest trees. Prerequisite: Ent 323 or equivalent. Two lectures; 2 two-hour laboratory periods.

Ent 451, 452, 453. **Insect Taxonomy.** Three terms, 3 hours each term.

The classification of insects of the several orders; intensive study of insects of selected groups; attention to phylogenetic relationships and distribution. Prerequisite: Ent 203 or equivalent. Two recitations; 1 three-hour laboratory period.

Ent 471, 472, 473. **Advanced Entomology.** Three terms, 3 hours each term.

First term, insect morphology—anatomy, histology, embryology, and postembryonic development (1 lecture, 2 three-hour laboratory periods.) Second term, insect physiology—life processes of insects (1 lecture, 1 three-hour laboratory period.) Third term, insect ecology—environmental factors and their influence on insect development and distribution (2 lectures, 1 three-hour laboratory period). Prerequisites: Ent 203 and general physiology or equivalents.

GRADUATE COURSES

Ent 501. **Graduate Research.** Terms and hours to be arranged.

Ent 503. **Graduate Thesis.** Terms and hours to be arranged.

Ent 505. **Graduate Studies.** Terms and hours to be arranged.

Ent 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

Geology

THE courses in geology are planned to afford a foundation in the allied fields and a thorough training in geological subjects. Such training is essential to an appreciation of the importance these subjects occupy in our civilization and serves as a foundation for advanced work leading to the graduate degrees. The State of Oregon offers unusually rich fields for the graduate student working in many phases of physiographical, geological, or paleontological sciences. The department is equipped to afford facilities for graduate work in these fields.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

PhS 101, 102, 103. **Physical Science Survey.** Three terms, 4 hours each term.

Complete course description is printed under Department of Chemistry.

G 201, 202, 203. **Geology.** Three terms, 3 hours each term.

An introductory course dealing with those processes of nature by which the surface of the earth has been built up, deformed, and torn down. A study of the natural history and the currents of the common rocks and useful minerals and an outline of the history of the earth and significant events in the history of life. Three lectures; 1 laboratory or field period.

G 204, 205, 206. **Geology Laboratory.** Three terms, 1 hour each term.

G 280, 281, 282. **Introduction to Field Geology.** Three terms, 1 or 2 hours each term.

A course which may be conducted in the summer, during which time trips to regions of significant geology will be taken. This course

is available to students in geology who wish to learn something of geology in nature's own laboratory. Prerequisites: G 201, 202.

UPPER DIVISION COURSES

G 312, 313, 314. **Methods for the Determination of Materials.** Three terms, 4 hours each term.

Physical and chemical methods useful in the recognition of the materials of which the earth is composed. Especial attention given to microphysical and microchemical methods. Prerequisite: chemistry.

G 321. **Structural Geology.** Third term, 4 hours.

Study of origin, interpretation and mapping of minor rock structures and of joints, faults, and folds. Prerequisites: G 201, 202. Three lectures; 1 laboratory or field period.

G 322. **Physiography.** Second term, 4 hours.

Emphasis will be laid upon the physiographic cycle with a view to elaborating the general principles. Prerequisites: G 201, 202. Three lectures; 1 laboratory or field period.

G 323. **Stratigraphy.** First term, 4 hours.

The genesis and subsequent history of stratified rocks including a study of the geologic processes concerned with sedimentation and cementation. Prerequisites: G 201, 202, 203. Three lectures; 1 laboratory or field period.

G 324. **Engineering Geology.** One term, 3 hours.

A special course covering the general field from the engineering standpoint.

G 330. **Development and History of Life.** First term, 3 hours.

A brief discussion of the origin of life on the earth and an outline of the history of life.

G 331. **Geologic History of Vertebrates.** Second term, 3 hours.

A brief consideration of the rise and development of the vertebrates with especial emphasis on certain groups of ancient animals that once lived on the Pacific Coast.

G 332. **Geologic History of Man.** Third term, 3 hours.

A study of the physical and cultural development of the ancient types of men, as shown by their fossil remains, their implements and art.

G 340, 341. **Invertebrate Paleontology.** Two terms, 4 hours each term.

A study of major groups of fossil invertebrates and the characteristics of important West Coast genera. Two class periods and laboratory periods a week. (The third term of the year-sequence is Bot 410.)

G 350. **Rocks and Minerals.** First term, 4 hours.

This course gives the student having a general interest in geology the opportunity to become acquainted with rocks and minerals with-

out having to meet the requirements of the more technical courses. Can be combined with term courses in physiography and Oregon geology to form a junior sequence. Of interest to a student majoring in general science and especially useful to one expecting to teach general science.

G 352. **Geology of Oregon.** Third term, 3 hours.

Affords opportunity to obtain a general knowledge of the geology of the state without having to meet the technical requirements imposed on a professional geology major. Can be combined with term courses in rocks and minerals and physiography to form a sequence. Of interest to a student majoring in general science and especially useful to one expecting to teach general science.

G 380. **Advanced Field Geology.** Nine hours.

A general course in geologic mapping and surveying methods and an intensive study of a small area so chosen as to include a wide range of special problems. This work is conducted in a summer camp of four weeks. The course may be taken with full credit for a series of summers, since a different area is studied each season.

G 401. **Research.** Term and hours to be arranged.

G 403. **Thesis.** Term and hours to be arranged.

G 405. **Advanced Studies.** Term and hours to be arranged.

G 407. **Seminar in Current Topics.** Any term, 1 hour each term.

G 412, 413, 414. **Earth Materials.** Three terms, 4 hours each term.

The description, occurrence, origin, uses, and distribution of minerals, igneous, sedimentary, metamorphic rocks, and metallic ores. Laboratory work with hand specimens and microphysical and microchemical studies of fragments, slices, and polished sections. Mineral Resources, first term; Petrography, second term; Ore Deposits, third term. Prerequisite: A knowledge of methods for determination of materials.

G 424. **Advanced Paleontology.** Term and hours to be arranged.

Special work assigned to meet the requirements of the advanced student.

G 431. **Geologic History of North America.** One term, 4 hours.

The geologic development of the North American continent. Prerequisite: stratigraphy.

G 432. **Geologic History of the Pacific Coast.** One term, 4 hours.

The geologic history of the Pacific Coast of North America. Prerequisites: stratigraphy and paleontology.

G 433. **Geologic History of Pacific Countries.** Third term, 4 hours.

A study of the broad problems of the Pacific region. Prerequisites: G 201, 202, 321, 323.

GRADUATE COURSES

G 501. **Graduate Research.** Terms and hours to be arranged.

G 503. **Graduate Thesis.** Terms and hours to be arranged.

G 505. **Graduate Studies.** Terms and hours to be arranged.

G 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

G 512, 513, 514. **Microscopy.** Three terms, hours to be arranged.

A course on the use and theory of the microscope in the recognition and determination of the properties of organic and inorganic materials.

G 520. **Advanced Economic Geology.** Term and hours to be arranged.

Special work assigned to meet the requirements of advanced students in metallic and non-metallic mineral deposits.

G 580. **Graduate Field Geology.** Term and hours to be arranged.

Advanced field problems assigned to meet the requirements of the graduate student.

Mathematics

MATHEMATICS courses are intended to meet the needs of the following groups: first, those students seeking mental discipline through the study of an exact science; second, those desiring a mathematical basis for the study of the pure and applied sciences; third, those preparing to be teachers of mathematics in high schools; fourth, those desiring to proceed to graduate work in mathematics.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

Mth 100. **Intermediate Algebra.** One term, 4 hours.

For students entering deficient in algebra.

Mth 101, 102, 103. **Unified Mathematics.** Three terms, 4 hours each term.

Graphs, algebra, elements of calculus, trigonometry, and analytic geometry.

Mth 108. **Mathematics of Finance.** One term, 4 hours.

Courses Mth 105, 106, 108 form a year-sequence for Business Administration students.

Mth 109. **Elements of Statistics.** One term, 4 hours.

Mth 105, 106, 109 form a year-sequence for Forestry freshmen.

Mth 120. **Intermediate Algebra for Engineers.** One term, 5 hours.
For Engineering students entering deficient in algebra.

Mth 121, 122, 123. **Trigonometry and Elementary Analysis.** Three terms, 5 hours each term.
For Engineering students entering without trigonometry.

Mth 131, 132, 133. **Mathematical Analysis.** Three terms, 5 hours each term.
For Engineering students entering with trigonometry.

Mth 201, 202, 203. **Differential and Integral Calculus.** Three terms, 4 hours each term.
Prerequisite: Unified Mathematics or equivalent.

Mth 204, 205, 206. **Differential and Integral Calculus.** Three terms, 4 hours each term.
Prerequisite: Mathematical Analysis or its equivalent.

UPPER DIVISION COURSES

Mth 311. **History of Mathematics.** One term, 3 hours.
A course tracing the development of ancient, medieval, and modern mathematics. Prerequisite: Unified Mathematics or equivalent.

Mth 321, 322, 323. **Analytical Mechanics.** Three terms, 3 hours each term.
First term, statics. Second term, dynamics of a particle. Third term, dynamics of a rigid body. Three lectures or recitations.

Mth 401. **Research.** Term and hours to be arranged.

Mth 403. **Thesis.** Term and hours to be arranged.

Mth 405. **Advanced Studies.** Term and hours to be arranged.

Mth 407. **Seminar in Current Topics.** Any term, 1 hour each term.

Mth 411. **Theory of Equations and Determinants.** One term, 3 hours.
Properties and methods of solution of algebraic equations, and a brief study of determinants and their applications. Prerequisite: Unified Mathematics or equivalent. Not offered 1933-34. To be offered 1934-35.

Mth 412. **Higher Algebra.** One term, 3 hours.
A more advanced treatment of topics in earlier courses, together with much new material. Prerequisite: Unified Mathematics or its equivalent.

Mth 413. **Advanced Analytic Geometry.** One term, 3 hours.
A more advanced treatment of the subject and intended for students of fair mathematical maturity. Prerequisite: Unified Mathematics or its equivalent.

Mth 414. **Solid Analytic Geometry.** One term, 3 hours.

A course dealing with lines and planes in space, surfaces of the second degree, and a brief discussion of surfaces in general. Prerequisite: Unified Mathematics or its equivalent.

Mth 415. **Modern Geometry.** One term, 3 hours.

A study of the recent developments in synthetic Euclidean geometry. Prerequisite: Unified Mathematics or equivalent. Not offered 1933-34. To be offered 1934-35.

Mth 416. **Projective Geometry.** One term, 3 hours.

Prerequisite: calculus. Not offered 1933-34. To be offered 1934-35.

Mth 420. **Numerical Calculus.** One term, 3 hours.

Finite differences, interpolation, numerical differentiation and integration, and numerical solution of differential equations. Prerequisite: differential equations. (Offered if sufficient demand.)

Mth 421, 422. **Differential Equations.** Two terms, 3 hours each term.

A practical course in the solution of ordinary and partial differential equations. Prerequisite: calculus.

Mth 423. **Hyperbolic Functions.** One term, 3 hours.

Prerequisite: calculus.

Mth 424. **Theory of Measurements.** One term, 3 hours.

Theory of errors, method of least squares, and adjustment of observations. Prerequisite: calculus. Not offered 1933-34. To be offered 1934-35.

Mth 425. **Vector Analysis.** One term, 3 hours.

Prerequisite: calculus. Not offered 1933-34. To be offered 1934-35.

Mth 426. **Mathematical Theory of Probability.** One term, 3 hours.

A course for advanced students. Prerequisite: calculus. Not offered 1933-34. To be offered 1934-35.

Mth 431, 432. **Advanced Calculus.** Two terms, 3 hours each term.

Selected topics not covered in the first year of calculus. Prerequisites: Mth 421, 422. (Offered if sufficient demand.)

Mth 441, 442. **Mathematical Theory of Statistics.** Two terms, 3 hours each term.

A course for advanced students. Prerequisite: calculus.

GRADUATE COURSES

Mth 501. **Graduate Research.** Terms and hours to be arranged.

Mth 503. **Graduate Thesis.** Terms and hours to be arranged.

Mth 505. **Graduate Studies.** Terms and hours to be arranged.

Mth 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

Mth 511, 512, 513. **Functions of a Complex Variable.** Three terms, 3 hours each term.

An introduction to analytic functions, fundamental for advanced study in mathematics. Not offered 1933-34. To be offered 1934-35.

Mth 514. **Calculus of Variations.** One term, 3 hours.

Mth 516. **Potential Theory.** One term, 3 hours.

A study of the Newtonian and other potential functions. Three lectures.

Mth 521, 522, 523. **Differential Equations of Mathematical Physics.** Three terms, 3 hours each term.

Ordinary and partial linear differential equations and boundary value problems, with applications. Offered 1933-34.

Mth 531, 532, 533. **Advanced Analytical Mechanics.** Three terms, 3 hours each term.

Topics selected according to needs of students, in relation to previous and contemplated work.

Mth 541. **Theory of Elasticity.** One term, 3 hours.

The mechanics of elastic solids; applications to the strength, resistance, and deformation of materials. Three lectures.

Mth 544, 545. **Hydrodynamics.** Two terms, 3 hours each term.

The mechanics of fluids, with special reference to liquids, but including also some applications to air and other gases. The work of the second term requires a knowledge of spherical and cylindrical harmonics. Three lectures.

Physics

STUDENTS planning to major in physics should offer a maximum of high school mathematics and physics for entrance. The lower division program should include mathematics through the calculus, general chemistry, and ordinarily two years of physics. Those planning for graduate study and research should also lay the foundations of a reading knowledge of German or French, or both. In special cases courses in closely related departments, involving a considerable study of physical principles, may be accepted as major work.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

PhS 101, 102, 103. **Physical Science Survey.** Three terms, 4 hours each term.

Complete course description is printed under Department of Chemistry.

Ph 111, 112, 113. **Engineering Physics.** Three terms, 3 hours each term.

A course in general physics adapted to students in Engineering. Two lectures; 1 recitation; 2 one-hour laboratory periods.

Ph 161. **Rudiments of Photography.** One term, 2 hours.

A manipulation course intended for students not having the science prerequisites for Ph 361. One lecture; 2 two-hour laboratory periods.

Ph 201, 202, 203. **General Physics.** Three terms, 4 hours each term.

A general course covering mechanics sound, heat, light, electricity, and an introduction to the modern physics. Prerequisites: Mth 105, 106 or an acceptable equivalent. Two lectures; 2 recitations; 1 two-hour laboratory period.

Ph 291, 292, 293. **Astronomy and Meteorology.** Three terms, 3 hours each term.

Astronomy is taught the first and third terms as weather is then favorable for observations. The work is descriptive rather than mathematical. Meteorology, taught during the second term, consists of a study of the physical phenomena of the earth's atmosphere. Three lectures or equivalent in observational work.

UPPER DIVISION COURSES

(Ph 211, 212, 213 and Calculus are prerequisite to all upper division courses except Ph 331, 332, 333, 361, 362, 363, 380, 381, 396.)

Ph 311, 312, 313. **Physical Measurements.** Three terms, 3 hours each term.

A second course in physics stressing instrumental technique. Electrical, thermal, and optical measurements are stressed and an introduction is given to conduction in gases, radioactivity, and electronics. Prerequisites: one year of college physics and calculus. Two lectures; 2 two-hour laboratory periods.

Ph 331, 332, 333. **Radio Communication.** Three terms, 3 hours each term.

Theory of radio transmission and reception; study of vacuum tubes; radio and audio frequency measurements; special problems. Two lectures or recitations; 1 laboratory period.

Ph 343. **Acoustics.** One term, 3 hours.

A study of the acoustics of buildings. Three lectures; occasional laboratory.

Ph 361, 362, 363. **Photography.** Three terms, 3 hours each term.

Theoretical and practical phases of the subject. First term: hand camera, photographic processes, enlarging, lantern slides, etc. Second term: special techniques. Third term: special problems. Prerequisite: physics or chemistry. One or two lectures; 2 two-hour laboratory periods.

Ph 380. **Laboratory Arts.** Term and hours to be arranged.

The construction, repair, and adjustment of physical apparatus. If desired, the study of the administration of the physical laboratory and points regarding home-made apparatus for high schools. Lectures, assigned readings, and laboratory.

Ph 381. **History of Physics.** One term, 3 hours.

Three lectures.

Ph 396. **Practical Astronomy.** One term, 3 hours.

Determination of time, latitude, longitude, and azimuth by astronomical methods. Prerequisites: Ph 293 and trigonometry. One lecture; 2 observation periods.

Ph 401. **Research.** Term and hours to be arranged.

Ph 403. **Thesis.** Term and hours to be arranged.

Ph 405. **Advanced Studies.** Term and hours to be arranged.

Readings and reports on special topics.

Ph 407. **Seminar in Current Topics.** Any term, 1 hour each term.

Ph 411, 412, 413. **Classical Theories.** Three terms, 3 hours each term.

The theoretical background of classical physics, especially the kinetic and electromagnetic theories. Prerequisites: general chemistry, general physics, calculus. It is recommended that Ph 311, 312, 313 either precede or be taken concurrently. Three lectures.

Ph 461, 462, 463. **Advanced Photography.** Three terms, 3 hours each term.

Work in special fields such as color photography, photomicrography, microscopic motion pictures, miniature camera technique, etc. Prerequisite: Ph 363. One lecture; 2 two-hour laboratory periods.

Ph 464. **The Physics of Light Production.** One term, 3 hours.

A study of radiation and the development of modern illuminants. Two lectures; 1 three-hour laboratory period.

Ph 471, 472, 473. **Introduction to Modern Physics.** Three terms, 3 hours each term.

Cathode, canal and X-rays, ionization of gases, photoelectricity, radioactivity, atomic structure, thermoelectricity, metallic conduction, radiation, and wave mechanics. Prerequisites: general chemistry, calculus, Ph 413. Three lectures.

Ph 474, 475, 476. **Modern Physics Laboratory.** Three terms, 1 hour each term.

To be taken with Ph 471, 472, 473. One three-hour laboratory period.

GRADUATE COURSES

Courses at the graduate level are given when warranted by demand. A student may expect ordinarily to be able to take the courses necessary for his advanced degree during his normal period of graduate residence.

Ph 501. **Graduate Research.** Terms and hours to be arranged.

Ph 503. **Graduate Thesis.** Terms and hours to be arranged.

Qualified students will have all the facilities of the laboratory at their disposal and will receive the advice and assistance of the department. Offered 1933-34.

Ph 505. **Graduate Studies.** Terms and hours to be arranged.

Ph 507. **Graduate Seminar in Current Topics.** Terms and hours to be arranged.

Ph 524, 525, 526. **Advanced Mathematical Physics.** Three terms, hours to be arranged.

Lectures and assigned readings. The topics treated will be varied from year to year to suit the needs of the students.

Ph 531, 532, 533. **Advanced Electrical Theory.** Three terms, 3 hours each term.

Special attention to transient phenomena, oscillations and waves, thermionic vacuum tubes, and modern applications. Prerequisites: Ph 311, 312, 313.

Ph 534, 535, 536. **Advanced Electrical Laboratory.** Three terms, 1 or 2 hours each term.

To be taken with Ph 531, 532, 533.

Ph 551, 552, 553. **Theory of Heat.** Three terms, 3 hours each term.

Thermodynamics and the kinetic theory. Especially for students in physics and physical chemistry and those interested in industrial applications. Three lectures.

Ph 561, 562, 563. **Optics.** Three terms, 3 hours each term.

Physical optics; theory of optical instruments; spectroscopy. Prerequisite: Ph 473. Two lectures; 1 three-hour laboratory period.

Ph 571, 572, 573. **Modern Physical Theories.** Three terms, 3 hours each term.

A discussion of such topics as the electron theory, relativity, the quantum theory, and wave mechanics. Three lectures. Prerequisite: Ph 473.

Ph 576. **Quantum Mechanics.** One term, 3 hours.

A study of modern theories based on matrices, tensors, Schroedinger's equation, Heisenberg principle, and Dirac's transformation theory. Three lectures. Prerequisites: Ph 562, 573.

Ph 591, 592. **Cosmic Physics.** Two terms, 3 hours each term.

A study of the physical characteristics and behavior of the stellar universe with special emphasis upon the problems of the earth and the solar system. Three lectures.

Ph 593. **Geophysics.** One term, 3 hours.

Prerequisites: G 321, Ch 203, and differential equations. Three lectures.

Zoology

IN the lower division courses the purpose is to furnish the student with effective grounding in the principles of animal biology and in laboratory methods. These courses also form the basis for technical and professional work in the applied fields of zoology. The upper division courses provide for training in the special fields of the science and an acquaintance with recent developments. Advanced study courses and seminars introduce the student to research and give opportunity for advanced work in selected subjects.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

BiS 101, 102, 103. **Biological Science Survey.** Three terms, 3 hours each term.

Complete course description is printed under Department of Bacteriology.

Z 201, 202, 203. **General Zoology.** Three terms, 3 hours each term.

An introductory course dealing with principles of animal biology. Two lectures; 1 three-hour laboratory period. For premedical students, pharmacy, physical education and psychology students, and others desiring a fundamental course in general zoology.

Z 130. **Principles of Zoology.** Third term, 3 hours.

The distribution, habits, and functions of animals with reference to their economic importance. Two lectures; 1 three-hour laboratory period.

Z 204, 205, 206. **Vertebrate Zoology.** Three terms, 4 hours each term.

The elements of comparative anatomy, gross and microscopic, and of vertebrate embryology. Two lectures; 6 hours laboratory.

Z 211. **Elementary Human Physiology.** Second or third term, 5 hours.

For students in Home Economics, Physical Education, prenursing, and others desiring a general course in the principles of human physiology. Three lectures; 2 laboratory periods.

Z 213. **Field Zoology.** Third term, 4 hours.

The local vertebrates, their taxonomic arrangement, habits, and distribution. Two lectures; 6 hours of laboratory or field work, the latter being largely bird study.

UPPER DIVISION COURSES

Z 314. **Genetics.** First term, 3 hours.

A study of heredity and variation in plants and animals.

Z 315. **Evolution and Eugenics.** Second term, 3 hours.

A study of the various ideas concerning the origin, development, and relation of organisms with emphasis on human welfare.

Z 375. **Histology.** First term, 3 hours.

Z 376. **Microtechnique.** Second term, 3 hours.

Study and practice in the principal methods of preparing animal tissues for microscopic study. One lecture; 6 periods laboratory work.

Z 377. **Vertebrate Embryology.** Third term, 3 hours.

A study of the morphology and physiology of the early development of mammals. One lecture; 6 hours laboratory.

Z 401. **Research.** Term and hours to be arranged.

Z 403. **Thesis.** Term and hours to be arranged.

Z 405. **Advanced Studies.** Term and hours to be arranged.

Readings and reports on special topics.

Z 407. **Seminar in Current Topics.** Any term, 1 hour each term.

Z 411, 412. **General Physiology.** Second and third terms, 4 hours each term.

The principles of physiology and their application to life processes in plants and animals. Prerequisites: general chemistry and general physics. Two lectures; 2 three-hour laboratory periods.

Z 431, 432. **Invertebrate Zoology.** First and second terms, 4 hours each term.

The structure, classification, distribution, and life-histories of the invertebrates. Two lectures; 6 periods laboratory work.

Z 436. **Parasitology.** Second term, 4 hours.

A consideration of the role played by the lower animals in the production of diseases. Lectures, conferences, and laboratory work. Not offered 1933-34.

Z 437. **Cytology**. First term, 4 hours.

A study of the structure and function of the cell with special reference to the behavior and distribution of chromosomes. Lectures, conferences, and laboratory work. Not offered 1933-34.

GRADUATE COURSES

Z 501. **Graduate Research**. Terms and hours to be arranged.

Z 503. **Graduate Thesis**. Terms and hours to be arranged.

Z 505. **Graduate Studies**. Terms and hours to be arranged.

Z 507. **Graduate Seminar in Current Topics**. Terms and hours to be arranged.

COURSES AT UNIVERSITY

The following lower division and service courses in the School of Science are available at the University:

BOTANY

LOWER DIVISION COURSES

BiS 101, 102, 103. Biological Science Survey. Three terms, 4 hours each term.
Bot 201, 202, 203. General Botany. Three terms, 3 hours each term.
Bot 204. Plant Activities. First term, 4 hours.
Bot 205. Plant Groups. Second term, 4 hours.
Bot 206. Plant Classifications. Third term, 4 hours.
Bot 217, 218. Field Botany. First and second terms, 2 hours each term.

CHEMISTRY

LOWER DIVISION COURSES

PhS 101, 102, 103. Physical Science Survey. Three terms, 4 hours each term.
Ch 201, 202, 203. Elementary Chemistry. Three terms, 4 hours each term.
Ch 204, 205, 206. General Chemistry. Three terms, 4 hours each term.
Ch 211, 212, 213. Second Year Chemistry. Three terms, 4 or 5 hours each term.
Ch 220. Continuation Chemistry. First term, 4 hours.
Ch 226, 227. Organic Chemistry. Two terms, 4 hours each term.
Ch 231. Qualitative Analysis. First term, 4 hours.
Ch 232. Quantitative Analysis. Second or third term, 3 to 5 hours each term.
Ch 233. Quantitative Analysis. Third term, 3 to 5 hours.

UPPER DIVISION SERVICE COURSE

Ch 340. Physical Chemistry. Third term, 3 hours.

GEOLOGY

LOWER DIVISION COURSES

PhS 101, 102, 103. Physical Science Survey. Three terms, 4 hours each term.
G 201, 202, 203. General Geology. Three terms, 3 hours each term.
G 204, 205, 206. General Geology Laboratory. Three terms, 1 hour each term.
G 280, 281, 282. Introduction to Field Geology. Terms and hours to be arranged.

MATHEMATICS

LOWER DIVISION COURSES

Mth 104, 105, 106, 107, 108. Unified Mathematics. Three terms, 4 hours each term.
Mth 104. Intermediate Algebra. One term, 4 hours.
Mth 105. Elementary Analysis. One term, 4 hours.
Mth 106. Plane Trigonometry. One term, 4 hours.
Mth 107. Plane Analytical Geometry. One term, 4 hours.
Mth 108. Mathematics of Finance. One term, 4 hours.
Mth 109. Elements of Statistics. One term, 4 hours. Not offered 1933-34.
Mth 110. College Algebra. One term, 4 hours.

Mth 200. Analytical Geometry. First term, 4 hours.
Mth 201, 202. Differential and Integral Calculus. Second and third terms, 4 hours each term.
Mth 203, 204, 205. Differential and Integral Calculus. Three terms, 4 hours each term.
Mth 214. Higher Algebra. One term, 3 hours. Not offered 1933-34.
Mth 215. Analytical Trigonometry. One term, 3 hours.
Mth 216. Synthetic Geometry. One term, 3 hours. Not offered 1933-34.
Mth 217. Elements of Projective Geometry. One term, 3 hours.
Mth 218. Theory of Equations. One term, 3 hours.
Mth 219. History of Elementary Mathematics. One term, 3 hours. Not offered 1933-34.

PHYSICS

LOWER DIVISION COURSES

PhS 101, 102, 103. Physical Science Survey. Three terms, 4 hours each term.
Ph 201, 202, 203. General Physics. Three terms, 4 hours each term.
Ph 204, 205, 206. Descriptive Astronomy. Three terms, 3 hours each term. Not offered 1933-34.
Ph 211, 212, 213. Advanced Physics. Three terms, 3 hours each term.

UPPER DIVISION SERVICE COURSE

Ph 346. Sound. Second term, 3 hours.

ZOOLOGY

LOWER DIVISION COURSES

Z 005. Elementary Problems in Zoology. Terms and hours to be arranged.
BiS 101, 102, 103. Biological Science Survey. Three terms, 4 hours each term.
Z 201, 202, 203. General Zoology. Three terms, 3 hours each term.
Z 204, 205, 206. Vertebrate Zoology. Three terms, 4 hours each term.
Z 213. Field Zoology. Third term, 4 hours.
Z 240, 241, 242. Evolution, Heredity and Eugenics. Three terms, 2 hours each term.

UPPER DIVISION SERVICE COURSES

Z 311, 312, 313. Elementary Human Physiology. Three terms, 3 hours each term.

School of Agriculture

Faculty

WILLIAM ALFRED SCHOENFELD, M.B.A., Dean of the School of Agriculture.

ARTHUR BURTON CORDLEY, D.Sc., LL.D., Dean Emeritus of the School of Agriculture.

RALPH STEPHEN BESSE, M.S., Vice-Director of the Agricultural Experiment Station.

MARIE BERRY LEWIS, Pd.B., Secretary to the Dean.

Division of Agricultural Economics

ERMINE LAWRENCE POTTER, M.S., Professor of Agricultural Economics; In Charge, Division of Agricultural Economics.

Agricultural Economics

MILTON NELS NELSON, Ph.D., Professor of Agricultural Economics.

WILLIAM HENRY DREESEN, Ph.D., Professor of Agricultural Economics.

Farm Management

HENRY DESBOROUGH SCUDDER, B.S., Professor of Farm Management.

GUSTAV WESLEY KUHLMAN, M.S., Associate Professor of Farm Management.

Division of Animal Industries

PHILIP MARTIN BRANDT, A.M., Professor of Dairy Husbandry; In Charge, Division of Animal Industries.

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.

Dairy Husbandry

GUSTAV HANS 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.

HOWARD BERTSCH, B.S., Fellow in Dairy Husbandry.

Poultry Husbandry

ALFRED GUNN LUNN, B.S., Professor of Poultry Husbandry.

FRANK ELMER FOX, M.S., Associate Professor of Poultry Husbandry.

Veterinary Medicine

BENNETT THOMAS SIMMS, D.V.M., Professor of Veterinary Medicine.
WALTER THEODORE JOHNSON, D.V.M., Professor of Veterinary Medicine.
JAMES NIVEN SHAW, D.V.M., Assistant Professor of Veterinary Medicine.
OTTO HERBERT MUTH, D.V.M., Instructor in Veterinary Medicine.

Division of Plant Industries

GEORGE ROBERT HYSLOP, B.S., Professor of Farm Crops; In Charge, Division of Plant Industries.

Farm Crops

EARL NORMAN BRESSMAN, Ph.D., Associate Professor of Farm Crops.
DONALD DAVID HILL, M.S., Associate Professor of Farm Crops.
HOWARD THEODORE JOHNSTON, B.S., Teaching Fellow in Farm Crops.

Horticulture

WALTER SHELDON BROWN, D.Sc., Professor of Horticulture.
ARTHUR GEORGE BOUQUET, M.S., Professor of Vegetable Crops.
ERNEST HERMAN WIEGAND, B.S., Professor of Horticultural Products.
WILLIS PIERRE DURUZ, Ph.D., Professor of Pomology.
THOMAS ONSDORFF, B.S., Instructor in Horticultural Products.

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.

Other Departments

Agricultural Education

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

Agricultural Engineering

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

Extension Methods

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

Curricula in Agriculture

B.S., M.S., Ph.D. Degrees

THE School of Agriculture offers curricula leading to the degree of Bachelor of Science in General or Specialized Agriculture, in Agricultural Engineering, in Horticultural Products, and in Agricultural Technology. The completion of 192 term hours (including Military and Physical Education) is required for graduation from any curriculum.

The curricula are arranged in the following groups:

A. Curricula in General and Specialized Agriculture (pages 120-129).
B. Curriculum in Agricultural Engineering (pages 130-131).
C. Curriculum in Horticultural Products (pages 131-132).
D. Curriculum in Agricultural Technology (pages 132-133).

Graduate Work. Opportunities are provided in all the departments of these groups for graduates of this College, or of other institutions of standard rank, to do graduate work leading to the degree of Master of Science. In many of the departments work leading to the degree of Doctor of Philosophy is offered. The requirements for higher degrees are explained in full under Graduate Division.

A. Curricula in General and Specialized Agriculture

B.S. Degree

GENERAL AGRICULTURE
AGRICULTURAL ECONOMICS
Agricultural Economics
Farm Management
AGRICULTURAL EDUCATION
ANIMAL INDUSTRIES
Animal Husbandry
Dairy Husbandry
Poultry Husbandry

PLANT INDUSTRIES
Farm Crops
Horticulture
Landscape Horticulture
Pomology
Vegetable Crops
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, land companies and realtors, 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 or in charge of control laboratories in manufacturing industries related to agriculture.

Lower Division Curricula. The work of the first two years in all curricula in General and Specialized Agriculture is prescribed. The freshman year is the same for all. During the sophomore year the student selects one of five curricula divisions: General Agriculture, Agricultural Education, Animal Industries, Agricultural Economics, or Plant Industries.

Upper Division Curricula. During the junior and senior years the student may follow the curriculum in General Agriculture (page 123), Agricultural Economics (pages 123-124); in Agricultural Education (page 129); in Animal Industries (Animal Husbandry, Dairy Production, Poultry Husbandry) (pages 125-126); in Dairy Manufacturing (page 125); in Farm Crops (page 126); in Farm Management (page 124); in Horticulture (Landscape Horticulture pages 126-127, or Pomology page 127, or Vegetable Crops page 128); or in Soils (pages 129-130).

FRESHMAN YEAR[1]

	Term hours		
	1st	2d	3d
English Composition (Eng 111, 112, 113)	3	3	3
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
General Botany (Bot 201, 202)	3	3	—
Principles of Zoology (Z 130)	—	—	3
Cereal Production (FC 111)	3	—	*or* (3)
Livestock Management I (AH 221)	(3)	—	*or* 3
Practical Poultry Keeping (PH 211)	—	3	—
Agricultural Resources (AEc 111)	3	—	—
Elements of Horticulture (Hrt 111)	—	—	3
Agricultural Engineering (AE 111)	—	3	—
[2]Physical Education	1	1	1
Military Science	1	1	1
	17	17	17

PROGRAMS FOR SOPHOMORES

1. GENERAL AGRICULTURE

This curriculum provides a more liberal course than those in the specialized divisions and departments. Students may meet graduation requirements and carry a strong option chosen from the offerings of other schools, such as Business Administration, Social Science, Education, and others.

	Term hours		
	1st	2d	3d
Principles of Economics (Ec 201, 202, 203)	3	3	3
Soils (Sls 211, 212)	3	3	—
Soil Drainage and Irrigation (Sls 213)	—	—	3
Organic Chemistry (Ch 221)	5	—	—
Principles of Farm Management (FM 211)	—	—	3
Forage and Root Crop Production (FC 211)	3	—	*or* 3
General Bacteriology (Bac 204)	—	3	—
Elements of Dairying (DH 211)	—	3	—
Electives	—	2	5
Advanced Physical Education	1	1	1
Military Science	1	1	1
	16	16	16

2. AGRICULTURAL ECONOMICS

Principles of Economics (Ec 201, 202, 203)	3	3	3
Agricultural Statistics (AEc 221)	—	3	—
Agricultural Economics (AEc 211)	—	—	3
Organic Chemistry (Ch 221)	5	—	—
General Bacteriology (Bac 204)	—	3	—
Principles of Farm Management (FM 211)	—	—	3
Elements of Dairying (DH 211)	—	3	—
Forage and Root Crop Production (FC 211)	—	—	3
Soils (Sls 211, 212)	3	3	—
Soil Drainage and Irrigation (Sls 213)	—	—	3
Farm Accounting (FM 311)	3	—	—
Military Science	1	1	1
Advanced Physical Education	1	1	1
	16	17	17

[1]Women are required to take Social Ethics (PE 131).

[2]General Hygiene, 2 term hours, is taken the second term in place of Physical Education.

3. ANIMAL INDUSTRIES

Students who desire to major in Dairy Manufacturing or who wish to prepare themselves for more technical training will be required to make certain substitutions in the curriculum of the sophomore year in consultation with the department head.

	Term hours		
	1st	2d	3d
Principles of Economics (Ec 201, 202, 203)	3	3	3
Organic Chemistry (Ch 221)	5	---	---
Elementary Journalism (J 111)	---	3	---
Forage and Root Crop Production (FC 211)	---	---	3
Elements of Dairying (DH 211)	3	---	---
General Bacteriology (Bac 204)	---	3	---
Principles of Farm Management (FM 211)	---	---	3
Anatomy of Domestic Animals (VM 211)	3	---	---
Physiology of Domestic Animals (VM 221, 222)	---	3	3
Stock Judging I (AH 111)	---	3	---
[1]Optional	---	---	3
Advanced Physical Education	1	1	1
Military Science	1	1	1
	16	17	17

4. PLANT INDUSTRIES

Principles of Economics (Ec 201, 202, 203)	3	3	3
Soils (Sls 211, 212)	3	3	---
Soil Drainage and Irrigation (Sls 213)	---	---	3
Organic Chemistry (Ch 221)	5	---	---
Principles of Farm Management (FM 211)	---	---	3
Principles of Plant Physiology (Bot 331)	---	---	4
Forage and Root Crop Production (FC 211)	3	---	---
General Bacteriology (Bac 204)	---	3	---
Elements of Dairying (DH 211)	---	3	---
Plant Propagation (Hrt 311)	---	3	---
Elective	---	---	1
Advanced Physical Education	1	1	1
Military Science	1	1	1
	16	17	16

Recommended Electives

Farm Crops			
Stock Judging	---	3 *or*	3
Principles of Economic Entomology (Ent 211)	---	---	3
Elementary Biochemistry (Ch 251)	---	5	---
Climatology (Sls 319)	---	---	2
Potato Growing (FC 311)	---	2	---
General Botany (Bot 203)	---	---	3
Horticulture			
Landscape Architecture (LA 279)	---	---	3
Elementary Biochemistry (Ch 251)	---	5	---
General Botany (Bot 203)	---	---	3
Soils			
Quantitative Analysis (Ch 232) *or* Elementary Biochemistry (Ch 251)	---	5	---
Climatology (Sls 319)	---	---	2

Sophomore Year in Landscape Horticulture

Sophomores planning to major in Landscape Horticulture (see pages 126-127) pursue the following program.

[1]Options—
Dairy Breed Types (DH 321), 3 term hours.
Dairy Products Standards (DH 315), 1 term hour.
Incubation and Brooding (PH 321), 4 term hours.
Stock Judging II (AH 311), 3 term hours.

Sophomore Year	Term hours 1st	2d	3d
Principles of Economics (Ec 201, 202, 203)	3	3	3
Landscape Architecture (LA 279)	---	3	---
Organic Chemistry (Ch 221)	5	---	---
Principles of Plant Physiology (Bot 331)	---	---	4
Drawing—Architectural	2	2	---
Trigonometry	---	---	5
Drawing—Free hand	3	3	---
Soils (Sls 211, 212), Soil Drainage and Irrigation (Sls 213)	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
	18	16	17

5. AGRICULTURAL EDUCATION

Principles of Economics (Ec 201, 202, 203)	3	3	3
Organic Chemistry (Ch 221)	5	---	---
Elements of Dairying (DH 211)	3	---	---
General Bacteriology (Bac 204)	---	3	---
Principles of Farm Management (FM 211)	---	---	3
Farm Motors (AE 211) *or* Automobile Mechanics (AE 313)	---	3	---
Forage and Root Crop Production (FC 211)	---	---	3
Practical Poultry Keeping (PH 211)	---	3	---
Soils (Sls 211, 212)	3	3	---
Soil Drainage and Irrigation (Sls 213)	---	---	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
Elective	---	---	2
	16	17	16

UPPER DIVISION CURRICULA

1. GENERAL AGRICULTURE

Junior Year

Elementary Journalism (J 111)	---	3	---
Extempore Speaking (Sp 111)	3	---	---
[1]Electives	13	13	16
	16	16	16

Senior Year

Modern Governments (PS 201, 202)	4	4	---
[1]Electives	12	12	16
	16	16	16

2. AGRICULTURAL ECONOMICS

AGRICULTURAL ECONOMICS

Junior Year

Principles of Agricultural Marketing (AEc 441)	4	---	---
Rural Sociology (Soc 364)	---	---	3
Rural Finance (AEc 431)	3	---	---
Money and Banking (Ec 413)	---	4	---
Public Finance (Ec 418)	---	---	4
Modern Governments (PS 201, 202)	4	4	---
Seminar in Agricultural Economics (AEc 307)	1	1	1
[2]Electives	4	7	8
	16	16	16

[1]Electives leading to specific objectives are chosen in conference with the Dean of Agriculture and must include a minimum of 36 upper division credits in agriculture.

[2]Students are expected to choose from their electives a sufficient number of courses in their junior and senior years to give them thorough familiarity with the production of at least one agricultural commodity.

Senior Year	Term hours 1st	2d	3d
Business Law (BA 256)	4	---	---
Cooperative Marketing Organization (AEc 411)	---	3	---
Enterprise Costs and Profits (FM 414)	---	---	3
Agricultural Land Economics (FM 416)	---	3	---
Agricultural Prices (AEc 451)	---	---	3
Seminar in Agricultural Economics (AEc 407)	1	1	1
Electives	11	9	9
	16	16	16

FARM MANAGEMENT

Junior Year

Operation Efficiency (FM 312)	3	---	---
Farm Organization (FM 411)	---	3	---
Enterprise Costs and Profits (FM 414)	---	---	3
Animal Breeding (PH 315)	---	3	---
Livestock Management I (AH 221)	---	---	3
Animal Nutrition (AH 411)	---	---	4
Electives	13	10	6
	16	16	16

Electives

Principles of Plant Pathology (Bot 351)	4	---	---
Soil Physics (Sls 422)	3	---	---
Soil Survey (Sls 327)	---	---	3
Practical Poultry Keeping (PH 211)	3 *or*	3	---
Elementary Journalism (J 111)	3 *or*	3 *or*	3
Farm Motors (AE 211)	3 *or*	3 *or*	3
Farm Equipment Repairs (Farm Shop II) (AE 222)	---	3	---
Rural Finance (AEc 431)	3	---	---
Pruning (Pom 431) *or* Fruit Production (Pom 415)	---	3 *or*	4
Landscape Architecture (LA 279)	3 *or*	3 *or*	3
Stock Judging II (AH 311)	---	---	3
Livestock Practice (AH 319, 320)	1	---	2
Secondary Education (Ed 311)	3	---	---
Educational Psychology (Ed 312)	---	3	---
Principles of Teaching (Ed 313)	---	---	3

Senior Year

Enterprise Costs and Profits (FM 415)	2	---	---
Applied Farm Management (FM 403)	---	---	3
Agricultural Land Economics (FM 416)	---	3	---
Dairy Herd Management (DH 322)	---	3	---
Extempore Speaking (Sp 111)	3	---	---
Modern Governments (PS 201)	---	---	4
Electives	11	10	9
	16	16	16

Electives

Diseases of Livestock (VM 341)	4	---	---
Soil Fertility Lectures (Sls 425)	---	3	---
Extension Methods (EM 411)	---	---	3
Principles of Agricultural Marketing (AEc 441)	4	---	---
Cooperative Marketing Organization (AEc 411)	---	3	---
Agricultural Prices (AEc 451)	---	---	3
Livestock Economics (AH 424)	---	---	5
Seed Production (FC 414)	3	---	---
Turkey Management (PH 351)	3	---	---
Breeding Dairy Cattle (DH 421)	---	3	---
Milk Production (DH 422)	---	---	3
Business Law (BA 256)	4	---	---
House Planning and Architectural Drawing (AA 178)	---	---	3
Special Methods in Agriculture (AEd 328)	5	---	---
Supervised Teaching (Ed 315)	---	3	3
Methods in Teaching Evening and Part-Time Classes in Agriculture (AEd 313)	---	2	---

3. ANIMAL INDUSTRIES

Junior Year	Term hours 1st	2d	3d
Physiology of Domestic Animals (VM 321)	3	---	---
Parasitic Diseases of the Domestic Animal (VM 361)	---	3	---
Animal Nutrition (AH 411)	4	---	---
Animal Breeding (PH 315)	---	3	---
Farm Accounting (FM 311)	3	---	---
Soils (SIs 211, 212)	3	3	---
Soil Drainage and Irrigation (SIs 213)	---	---	3
Principles of Economic Entomology (Ent 211)	---	---	3
Electives	3	6	9
	16	15	15

Senior Year			
Diseases of Livestock (VM 441, 442, 443)	3	3	3
Extempore Speaking (Sp 111)	3	---	---
Modern Governments (PS 201)	---	4	---
Electives	9	8	12
	15	15	15

DAIRY MANUFACTURING

Junior Year			
Dairy Products Manufacturing (DH 312, 313, 314)	4	4	4
Market Milk (DH 311)	---	---	3
Dairy Bacteriology (Bac 411, 412)	3	3	---
Agricultural and Biochemical Analysis in Specialized Fields (Ch 352)	---	3	---
Dairy Herd Management (DH 322)	---	3	---
Electives	9	3	9
	16	16	16

Senior Year			
Dairy Technology (DH 411, 412, 413)	3	3	3
Extempore Speaking (Sp 111)	3	---	---
Modern Governments (PS 201)	---	4	---
Electives	9	8	12
	15	15	15

The following major electives are available in the several fields of the Division. Students may select from these technical subjects and in addition should elect liberally from the fields of Agricultural Economics and Plant Industries. Students are expected to plan their courses with the advice of department or division head.

MAJOR ELECTIVES OFFERED

Junior Year	Term hours 1st	2d	3d
Animal Husbandry			
Breeds of Livestock I, II (AH 315, 316)	3	3	---
Meats (AH 326)	---	3	---
Stock Judging II (AH 311)	---	---	3
Feeds and Feeding (AH 412)	---	5	---
Wool and Mohair (AH 418)	---	---	3
Pedigree Study (AH 421)	---	---	3
Special Studies (AH 305)	---	---	---
Dairy Production			
Dairy Products Manufacturing (DH 312, 313, 314)	4	4	4
Dairy Herd Management (DH 322)	---	3	---
Market Milk (DH 311)	---	---	3
Special Studies (DH 305)	---	---	---

Dairy Manufacturing

Electives from the Division of Agricultural Economics and carefully selected courses in Poultry and Animal Husbandry.

Poultry Husbandry	Term hours 1st	2d	3d
Anatomy of the Fowl (VM 311)	---	3	---
Diseases of Poultry (VM 351)	---	---	3
Poultry-house Design and Construction (PH 331)	---	4	---
Turkey Management (PH 351)	3	---	---
Incubation and Brooding (PH 321)	---	---	4

Senior Year

Animal Husbandry			
Livestock Economics (AH 424)	---	---	5
Stock Judging III (AH 312)	4	---	---
Reproductive Problems (AH 323)	---	3	---
Livestock Practice (AH 319)	1	---	---
Livestock Practice (AH 320)	---	---	2
Special Studies (AH 305)	---	---	---
Dairy Production			
Seminar (DH 407)	1	1	1
Breeding Dairy Cattle (DH 421)	---	3	---
Dairy Technology (DH 411, 412, 413)	3	3	3
Milk Production (DH 422)	---	---	3
Special Studies (DH 405)	---	---	---
Dairy Manufacturing			
Electives from the Division of Agricultural Economics and carefully selected courses in Poultry and Animal Husbandry.			
Poultry Husbandry			
Poultry Feeding (PH 411)	4	---	---
Marketing Poultry Products (PH 421)	---	4	---
Poultry Plant Management (PH 431)	---	---	4
Advanced Poultry Judging (PH 341)	2	---	---
Poultry Breeds and Breeding (PH 311)	4	---	---

4. PLANT INDUSTRIES

FARM CROPS

Junior Year

Cereal Production (FC 321)	5	---	---
Crop Inspection (FC 411)	---	5	---
Forage and Related Crops (FC 324)	---	---	3
Principles of Agricultural Breeding (FC 315)	---	---	3
Principles of Plant Pathology (Bot 351)	4	---	---
Farm Accounting (FM 311)	---	3	---
Elementary Journalism (J 111)	---	3	---
Animal Nutrition (AH 411)	---	---	4
[1]Electives	7	5	6
	16	16	16

Senior Year

Seed Production (FC 414)	3	---	---
Applied Plant Genetics (FC 330)	5	---	---
Extempore Speaking (Sp 111, 112)	---	3	3
Soil Fertility Lectures (Sls 425)	---	3	---
Crop Efficiency (FC 421)	---	---	5
Business Law (BA 256)	4	---	---
Modern Governments (PS 201)	---	4	---
Seminar (FC 407)	1	1	1
[1]Electives	3	5	7
	16	16	16

HORTICULTURE: LANDSCAPE HORTICULTURE

The object of the curriculum in Landscape Horticulture is to train students for the practical application of landscaping principles to problems in the field, as in management of

[1]Electives leading to production, agricultural teaching, research, extension, or commercial careers are chosen in conference with the head of the department.

estates. superintendency of cemeteries and parks, ornamental nursery stock industry, seed and bulb business, teaching the practical phases of ornamental gardening, maintenance of golf courses, contracting and construction on new properties, and in other similar occupations.

Junior Year	Term hours 1st	2d	3d
General Bacteriology (Bac 204)	3	---	---
Plane Surveying (CE 226, 223)	3	---	3
Plant Materials (LA 326, 327, 328)	3	3	3
Principles of Plant Pathology (Bot 351)	4	---	---
Principles of Economic Entomology (Ent 211)	---	3	---
Plant Propagation (Hrt 311)	---	3	---
Upper Division Landscape Design (LA 390)	2	2	2
Constructive Accounting (BA 111)	---	4	---
Modern Governments (PS 201)	---	---	4
Electives	1	1	4
	16	16	16

Senior Year			
Spraying (Pom 419)	---	---	3
Maintenance and Construction (LA 359, 360, 361)	2	2	2
Pruning (Pom 431)	---	3	---
History and Literature of Landscape Architecture (LA 356, 357, 358)	2	2	2
Greenhouse Crops (Hrt 313)	---	3	---
Greenhouse Crop Practices (Hrt 314)	---	---	3
Electives	12	6	9
	16	16	16

HORTICULTURE: POMOLOGY

Junior Year			
Principles of Plant Pathology (Bot 351)	4	---	---
Commercial Pomology (Pom 313)	4	---	---
History and Literature of Horticulture (Pom 312)	---	3	---
Principles of Economic Entomology (Ent 211)	---	3	---
Fruit Production (Pom 415)	---	---	4
Farm Accounting (FM 311)	---	3	---
Principles of Agricultural Breeding (FC 315)	---	---	3
Bee Culture (Ent 235)	---	---	3
Plant Pathological Technique (Bot 451)	3	---	---
Electives	5	7	6
	16	16	16

Electives			
Subtropical Pomology (Pom 321)	3	---	---
Small Fruits and Grapes (Pom 341)	---	3	---
Systematic Botany (Bot 303)	---	---	4
Elements of Dairying (DH 211)	3	---	---
Principles of Vegetable Production (VC 321)	3	---	---
Feeds and Feeding (AH 412)	---	5	---
French or German	3–4	3–4	3–4

Senior Year			
Dehydration of Fruits and Vegetables (HP 331)	3	---	---
Systematic Pomology (Pom 417)	4	---	---
Pruning (Pom 431)	---	3	---
Economic Entomology (Ent 411)	3	---	---
Extempore Speaking (Sp 111)	3	---	---
Modern Governments (PS 201)	---	---	4
Spraying (Pom 419)	---	---	3
Seminar (Hrt 407)	1	1	1
Electives	2	12	8
	16	16	16

Electives	Term hours 1st	2d	3d
Methods of Research (Hrt 411)	---	3	---
Small Fruits and Grapes (Pom 341)	---	3	---
Enterprise Costs and Profits (FM 414)	---	---	3
Applied Plant Genetics (FC 330)	5	---	---
Refrigeration (ME 462)	---	---	3

HORTICULTURE: VEGETABLE CROPS

Junior Year

Principles of Plant Pathology (Bot 351)	4	---	---
Farm Accounting (FM 311)	---	3	---
Principles of Agricultural Breeding (FC 315)	---	---	3
Principles of Economic Entomology (Ent 211)	---	3	---
History and Literature of Horticulture (Pom 312)	---	3	---
Bee Culture (Ent 235)	---	---	3
Principles of Vegetable Production (VC 321)	3	---	---
Vegetable Growing Practices (VC 323)	---	---	3
Plant Propagation (Hrt 311)	---	3	---
Electives	9	4	7
	16	16	16

Electives

Fruit Production (Pom 415)	---	---	4
Potato Growing (FC 311)	---	2	---
Principles of Canning Vegetables (HP 252)	---	3	---
Agricultural Statistics (AEc 221)	---	3	---
French or German	3–4	3–4	3–4
Advanced Plant Pathological Technique (Bot 451)	3	---	---

Senior Year

Extempore Speaking (Sp 111)	3	---	---
Modern Governments (PS 201)	---	4	---
Vegetable Forcing (VC 421)	---	---	3
Vegetable Varieties (VC 423)	2	---	---
Vegetable Marketing (VC 424)	3	---	---
Seminar (Hrt 407)	1	1	1
Electives	7	11	12
	16	16	16

Electives

Refrigeration (ME 462)	---	---	3
Methods of Research (Hrt 411)	---	3	---
Enterprise Costs and Profits (FM 414)	---	---	3
Applied Plant Genetics (FC 330)	5	---	---
Systematic Botany (Bot 303)	---	---	4
Greenhouse Construction and Management (Hrt 312)	3	---	---
Greenhouse Crops (Hrt 313)	---	3	---
Greenhouse Crop Practice (Hrt 314)	---	---	3

SOILS

Junior Year

Principles of Agricultural Breeding (FC 315)	---	---	3
Animal Nutrition (AH 411) *or* Fruit Production (Pom 415)	---	---	4
Farm Accounting (FM 311)	---	3	---
Farm Motors (AE 211)	3	---	---
Irrigation Farming (Sls 311)	3	---	---
Western Land and Water Laws (Sls 411)	---	3	---
Soil Survey (Sls 327)	---	---	3
Soil Bacteriology (Bac 421)	4	---	---
Agricultural Land Economics (FM 416)	---	3	---
Principles of Economic Entomology (Ent 211)	---	---	3
Elementary Journalism (J 111)	---	3	---
Electives	6	4	3
	16	16	16

Senior Year	Term hours 1st	2d	3d
Extempore Speaking (Sp 111)	3	----	----
Modern Governments (PS 201)	----	4	----
Soil Physics (Sls 421)	5	----	----
Soil Fertility (Sls 424)	----	5	----
Soil Management (Sls 428)	----	----	5
Irrigation Investigations (Sls 414)	3	----	----
Seminar (Sls 407)	1	1	1
Electives	4	6	10
	16	16	16
Electives			
General Physics (Ph 201, 202)	4	4	----
Geology (G 201)	3	*or* 3	----
Elementary Psychology (Psy 201), Secondary Education (Ed 311), Principles of Teaching (Ed 313)	3	3	3

5. AGRICULTURAL EDUCATION

Junior Year			
Farm Motors (AE 211) *or* Automobile Mechanics (AE 313)	----	3	----
Farm Construction (Farm Shop I) (AE 221)	3	----	----
Animal Nutrition (AH 411)	4	----	----
Principles of Plant Pathology (Bot 351)	4	----	----
Dairy Herd Management (DH 322)	----	3	----
Secondary Education (Ed 311)	----	3	----
Principles of Teaching (Ed 313)	----	----	3
Principles of Economic Entomology (Ent 211)	----	----	3
Enterprise Costs and Profits (FM 414)	----	----	3
Elementary Journalism (J 111)	----	3	----
Fruit Production (Pom 415)	----	----	4
Educational Psychology (Ed 312)	3	----	----
Diseases of Poultry (VM 351)	----	----	3
Genetics (Z 314)	3	----	----
Electives	----	5	1
	17	17	17
Electives			
Automobile Mechanics (AE 313)	----	----	3
Farm Equipment Repair (Farm Shop II) (AE 222)	----	3	----
Landscape Architecture (LA 279)	3	----	----
Elementary Journalism (J 112)	----	----	3
Soil Fertility Lectures (Sls 425)	----	3	----
Senior Year			
Special Methods in Agriculture (Ed 328)	5	----	----
Rural Survey Methods (AEd 533)	----	----	2
Supervised Teaching (Ed 315)	----	----	3
[1]Special Special Crop Work (FC 305)	----	3	----
Farm Accounting (FM 311)	3	----	----
Pruning (Pom 431)	----	3	----
Modern Governments (PS 201)	----	----	4
Extempore Speaking (Sp 111)	----	----	3
Electives	9	10	4
	17	16	16
Electives			
Seminar in Agricultural Education (AEd 407)	----	2	2
Stock Judging II (AH 311)	----	----	3
Livestock Economics (AH 424)	----	----	5
House Planning and Architectural Drawing (AA 178)	----	----	3
Milk Production (DH 422)	----	----	3
Breeding Dairy Cattle (DH 421)	----	3	----
Cooperative Marketing Organization (AEc 411)	----	3	----
Seed Production (FC 414)	3	----	----
Farm Organization (FM 411)	----	3	----
Poultry Feeding (PH 411)	4	----	----
Small Fruits and Grapes (Pom 341)	----	3	----
Diseases of Livestock (VM 341)	4	----	----

[1]Special section arranged for senior majors in Agricultural Education.

B. 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.

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.

Freshman Year	Term hours 1st	2d	3d
English Composition (Eng 111, 112, 113)	3	3	3
Unified Mathematics (Mth 101, 102, 103)	4	4	4
Engineering Physics (Ph 111, 112, 113)	3	3	3
Engineering Problems (GE 101)	2	---	---
Linear Drawing and Lettering (GE 111)	---	2	---
Elementary Mechanical Drawing (GE 112)	---	---	2
Agricultural Engineering Survey (AE 101, 102)	---	3	3
Agricultural Resources (AEc 111)	3	---	---
Military Science	1	1	1
[1]Physical Education	1	1	1
	17	17	17

Sophomore Year			
Principles of Economics (Ec 201, 202, 203)	3	3	3
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
Soils (Sls 211, 212)	3	3	---
Machine Shop (IA 163)	---	---	3
Farm Implements (AE 231)	---	---	3
Farm Construction (Farm Shop I) (AE 221)	3	---	---
Farm Equipment Repair (Farm Shop II) (AE 222)	---	3	---
Cereal Production (FC 111)	3	---	---
Elements of Dairying (DH 211)	---	3	---
Principles of Farm Management (FM 211)	---	---	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
	17	17	17

Junior Year			
Mechanics (MM 351, 352)	3	3	---
Steam, Air, and Gas Power (ME 346)	---	---	3
Farm Motors (AE 211)	---	3	---
Automobile Mechanics (AE 313)	---	---	3
Structural Analysis (CE 381)	4	---	---
Electives	9	10	10
	16	16	16

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Recommended Electives

	Term hours
Livestock Management (AH 211)	3
General Bacteriology (Bac 204)	3
Stock Judging I (AH 111)	3
Elementary Journalism (J 111)	3
Materials of Engineering (MM 311)	3
Extempore Speaking (Sp 111)	3
Weed Eradication (FC 317)	2
Irrigation Farming (Sls 311)	3
Land Drainage (Sls 418)	3
Agricultural Economics (AEc 211)	3
Plane Surveying (CE 226)	3

Senior Year

	Term hours		
	1st	2d	3d
Hydraulics (CE 311)	3	---	---
Direct Currents (EE 351)	---	3	---
Alternating Currents (EE 352)	---	---	3
Pumps and Water Systems (AE 321)	---	---	3
Rural Electrification (AE 331)	---	---	3
Farm Structures (AE 361)	---	---	3
Research (AE 305)	3	3	3
Electives	10	10	1
	16	16	16

Recommended Electives

	Term hours
Spraying (Pom 419)	3
Forage and Root Crop Production (FC 211)	3
Journalism	4
Modern Governments (PS 201)	4
Principles of Accounting for Engineers (BA 385)	3
Farm Accounting (FM 311)	3
Land Clearing (AE 341)	2
Farm Organization (FM 411)	3
Soil Physics (Sls 422)	3
Irrigation Investigations (Sls 414)	3
Rural Finance (AEc 431)	3

C. 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.

Freshman Year

	Term hours		
	1st	2d	3d
English Composition (Eng 111, 112, 113)	3	3	3
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
General Botany (Bot 201, 202, 203)	3	3	3
General Physics (Ph 201, 202, 203)	4	4	4
Agricultural Resources (AEc 111)	3	---	---
Elements of Horticulture (Hrt 111)	---	---	3
Military Science	1	1	1
[1]Physical Education	1	1	1
	18	15	18

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Sophomore Year	Term hours 1st	2d	3d
Principles of Economics (Ec 201, 202, 203)	3	3	3
Elementary Journalism (J 111)	---	---	3
Extempore Speaking (Sp 111)	---	---	3
Landscape Architecture (LA 279)	---	---	3
Organic Chemistry (Ch 221)	5	---	---
Elementary Biochemistry (Ch 251)	---	5	---
Business Law (BA 256, 257)	4	4	---
Principles of Canning Fruits (HP 251)	3	---	---
Principles of Canning Vegetables (HP 252)	---	3	---
Military Science	1	1	1
Advanced Physical Education	1	1	1
Elective	---	---	2
	17	17	16

Junior Year			
General Bacteriology (Bac 204, 205, 206)	3	3	3
Principles of Plant Pathology (Bot 351)	4	---	---
Principles of Plant Physiology (Bot 331)	---	---	4
Labor Problems (Ec 405)	4	---	---
Money and Banking (Ec 413)	---	4	---
Dehydration of Fruits and Vegetables (HP 331)	3	---	---
Pickles, Relishes, and Condiments (HP 341)	3	---	---
Fruit Production (Pom 415)	---	---	4
Modern Governments (PS 201)	---	4	---
Elements of Organization and Production (BA 221)	---	---	4
Electives	---	5	1
	17	16	16

Senior Year			
Principles of Accounting for Engineers (BA 385)	---	3	---
Fruit Juice and Vinegar Manufacture (HP 351)	3	---	---
Commercial Jam and Jelly Manufacture (HP 352)	---	3	---
Preserves, Glacéd Fruits, and Candied Fruits (HP 361)	---	---	3
Commercial Pomology (Pom 313)	4	---	---
Seminar (Hrt 407)	1	1	1
Electives	8	9	12
	16	16	16

D. Curriculum in Agricultural Technology

B.S. Degree

THE curriculum in Agricultural Technology provides training for Agriculture students desiring a minor in Science leading to specialized or technical lines of work. Such work necessarily involves rather liberal electives. This curriculum is open to students with a definite technical objective. They should confer with the Dean of the School of Agriculture and work out a complete program of electives leading to the special work. Training in this curriculum leads to technical work in the industries handling agricultural and related products and to specialized lines in State or Federal research and regulatory work. Men and women desiring to be dairy or milling chemists, dairy or agricultural bacteriologists, insecticide, fertilizer, or seed analysts, transportation or refrigeration specialists, specialists in processing of agricultural products, managers of warehouses or elevators, plant explorers, and other specialists may be trained under this curriculum.

Freshman Year	Term hours 1st	2d	3d
English Composition (Eng 111, 112, 113)	3	3	3
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
General Zoology (Z 201, 202, 203) *or* General Botany (Bot 201, 202, 203)	3	3	3
Unified Mathematics (Mth 101, 102, 103) *or* Lower division agricultural courses	4	4	4
Electives (Lower division agriculture courses)	2	2	2
[1]Physical Education	1	1	1
Military Science	1	1	1
	17	17	17

Sophomore Year			
Principles of Economics (Ec 201, 202, 203)	3	3	3
Organic Chemistry (Ch 221)	5	---	---
Genetics (Z 314)	3	---	---
General Bacteriology (Bac 204)	---	3	---
Lower Division Science Elective (Sequence courses)	3	3–5	3–8
Agricultural Electives from courses numbered 211 to 299	---	4–6	4–9
Advanced Physical Education	1	1	1
Military Science	1	1	1
	16	16	16

Junior and Senior Years			
Extempore Speaking (Sp 111)	3	---	---
Elementary Journalism (J 111)	---	3	---
Modern Governments (PS 201, 202)	4	4	---
[2]Electives	26	26	32
	33	33	32

Agricultural Economics

DESIGNED primarily to meet the needs of students interested in the business side of agriculture and its broader economic relationships the Department of Agricultural Economics offers in addition sufficient work in agricultural science and technique to give the student a scientific concept of the industry.

The growth of agriculture into a vast commercial industry and the increasing maze of economic, financial, and marketing problems accompanying that development are opening up attractive opportunities to well-trained students in agricultural economics. Not only does this course of study afford excellent preparation for those who intend to farm and assume positions of business, educational, and community leadership, but it gives the basic training needed for professional careers as teachers, research workers, and extension specialists. It lays a foundation for a business career in connection with farmers' buying and selling associations, real estate and farm mortgage companies, banks, brokerage, jobbing, wholesale, and retail houses, and expert business service for the agricultural field. It should give the best possible training for positions as county agricultural agents, secretaries of chambers of commerce, and agricultural advisers to business houses or railway companies where aggressive qualities of lead-

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.
[2]Not less than 24 hours of upper division courses in Agriculture including 3 hours of Seminar.

ership and an intimate knowledge of town and country relations are required.

In order that the student may have ample opportunity to acquire the broad and liberal training requisite for entry into many of these occupations, ample electives are provided for in the junior and senior years.

The practical character of instruction in agricultural economics is enhanced by the extension and research activities conducted by this department. Through the Agricultural Experiment Station investigations dealing with (a) rural taxation, (b) cooperative marketing, and (c) economic trends and the market situation and outlook for Oregon's leading agricultural commodities are being conducted.

Through the Extension Service, market news and agricultural situation and outlook material is disseminated to farmers and others who manifest an interest in receiving such information. Special attention is also given to the needs of agricultural cooperation in the state. Technical assistance is placed at the disposal of farmers in planning, promoting, organizing, financing, and managing cooperatives.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

AEc 111. **Agricultural Resources.** First term, 3 hours.

A study of the agricultural resources of the world, with special reference to the resources of the United States and of the State of Oregon. A broad survey of agriculture, including soil, climate, topography, institutions, and population. Three recitations. Professor Potter.

AEc 211. **Agricultural Economics.** Third term, 3 hours.

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. Three recitations. Professor Dreesen.

AEc 221. **Agricultural Statistics.** Second term, 3 hours.

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. Three recitations. Professor Nelson.

UPPER DIVISION COURSES

AEc 307. **Seminar.** Three terms, 1 hour each term.

Study of current topics in agricultural economics. Required of juniors in Agricultural Economics. Professor Nelson.

AEc 311. **Cooperation and Farmers' Movements.** Third term, 3 hours.

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, Non-partisan

League, and cooperative organizations for production, distribution, consumption, and credit purposes. Prerequisite: AEc 211. Three recitations. Offered alternate years. Not offered 1933-34. Professor Nelson.

AEc 331. **Economic Development of Agriculture.** Third term, 3 hours.

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. Prerequisite: AEc 211. Three recitations. Offered alternate years. Not offered 1933-34. Professor Nelson.

AEc 407. **Seminar.** Three terms, 1 hour each term.

Study of current topics in agricultural economics. Required of seniors in Agricultural Economics. Professor Nelson.

AEc 411. **Cooperative Marketing Organization.** Second term, 3 hours.

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. Prerequisite: AEc 441. Three recitations. Professor Nelson.

AEc 421. **Land Economics.** First term, 3 hours.

Deals with the underlying 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. Prerequisite: Ec 203. Three recitations. Not offered 1933-34. Professor Nelson.

AEc 431. **Rural Finance.** First term, 3 hours.

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. Prerequisite: Ec 203; junior or senior standing. Three recitations. Professor Nelson.

AEc 433. **Land Taxation.** Second term, 3 hours.

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. Prerequisite: Ec 203 or equivalent. Three recitations. Offered alternate years. Not offered 1933-34. Professor Dreesen.

AEc 441. **Principles of Agricultural Marketing.** First term, 4 hours.

A critical study of the marketing of staples, semi-staples, and perishable farm products, including the geographical location of pro-

ducing 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. Prerequisite: Ec 203. Four recitions. Professor Nelson.

AEc 451. **Agricultural Prices.** Third term, 3 hours.

The purpose is to analyze trends of farm and market prices; compare prices of agricultural commodities with non-agricultural products and consider prices in their relation to production and marketing programs. The State and National agricultural situation and outlook will receive special attention. Prerequisites: Ec 203 or 211, AEc 441. Three lectures. Offered 1934-35.

GRADUATE COURSES

AEc 501. **Graduate Research.** Three terms, hours to be arranged.

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.

AEc 503. **Graduate Thesis.** Three terms, hours to be arranged.

The preparation of a thesis for an advanced degree.

AEc 507. **Seminar.** Three terms, 1 hour each term.

Study of current topics in agricultural economics. Professor Nelson.

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 Education.

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 and Education (for Smith-Hughes teaching) can be met in either of two ways: first, by majoring in the Agricultural Education curriculum, which includes requirements in both Agriculture and Education; second, by pursuing one of the three other curricula in Agriculture in the sophomore year and any of the major curricula in General and Specialized Agriculture during the junior and senior years. The latter plan will be approved, provided sufficient electives are available for meeting the course requirements in Agriculture as outlined in the Agricultural Education curriculum on page 129, as well as the 23 credits in Education.

(3) Depending on the student's previous training and experience and his choice of courses, 70 to 75 term hours of special work in Agriculture are required. The sequence and distribution of courses are given in the Agricultural Education curriculum. Regardless of the department in which the student majors he should have a minimum of subject-matter courses in the respective departments as follows:

(a) 12 hours in Agricultural Engineering
(b) 10 hours in Animal Husbandry
(c) 6 hours in Dairy Husbandry
(d) 9 hours in Horticulture
(e) 9 hours in Farm Crops
(f) 9 hours in Farm Management and Agricultural Economics
(g) 9 hours in Soils
(h) 3 hours in Poultry Husbandry
(i) 3 hours in Veterinary Medicine

As early as possible in his college course the prospective teacher should advise with the head of the Department of Agricultural Education regarding the courses he should select in each of the fields of agriculture mentioned above and the various qualifications essential in teaching vocational agriculture.

Requirements in Education. The courses in Education and Psychology required for state certification are described under School of Education. The sequence and distribution of these courses are as follows:

Junior Year	Term hours 1st	2d	3d
[1]Educational Psychology (Ed 312)	3	....	....
Secondary Education (Ed 311)	....	3	....
Principles of Teaching (Ed 313)	....	....	3

[1]Ed 312 must be preceded by Psy 211.

Senior Year	Term hours 1st	2d	3d
Special Methods in Agriculture (AEd 328)	5	----	----
[1]Supervised Teaching (Ed 315)	----	3	3
Methods in Teaching Evening and Part-Time Classes in Agriculture (AEd 313)	----	2	----
Rural Survey Methods (AEd 533)	----	----	2

Special Curricula in Agricultural Education will be outlined for students preparing to teach agriculture in city schools or a combination of subjects including Agriculture as requested in the smaller rural high schools. See School of Education section of the catalog for curriculum suggestion.

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 Ed 341, 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

UPPER DIVISION COURSES

AEd 313. **Methods in Teaching Evening and Part-Time Classes in Agriculture.** Second term, 2 hours.

Students in this course participate in recruiting, organizing, and teaching evening and part-time classes for both young and adult farmers in the vicinity of Corvallis. Problems arising therefrom form the basis of the course. Prerequisite: AEd 328.

AEd 315. **Club Work and Agriculture in the Elementary School.** Second term, 3 hours.

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. Three recitations.

Ed 321. **Teaching General Agriculture and Related Science.** Second term, 3 hours.

For prospective teachers of science who may wish to be in a position to offer a separate course in agriculture or to strengthen their science teaching by the utilization of the materials in agriculture well adapted to apply the principles and laws of science commonly operative in the student's natural environment; aims, materials, methods. Three recitations. Prerequisite: Ed 311, 312, 313. Professor Gibson.

[1]Ed 315 may be taken any two terms.

AEd 328. **Special Methods in Agriculture.** First term, 5 hours.

Problems and methods of organizing and teaching vocational agriculture in high schools, in accordance with the provisions of state and federal legislation. Prerequisite: Ed 313. Five recitations. Professor Gibson.

Ed 341. **Rural Education.** Second term, 3 hours.

Open to all students, prospective high school teachers, and others alike, who desire to acquire some foundation for a philosophy of rural life, and training for leadership in rural education. New methods of utilizing the student's rural, social, and economic environment for vitalizing different phases of the high school instruction, while achieving objectives common to all secondary education, and increasing farm, home, and town-country efficiencies. Various forms of continuation and rural extension education for out-of-school youth and adults. Students in this course will actively participate in planning and executing studies and programs in rural education for high school pupils, out-of-school youth, and adults. Prerequisite: junior standing. Three recitations. Professor Gibson.

AEd 407. **Education Seminar.** Two terms, hours to be arranged.

Class and individual studies and reports on special problems in the teaching of agriculture and the administration of Agricultural Education. Prerequisites: Ed 311, 312, 313; AEd 328. Professor Gibson.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Advanced and graduate students may select special problems which they are qualified to study. Ability to select and outline such problems will be a condition for taking this work. Professor Gibson.

Ed 503. **Thesis.** Terms and hours to be arranged.

The preparation of a thesis for an advanced degree.

AEd 516. **Extension Course in Teacher Training.** Any term, hours to be arranged.

Teachers of vocational agriculture in service who cannot be relieved of their professional duties to pursue courses that are offered in the Summer Session may make use of this course to continue their professional improvement. Personal conferences, follow-up instruction, and supervision, supplemented by correspondence and reports. Prerequisites: Ed 311, 312, 313; AEd 328. Professor Gibson.

AEd 533. **Rural Survey Methods.** Third term, 2 hours.

The technique of making agricultural and rural education surveys, together with methods of analyzing, interpreting, and using the material and results as a basis for evaluating and formulating programs in Agricultural Education. Field studies required. Open to graduates with teaching experience and seniors by special permission. Prerequisites: Ed 311, 312, 313, AEd 328. Professor Gibson.

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

LOWER DIVISION COURSES

AE 101, 102. **Agricultural Engineering Survey.** Second and third terms, 3 hours each term.

A survey of the field of Agricultural Engineering; the application of principles of mathematics and physics to the solution of agricultural

problems. For students majoring in Agricultural Engineering. One lecture; 2 two-hour laboratory periods.

AE 111. **Agricultural Engineering.** Second or third terms, 3 hours.

Principles of mechanics, hydraulics, and electricity as applied to farm problems; mathematics essential to agriculture. One lecture; 2 two-hour laboratory periods.

AE 211. **Farm Motors.** Any term, 3 hours.

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. Two recitations; 1 three-hour laboratory period.

AE 221. **Farm Construction (Farm Shop I).** First term, 3 hours.

Farm drawing, reading blue-prints, and estimating materials; farm building costs, construction of gates, fences, feeders, and various farm buildings, types of farm buildings and their construction, building specifications, tool sharpening, farm shop equipment, painting and glazing. One recitation; 2 three-hour laboratory periods.

AE 222. **Farm Equipment Repair (Farm Shop II).** Second term, 3 hours.

Repairing farm machinery and farm equipment, care of farm tools, farm repair shop and equipment. Soldering, babbitting, bearings, hot and cold metal work, oxyacetylene welding, taps and dies and pipe work. One recitation; 2 three-hour laboratory periods.

AE 231. **Farm Implements.** Third term, 3 hours.

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. One recitation; 2 two-hour laboratory periods.

UPPER DIVISION COURSES

AE 305. **Research.** Term and hours to be arranged.

Original investigation of some current agricultural engineering problem.

AE 311. **Graphic Methods.** Second term, 2 hours.

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. Two three-hour laboratory periods.

AE 312. **Automobile Mechanics.** Any term, 3 hours.

A detailed survey of the automobile and its parts; their functions, adjustment and simple repairs; advantages and disadvantages of dif-

ferent 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. Two recitations; 1 three-hour laboratory period.

AE 313. **Automobile Mechanics.** Any term, 3 hours.

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 211 or 312. One recitation; 2 three-hour laboratory periods.

AE 314. **Automobile Mechanics.** Third term, 3 hours.

(Advanced course.) A continuation of AE 313 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 211 or 312, and AE 313. Two recitations; 1 three-hour laboratory period.

AE 321. **Pumps and Water Systems.** Third term, 3 hours.

The study, operation, and testing of different types of pumps, irrigation equipment, and farm water supply systems, farm sewage disposal and plumbing. Farm spray pumps and equipment, water wheels and farm water-power development. Prerequisite: AE 111. Two recitations; 1 three-hour laboratory period.

AE 331. **Rural Electrification.** Third term, 3 hours.

Uses of electricity on the farm. Farm electric lighting plants. Rural line extension policies. Farm wiring, study of farm electric motors and equipment such as water heaters, cooling, sterilizing, and refrigerating equipment. Prerequisite: AE 111. Two recitations; 1 three-hour laboratory period.

AE 341. **Land Clearing.** Third term, 2 hours.

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. One recitation; 1 three-hour laboratory period.

AE 351. **Orchard Machinery.** Third term, 3 hours.

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. Two recitations; 1 three-hour laboratory period.

AE 361. **Farm Structures.** Third term, 3 hours.

Planning of all farm buildings, fences, etc.; building materials; types of construction; lighting; ventilating; heating; plans, specifica-

tions, and estimated costs; designing of farm equipment. Prerequisite: AE 221 or equivalent. One recitation; 2 three-hour laboratory periods.

AE 407. **Seminar.** Terms and hours to be arranged.

Special problems in Agricultural Engineering assigned to students for independent study and research; preparation of papers and reports on recent developments in Agricultural Engineering. For senior and graduate students. Prerequisite: fourteen term hours in Agricultural Engineering or equivalent.

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

LOWER DIVISION COURSES

AH 111. **Stock Judging I.** Second or third terms, 3 hours.

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. Three two-hour laboratory periods.

AH 221. **Livestock Management I.** First or third term, 3 hours.

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. Two recitations; 1 two-hour laboratory period.

UPPER DIVISION COURSES

AH 305. **Special Studies.** Any term, hours to be arranged.

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. Professor Nelson.

AH 311. **Stock Judging II.** Third term, 3 hours.

Course in judging all kinds of stock, particularly market types. Prerequisite: AH 111. Three two-hour laboratory periods. Assistant Professor Rodenwold.

AH 312. **Stock Judging III.** First term, 4 hours.

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. Four two-hour laboratory periods. Assistant Professor Rodenwold.

AH 315, 316. **Breeds of Livestock I, II.** First and second terms, 3 hours each term.

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. Three recitations. Professor Nelson, Assistant Professors Oliver and Rodenwold.

AH 319. **Livestock Practice.** First term, 1 hour.

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.) One two-hour laboratory period. Assistant Professor Oliver.

AH 320. **Livestock Practice.** Third term, 2 hours.

A continuation of AH 319. Two two-hour laboratory periods.

AH 323. **Reproduction Problems.** Second term, 3 hours.

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 411, VM 321, PH 315. Two lectures; laboratory work to be arranged. Assistant Professor Rodenwold.

AH 326. **Meats.** Second term, 3 hours.

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. One lecture or recitation; 2 two-hour laboratory periods. Assistant Professor Oliver.

AH 411. **Animal Nutrition.** First or third term, 4 hours.

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 221. Four recitations. Professor Nelson.

AH 412. **Feeds and Feeding.** Second term, 5 hours.

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 411. Five recitations. Professor Nelson, Assistant Professors Oliver and Rodenwold.

AH 418. **Wool and Mohair.** Third term, 3 hours.

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 315. Two lectures; 1 two-hour laboratory period. Professor Nelson.

AH 421. **Pedigree Study.** Third term, hours to be arranged.

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. Assistant Professor Rodenwold.

AH 424. **Livestock Economics.** Third term, 5 hours.

(Advanced course.) Management, dealing particularly with economic and financial phases of livestock production. Prerequisite: AH 412. Five recitations. Professor Potter.

GRADUATE COURSES

AH 501. **Graduate Research.** Terms and hours to be arranged.

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.

AH 503. **Graduate Thesis.** Terms and hours to be arranged.

The preparation of a thesis leading to an advanced degree. 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 purebred dairy cattle representing three 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

LOWER DIVISION COURSE

DH 211. **Elements of Dairying.** First or second term, 3 hours.

Fundamental principles and correct practices of modern dairying; testing of milk and cream; principles of buttermaking; operation of farm separators. Prerequisite: Ch 203 or 221. Two lectures; 1 two-hour laboratory period. Assistant Professor Colman.

UPPER DIVISION COURSES

DH 305. **Special Studies.** Terms and hours to be arranged.

Students who have demonstrated ability to do independent investigation may pursue various lines of study under supervision of members of the staff. Prerequisite: consent of department head. Professors Brandt and Wilster, Associate Professor Jones.

DH 311. **Market Milk.** Third term, 3 hours.

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 211. Two lectures; 1 two-hour laboratory period. Assistant Professor Colman.

DH 312, 313, 314. **Dairy Products Manufacturing.** Three terms, 4 hours each term.

Principles and practices of commercial manufacture of butter (first term), cheese and casein (second term), ice-cream and concentrated milk products (third term). Two lectures each term, 2 four-hour laboratory periods, first term, 1 seven-hour laboratory period second term, 2 three-hour laboratory periods third term. Students may register any term. Prerequisite: DH 211. Professor Wilster.

DH 315. **Dairy Products Standards.** Third term, 1 hour.

A critical study of butter, cheese, milk, and ice-cream with score cards; discussion of defects and reasons therefor. One two-hour laboratory period. Professor Wilster.

DH 321. **Dairy Breed Types.** Third term, 3 hours.

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. Three two-hour laboratory periods. Associate Professor Jones.

DH 322. **Dairy Herd Management.** Second term, 3 hours.

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 411. Three lectures. Professor Brandt.

DH 401. **Research.** Terms and hours to be arranged.

Senior students desiring to pursue advanced work may take up problems which they are qualified to study. Professors Brandt and Wilster, Associate Professor Jones.

DH 405. **Special Studies.** Terms and hours to be arranged.

Students who have demonstrated ability to do independent investigation may pursue various lines of study under supervision of members of the staff. Prerequisite: consent of department head. Professors Brandt and Wilster, Associate Professor Jones.

DH 407. **Seminar.** Three terms, 1 hour each term.

The object is to train students to do independent work and to develop the spirit of research. Each student prepares papers and discussions on recent scientific work. One recitation. Professor Brandt.

DH 411, 412, 413. **Dairy Technology.** Three terms, 3 hours each term.

Technical problems in dairy plant operation. Application of fundamental sciences in solving these problems. Analysis of dairy products. Standardization. Prerequisties: DH 211, Ch 232, Bac 411. One lecture; 2 two-hour laboratory periods.

DH 421. **Breeding Dairy Cattle.** Second term, 3 hours.

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: PH 315. Three lectures. Associate Professor Jones.

DH 422. **Milk Production.** Third term, 3 hours.

A further study of feeding for milk production; more detailed study of various feeding standards and recent feeding investigations; special problems. Prerequisite: AH 411. Three lectures. Professor Brandt.

GRADUATE COURSES

DH 501. **Graduate Research.** Terms and hours to be arranged.

Graduate students who desire to pursue advanced work may take up problems which they are qualified to study. Professors Brandt and Wilster, Associate Professor Jones.

DH 503. **Graduate Thesis.** Terms and hours to be arranged.

The preparation of a thesis leading to an advanced degree. Professors Brandt and Wilster, Associate Professor Jones.

DH 507. **Seminar.** Three terms, 1 hour each term.

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 graduate students. One recitation. Professor Brandt.

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 journalism, public speaking and dramatics, economics, 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 COURSES

UPPER DIVISION COURSE

EM 411. **Extension Methods.** Third term, 3 hours.

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, Four-H club leaders, etc. For senior or graduate students only. Three lectures; 1 laboratory period. Professor 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 scientific training such 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.

Equipment. The department has excellent recitation rooms, greenhouses, 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. Federal Cooperative investigations in seed testing, forage crop, fiber flax, cereals and hops form a distinct instructional asset. 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

LOWER DIVISION COURSES

FC 111. **Cereal Production.** First or third term, 3 hours.

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 211, 311, 317 and 324. One lecture; 1 recitation; 1 two-hour laboratory period. Associate Professor Hill.

FC 211. **Forage and Root Crop Production.** First or third term, 3 hours.

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. Two lectures; 1 two-hour laboratory period. Professor Hyslop.

UPPER DIVISION COURSES

FC 301. **Research.** Terms and hours to be arranged.

Original investigation of some scientific problem.

FC 303. **Thesis.** Terms and hours to be arranged.

Preparation of a thesis based on reading and research.

FC 305. **Special Crop Work.** Terms and hours to be arranged.

Lectures or laboratory work, or both, for 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 reading and conference work beyond that outlined in the regular courses. Professor Hyslop, Associate Professors Bressman and Hill.

FC 307. **Seminar.** Three terms, 1 hour each term.

Analyses of technical publications on farm crops and allied subjects. Especial attention is given to crop problems in production, breeding, standardization, economics, ecology, and related fields. One period. Professor Hyslop, Associate Professors Bressman and Hill.

FC 311. **Potato Growing.** Second term, 2 hours.

Potato production; improvement; storage; cost; marketing; distribution; uses; experimental work; varietal studies; identification, judging, and scoring. One recitation; 1 two-hour laboratory period. Professor Hyslop.

FC 313. **Lawns and Turfs.** First term, 2 hours.

Varieties, characteristics, and adaptability of turf plants and seeds; seed-bed preparation, seeding, fertilization, management, weed and pest control for lawns, golf courses, grass nurseries, playing and landing fields, parks, and other purposes. One recitation; 1 two-hour laboratory period. Professor Hyslop.

FC 315. **Principles of Agricultural Breeding.** Third term, 3 hours.

An introduction to the practical application of modern conceptions of breeding. Two lectures; 1 two-hour laboratory period. Associate Professor Bressman.

FC 317. **Weed Eradication.** Third term, 2 hours.

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. One lecture; 1 two-hour laboratory period. Associate Professor Bressman.

FC 319. **Range Improvement and Management.** Second term, 3 hours.

Reseeding, improvement, care and management of cut-over, overflow, marginal, and other lands used for range and pasture purposes. Prerequisite: FC 211 or equivalent. Two lectures; 1 two-hour laboratory period. Professor Hyslop.

FC 321. **Cereal Production.** First term, 5 hours.

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 111, Bot 103. Three lectures; 2 two-hour laboratory periods. Associate Professor Hill.

FC 324. **Forage and Related Crops.** Third term, 3 hours.

Special studies in the production, handling, marketing, and uses of forage and related plants; 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. Prerequisite: FC 211 or equivalent. Two lectures; 1 two-hour laboratory period. Professor Hyslop.

FC 327. **Production of Hops, Drug and Related Plants.** Second term, 3 hours.

The principles of production, harvest, storage, distribution, marketing and costs of hops, drug and related plants. Prerequisite: Bot

103 or equivalent. Two lectures; 1 two-hour laboratory period. Associate Professor Bressman.

FC 330. **Applied Plant Genetics.** First term, 5 hours.

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 111, 211; Bot 201, 202, 203; FC 315; or equivalents. Four lectures; 1 two-hour laboratory period. Associate Professor Bressman.

FC 401. **Research.** Terms and hours to be arranged.

Original investigation of some scientific problem.

FC 403. **Thesis.** Terms and hours to be arranged.

Preparation of a thesis based on reading and research.

FC 405. **Special Crop Work.** Terms and hours to be arranged.

Similar to FC 305. For seniors.

FC 407. **Seminar.** Three terms, 1 hour each term.

Similar to FC 307. For seniors.

FC 411. **Crop Inspection.** Second term, 5 hours.

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 supervisers, samplers, inspectors, warehousemen, millers, and others. Prerequisites: FC 111, 211, 321; Ch 221; or equivalents. Two lectures; 3 two-hour laboratory periods. Associate Professor Hill.

FC 414. **Seed Production.** First term, 3 hours.

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 111, 211, 321, or equivalents. Two lectures; 1 two-hour laboratory period. Professor Hyslop.

FC 417. **Crop Breeding.** Second term, 3 hours.

The theory and technique of breeding plants; mode of inheritance; factor interaction; factor linkage; qualitative 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 plants. Prerequisites: FC 111, 211, 321, 330; FC 315; or equivalents. Three recitations. Associate Professor Bressman.

FC 421. **Crop Efficiency.** Third term, 5 hours.

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 321, 414; Ch 221; or equivalents. Five lectures. Professor Hyslop.

GRADUATE COURSES

FC 501. **Graduate Research.** Terms and hours to be arranged.

Original research on some scientific problem.

FC 503. **Graduate Thesis.** Terms and hours to be arranged.

The preparation of a thesis based on reading and research.

FC 505. **Special Crop Work.** Terms and hours to be arranged.

Similar to FC 405. For graduate students.

FC 507. **Seminar.** Three terms, 1 hour each term.

Analyses of technical publications on farm crops and allied subjects. Especial attention is given to crop problems in production, breeding, standardization, economics, ecology, and related fields. One period. 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 is provided with drafting tables and instruments, surveying instruments,

original data and record sheets, lantern slides and charts, and a 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

LOWER DIVISION COURSE

FM 211. **Principles** of Farm **Management**. Third term, 3 hours.

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. Two lectures; 1 two-hour laboratory period. Professor Scudder, Associate Professor Kuhlman.

UPPER DIVISION COURSES

FM 311. Farm **Accounting**. First or second term, 3 hours.

Drill in setting up and analyzing accounts for agricultural enterprises and for farms of different types with emphasis on clarifying the student's understanding of debits and credits. Preparation of different forms of summary statements of the year's business, adapted to reporting income tax, enterprise costs and profits, etc. For agricultural students only. One lecture; 1 recitation; 1 two-hour laboratory period. Associate Professor Kuhlman.

FM 312. **Operation Efficiency**. First term, 3 hours.

A continuation of FM 211 in which the minor factors in successful farm management are discussed, stress being laid on operation efficiency. Prerequisite: FM 211. Two lectures; 1 two-hour laboratory period. Associate Professor Kuhlman.

FM 403. **Applied** Farm **Management**. Any term, 2 to 5 hours.

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. This course normally follows FM 411. Prerequisite: FM 211. All laboratory and field work. Professor Scudder, Associate Professor Kuhlman.

FM 407. Farm **Management Seminar**. Second and third terms, 1 hour each term.

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. Fortnightly meetings. Professor Scudder, Associate Professor Kuhlman.

FM 411. **Farm Organization.** Second term, 3 hours.

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: FM 211. Two lectures; 1 three-hour laboratory period. Professor Scudder, Associate Professor Kuhlman.

FM 414. **Enterprise Costs and Profits.** Third term, 3 hours.

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: FM 211. Two lectures; 1 three-hour laboratory period. Professor Scudder.

FM 415. **Enterprise Costs and Profits.** First term, 2 hours.

Continuation of FM 414. Two lectures. Professor Scudder.

FM 416. **Agricultural Land Economics.** Second term, 3 hours.

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. Prerequisite: FM 211. Three lectures. Professor Scudder.

FM 417. **Agricultural Appraisal.** Third term, 2 hours.

For senior and graduate students. Devoted to field work in appraisal of farms of different types; appraisal of agricultural land areas and projects such as logged-off lands, reclamation projects, etc.; appraisal of farm enterprises. Advanced commercial and Federal appraisal methods used and newer methods tested. Weekly field trips. Prerequisites: FM 211, 414, 416. Professor Scudder.

FM 418. **Agricultural Cost Methodology.** First term, 3 hours.

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. Prerequisites: FM 211, 414. Three lectures. Professor Scudder, Associate Professor Kuhlman.

GRADUATE COURSES

FM 501. **Graduate Research.** Terms and hours to be arranged.

Graduate research other than thesis work. Professor Scudder, Associate Professor Kuhlman.

FM 503. **Graduate Thesis.** Terms and hours to be arranged.

Under this head all graduate thesis work in farm management is registered. Thesis work 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. Professor Scudder, Associate Professor Kuhlman.

FM 507. **Seminar.** Second and third terms, 1 hour each term.

Senior and graduate seminar in farm management. See FM 407. Professor Scudder, Associate Professor Kuhlman.

Horticulture

INSTRUCTIONAL work in Horticulture includes General Horticulture, Pomology, Vegetable Crops, Floriculture, Landscape Horticulture, and Horticultural Products. 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, drafting rooms, and a photography room.

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, carbon-

ated 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 (including graduate and research courses), Horticultural Products, Pomology, Vegetable Crops.*

General Horticulture

DESCRIPTION OF COURSES

LOWER DIVISION COURSE

Hrt 111. **Elements of Horticulture.** Third term, 3 hours.

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. Two lectures; 1 three-hour laboratory period. Professor Brown.

UPPER DIVISION COURSES

Hrt 311. **Plant Propagation.** Second term, 3 hours.

Different methods of propagating plants by seeds, cuttings, bulbs, tubers, budding and grafting. Students grow their own plants and

keep records on them in greenhouse, nursery, and orchard. One lecture; 2 two-hour practicums. Professor Duruz.

Hrt 312. **Greenhouse Construction and Management.** First term, 3 hours.

Fundamental principles of greenhouse design and operation, including materials, equipment, heating, ventilation, watering, soils, soil sterilization, insecticides, and fumigation, as applied to greenhouse flower and vegetable crops. One lecture; 2 two-hour laboratory periods. Professor Bouquet.

Hrt 313. **Greenhouse Crops.** Second term, 3 hours.

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 311. Nine periods laboratory work. Professor Brown.

Hrt 314. **Greenhouse Crop Practices.** Third term, 3 hours.

Production of floricultural bedding plants as well as young vegetable plants under glass, for spring and summer transplanting. One lecture; 2 two-hour laboratory periods. Professor Bouquet.

Hrt 405. **Special Problems in Horticulture.** Terms and hours to be arranged.

Students who have demonstrated their ability to do independent investigational work may pursue approved problems under the supervision of staff members. Professors Brown, Duruz, Bouquet, and Wiegand.

Hrt 407. **Seminar.** Any term, 1 hour.

For senior and graduate students. Current literature, experiment station and federal publications are reviewed. Students prepare papers on assigned subjects.

Hrt 411. **Methods of Research.** Second term, 3 hours.

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. Problems in horticulture are used to illustrate underlying principles of research. Close study is made of research work presented in bulletins from other institutions. Seniors and graduate students. Three lectures.

GRADUATE COURSES

Hrt 501. **Graduate Research.** Terms and hours to be arranged.

Investigational work for graduate students in pomology, vegetable crops, horticultural products, plant breeding and plant physiology as related to horticulture. Horticulture staff.

Hrt 503. **Graduate Thesis.** Terms and hours to be arranged.

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 major professor. Horticulture staff.

Horticultural Products

The work in Horticultural Products is designed to fit the student to enter fields of commercial canning, dehydration, maraschino, preserves, jam, jelly, pickles and condiments, 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.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

HP 251. **Principles of Canning Fruits.** First term, 3 hours.

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. Two lectures; 1 three-hour laboratory period. Professor Wiegand, Mr. Onsdorff.

HP 252. **Principles of Canning Vegetables.** Second term, 3 hours.

Continuation of HP 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. Two lectures; 1 three-hour laboratory period. Professor Wiegand, Mr. Onsdorff.

UPPER DIVISION COURSES

HP 311. **The Canning Plant and Its Equipment.** Third term, 3 hours.

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. Two lectures; 1 three-hour laboratory period. Mr. Onsdorff.

HP 321. **Food Products.** Third term, 2 hours.

Commercial methods followed in the manufacture of such foodstuffs 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. Two lectures. Professor Wiegand, Mr. Onsdorff.

HP 331. **Dehydration of Fruits and Vegetables.** First term, 3 hours.

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. Two lectures; 1 three-hour laboratory period. Professor Wiegand.

HP 341. **Pickles, Relishes, and Condiments.** First term, 3 hours.

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, crab-apples, tomatoes; tomato products, salad dressings, relishes, and sauerkraut studied and manufactured. Causes of spoilage and testing methods are emphasized. Two lectures; 1 three-hour laboratory period. Mr. Onsdorff.

HP 351. **Fruit Juice and Vinegar Manufacture.** First term, 3 hours.

Practical and scientific work in the handling of fruit juices; problems of filtration, sterilization, and bottling. Two lectures; 1 three-hour laboratory period. Professor Wiegand, Mr. Onsdorff.

HP 352. **Commercial Jam and Jelly Manufacture.** Second term, 3 hours.

Principles of making jams and jellies from fresh and frozen fruits, correlated with laboratory practice and quantity manufacture; testing for yields, moisture content, pectin requirements, acidity, sugar, etc., stressed. Two lectures; 1 three-hour laboratory period. Mr. Onsdorff.

HP 353. **Carbonated Beverages and Crushed Fruits.** Third term, 3 hours.

Designed to give instruction in the making of carbonated beverages by using pure and synthetic flavors. Study of the methods of freezing fruits and berries for retail and manufacturing purposes. The manufacture of crushed fruits for soda fountains and ice-cream making is emphasized. Designed especially for Dairy Manufacturing, Pharmacy, and other students interested. Two lectures; 1 two-hour laboratory period. Professor Wiegand, Mr. Onsdorff.

HP 361. **Preserves, Glacéd Fruits, and Candied Fruits.** Third term, 3 hours.

Manufacture of preserves, marmalades, conserves, maraschino cherries, glacéd fruits, and candied fruits. Two lectures; 1 three-hour laboratory period. Professor Wiegand, Mr. Onsdorff.

Pomology

DESCRIPTION OF COURSES

UPPER DIVISION COURSES

Pom 312. **History and Literature of Horticulture.** Second term, 3 hours.

Brief study of the history of horticulture; systematic survey of the literature of horticulture, acquainting the student with the various

sources of horticultural knowledge. One lecture; 2 recitations. Professor Duruz.

Pom 313. **Commercial Pomology.** First term, 4 hours.

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. Three lectures; 1 two-hour laboratory period. Prerequisites: Hrt 111; Ec 201, 202, 203. Professor Duruz.

Pom 321. **Subtropical Pomology.** First term, 3 hours.

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. Prerequisite: Hrt 111. Two lectures; 1 recitation. Offered in alternate years. Not offered 1933-34. Professor Duruz.

Pom 341. **Small Fruits and Grapes.** Second term, 3 hours.

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. Two lectures; 1 recitation. Offered in alternate years. Offered 1933-34. Professor Duruz.

Pom 415. **Fruit Production.** Third term, 4 hours.

Principles and practices of fruit growing as related to climate, soil and water requirements, varieties, root stocks, planting systems, pollination, thinning, frost, pest control, and other practical problems. Prerequisites: Hrt 111; Bot 331 prerequisite or parallel. Three lectures; 1 three-hour laboratory period. Professors Brown and Duruz.

Pom 417. **Systematic Pomology.** First term, 4 hours.

Descriptions, nomenclature and classifications of fruits and nuts. The student will study a sufficient number of varieties to become acquainted with the more important groups, species and varieties. One lecture; 1 recitation; 2 two-hour laboratory periods. Professor Duruz.

Pom 419. **Spraying.** Third term, 3 hours.

Principles underlying spraying practices, insect and disease control, sprays and their mixing, operation of spray pumps, gas engines, and electric motors; utilization of portable and stationary outfits, operation of small sprayers and dusters, spray nozzles, guns, and rods, accessories; practice in orchard spraying. Prerequisites: Hrt 111, Bot 351, Ent 411. One recitation; 2 two-hour laboratory periods. Professors Duruz and Gilmore.

Pom 431. **Pruning.** Second term, 3 hours.

Thorough training in the fundamental principles underlying pruning, including bud studies, tree building, maintaining vigor of the tree, rejuvenation and the like. Prerequisites: Hrt 111, Bot 331. Two lectures; 1 three-hour laboratory period. Professor Brown.

Vegetable Crops

DESCRIPTION OF COURSES

UPPER DIVISION COURSES

VC 321. **Principles of Vegetable Production.** First term, 3 hours.

The principles and practices 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 111. One lecture; 1 recitation; 1 two-hour laboratory period. Professor Bouquet.

VC 323. **Vegetable Growing Practices.** Third term, 3 hours.

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 111. One lecture; 1 recitation; 1 two-hour laboratory period. Offered in alternate years. Professor Bouquet.

VC 421. **Vegetable Forcing.** Third term, 3 hours.

Commercial practices in growing vegetable crops under glass, including tomatoes, cucumbers, lettuce, radishes, rhubarb, and French endive. Studies of commercial vegetable greenhouse operations. Open to juniors and seniors. Prerequisite: Hrt 111. Two lectures or recitations; 1 two-hour laboratory period. Professor Bouquet.

VC 423. **Vegetable Varieties.** First term, 2 hours.

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 111. Two two-hour laboratory periods. Professor Bouquet.

VC 424. **Vegetable Marketing.** First term, 3 hours.

Principles of commercial practices of field harvesting, grading, and packing of vegetables; methods of marketing; 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 111. One lecture; 1 recitation; 1 two-hour laboratory period. Professor Bouquet.

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 three-story Poultry Building, 53 by 140 feet, has laboratories for incubation, judging, killing, egg candling, and carpentry, equipped with appliances necessary for practical poultry keeping. Twenty different makes of incubators, including three 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 Leghorns 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

LOWER DIVISION COURSE

PH 211. **Practical Poultry Keeping.** First or second term, 3 hours.

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. Two lectures; 1 two-hour laboratory period. Professor Lunn, Associate Professor Fox.

UPPER DIVISION COURSES

PH 307. **Seminar.** Three terms, 1 hour each term.

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. Professor Lunn.

PH 311. **Poultry Breeds and Breeding.** First term, 4 hours.

A study of breeds of poultry, their history and classification; principles and methods of breeding for different purposes. Prerequisite: PH 211. Two lectures; 2 two-hour laboratory periods. Associate Professor Fox.

PH 315. **Animal Breeding.** Second term, 3 hours.

The principles of heredity as applied to the breeding of domestic animals and fowls. Three lectures. Associate Professor Knowlton.

PH 321. **Incubation and Brooding.** Third term, 4 hours.

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 211. Two recitations; 2 two-hour laboratory periods. Associate Professor Fox.

PH 331. **Poultry-house Design and Construction.** Second term, 4 hours.

A study of the principles of poultry-house designing; estimating the cost of building; studying building plans; practice in erecting, remodeling, and making appliances; excursions to neighboring farms. Prerequisite: PH 211. Two recitations; 2 two-hour laboratory periods. Associate Professor Fox.

PH 341. **Advanced Poultry Judging.** First term, 2 hours.

Practical judging of all kinds of poultry. Judging teams for intercollegiate judging competitions are chosen largely from the members of this class. Prerequisite: PH 211. Two two-hour laboratory periods.

PH 351. **Turkey Management.** First term, 3 hours.

Practical details in the breeding, feeding, rearing, and marketing of turkeys. Prerequisite: PH 211. One recitation; 2 two-hour laboratory periods.

PH 403. **Thesis.** Terms and hours to be arranged.

The preparation of a thesis. For senior students. Prerequisite: consent of department head. Professor Lunn.

PH 407. **Seminar.** Three terms, 1 hour each term.

Senior seminar in poultry husbandry. See PH 307. Professor Lunn.

PH 411. **Poultry Feeding.** First term, 4 hours.

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 211. Two recitations; 2 two-hour laboratory periods. Associate Professor Fox.

PH 421. **Marketing Poultry Products.** Second term, 4 hours.

Preparation of poultry and eggs for market; methods of storage and preservation; methods of marketing; laboratory work in killing, picking, grading, and shipping poultry; candling, grading, packing, and storing eggs. Prerequisite: PH 211. Two recitations; 2 two-hour laboratory periods. Associate Professor Fox.

PH 431. **Poultry Plant Management.** Third term, 4 hours.

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, 411, 421. Two recitations; 2 two-hour laboratory periods. Associate Professor Fox.

GRADUATE COURSES

PH 501. **Graduate Research.** Terms and hours to be arranged.

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. Professor Lunn.

PH 503. **Thesis.** Terms and hours to be arranged.

The preparation of a thesis for an advanced degree. Professor Lunn.

PH 507. **Seminar.** Three terms, 1 hour each term.

Poultry literature and current problems of interest to the advanced student, including critical examination of research methods. Frequent written reports. 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 fundamentals 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 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 soil-grinding and sifting machinery, and 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 and greenhouses afford opportunities for studies of the movement and retention of irrigation water in soil, the effects of irrigation 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.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

Sls 211, 212. **Soils.** First and second terms, 3 hours each term.

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 201, 202, 203. Two lectures; 1 three-hour laboratory period. Professor Ruzek, Assistant Professor Torgerson.

Sls 213. **Soil Drainage and Irrigation.** Third term, 3 hours.

Soil mapping, reclamation, and use; use of chain, level, and soil auger as applied to design; installation of tile drains or irrigation systems; their effect upon soils and crops; costs and benefits. Two lectures; 1 three-hour laboratory period. Professor Ruzek.

Sls 214. **Forest Soils.** Third term, 3 hours.

Origin, development, characteristics and classification of forest soils; relation to vegetation, moisture reaction and fertility; forest nursery soil management, use and conservation. Two lectures, 1 three-hour laboratory period. Associate Professor Stephenson.

Sls 215. **Soil Improvement.** Third term, 2 hours.

Soil fertility gains and losses, maintenance and improvement; effect of manures, fertilizers, and crop rotations on soil productiveness. Required of students in Landscape Architecture. Two lectures. Associate Professor Stephenson.

UPPER DIVISION COURSES

Sls 311. **Irrigation Farming.** First term, 3 hours.

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, field and laboratory studies of irrigation qualities of different soils; laying out of irrigation systems. Two lectures; 1 three-hour laboratory period. Professor Powers.

Sls 312. **Irrigation Farming Lectures.** First term, 2 hours.

Special course for Irrigation Engineering students or other students who cannot take the laboratory course in Irrigation Farming. Two recitations. Professor Powers.

Sls 317. **Dry Farming.** Second term, 2 hours.

Advanced study of the subject of moisture conservation, special tillage methods and machinery, soil and climatic conditions, in dry-farming regions, with particular reference to Oregon and northwestern states. Prerequisite: Sls 211 or 212. Two recitations. Offered alternate years. Not offered 1933-34. Professor Powers.

Sls 319. **Climatology.** Third term, 2 hours.

Practical meteorology; observing and recording local weather and forecasting; a study of the climate of Oregon and the effect of climate upon agriculture. One recitation; 1 two-hour laboratory period. Offered alternate years. Offered 1933-34. Assistant Professor Torgerson.

Sls 327. **Soil Survey.** Third term, 3 hours.

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. One recitation; 2 three-hour laboratory periods. Offered alternate years. Not offered 1933-34. Assistant Professor Torgerson.

Sls 401. **Soil, Drainage or Irrigation Work.** Three terms, 3 hours each term.

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. Professors Powers and Ruzek.

Sls 407. **Seminar.** Three terms; 1 hour each term.

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. Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 411. **Western Land and Water Laws.** Second term, 3 hours.

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. Three recitations. Offered alternate years. Offered 1933-34. Professor Powers.

Sls 414. **Irrigation Investigations.** First term, 3 hours.

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. One lecture; 2 three-hour laboratory periods. Professor Powers.

Sls 418. **Land Drainage.** Third term, 3 hours.

Field study of roads, oil, 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 211. One recitation; 2 three-hour laboratory periods (week-end). Professor Powers.

Sls 421. **Soil Physics.** First term, 5 hours.

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 212, 213. Three recitations; 2 two-hour laboratory periods. Associate Professor Stephenson.

Sls 422. **Soil Physics.** First term, 3 hours.

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. Three recitations. Associate Professor Stephenson.

Sls 424. **Soil Fertility.** Second term, 5 hours.

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. Three recitations; 2 three-hour laboratory periods. Professor Ruzek.

Sls 425. **Soil Fertility Lectures.** Second term, 3 hours.

Same as Sls 424, except no laboratory work. Three recitations. Professor Ruzek.

Sls 428. **Soil Management.** Third term, 5 hours.

Occurrence, composition, characteristics, productivity, plant-food requirements, comparative values, and management of different soil types. Prerequisite: Sls 424. Two recitations; 3 three-hour laboratory periods. Professor Powers.

GRADUATE COURSES

Sls 501. **Graduate Study and Research.** Terms and hours to be arranged.

Special laboratory investigation and library study of graduate character. Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 503. **Graduate Thesis.** Terms and hours to be arranged.

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. Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 507. **Graduate Seminar.** Three terms, 1 hour each term.

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. One two-hour recitation period. Professors Powers and Ruzek, Associate Professor Stephenson.

Sls 511. **Pedology.** First term, 2 hours.

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. Two recitations. Professor Powers.

Sls 512. **Soil Colloids.** Second term, 2 hours.

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. Two recitations. Offered in alternate years. Not offered 1933-34. Associate Professor Stephenson.

Sls 513. **Plant Nutrition.** Third term, 2 hours.

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. Two recitations. Professor Powers.

Sls 514. **Soil Organic Matter.** Second term, 2 hours.

Study of soil organic matter and humification processes, chemical and physical properties of humus, effect on soil reaction, biological processes and nutrient supplying power of the soil; relation of humus to soil conservation and to plant growth and adaptation. Two recitations. Offered alternate years. Offered 1933-34. 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. Anatomy and physiology of domestic animals 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

LOWER DIVISION COURSES

VM 211. **Anatomy of Domestic Animals.** First or second term, 3 hours.

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 locomotion 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. Three two-hour laboratory periods. Assistant Professor Shaw and Dr. Muth.

VM 221, 222. **Physiology of Domestic Animals.** Second and third terms, 3 hours each term.

Study of the functions of the body; the physiological processes of all domestic animals with emphasis on the horse and the cow. Prerequisite: VM 211. Two lectures; 2 two-hour laboratory periods. Professor Simms, Assistant Professor Shaw, and Dr. Muth.

UPPER DIVISION COURSES

VM 311. **Anatomy of the Fowl.** Second term, 3 hours.

A study of the structure of the body of the fowl. Two lectures; 2 two-hour laboratory periods. Professor Johnson. Offered alternate years. Offered 1933-34.

VM 321. **Physiology of Domestic Animals.** First term, 3 hours.

Study of the functions of the body; the physiological processes of all domestic animals, with emphasis on the horse and the cow. Prerequisites: VM 221, Ch 221 or their equivalent. Three lectures; 1 two-hour laboratory period. Professor Simms, Assistant Professor Shaw and Dr. Muth.

VM 341. **Diseases of Livestock.** First term, 4 hours.

A one-term course for students specializing in the Plant Group. The more common diseases, with methods of prevention and control, are considered. Two lectures; 2 recitations. Assistant Professor Shaw.

VM 351. **Diseases of Poultry.** Third term, 3 hours.

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. Three recitations; 1 two-hour laboratory period. Offered alternate years. Offered 1933-34. Professor Johnson.

VM 361. **Parasitic Diseases of the Domestic Animal.** Second term, 3 hours.

The intensive study of the common parasitic diseases of domestic animals. Two lectures; 2 two-hour laboratory periods. Professor Simms.

VM 441, 442, 443. **Diseases of Livestock.** Three terms, 3 hours each term.

The parasitic, infectious, and non-infectious diseases of domesticated animals. Prerequisites: VM 221, 321, or equivalent. Two recitations; 1 two-hour laboratory period. Professor Simms, Assistant Professor Shaw.

GRADUATE COURSES

VM 501. **Graduate Research.** Terms and hours to be arranged.

Problems in animal diseases. Professors Simms and Johnson.

VM 503. **Graduate Thesis.** Terms and hours to be arranged.

Problems in animal diseases. Professors Simms and Johnson.

School of Education

Faculty

JAMES RALPH JEWELL, Ph.D., LL.D., Dean of the School of Education.

CARL WALTER SALSER, Ed.M., Head of Personnel and Placement Service; Assistant to the Dean.

CLYTIE MAY WORKINGER, Personnel and Placement Secretary.

RUTH LANO, Secretary to the Dean.

Agricultural Education

HEBER HOWARD GIBSON, A.M., Professor of Agricultural Education.

OLIVER KENNETH BEALS, B.S., Critic Teacher in Agricultural Education.

Commercial Education

BERTHA WHILLOCK STUTZ, M.S., Associate Professor of Secretarial Science.

MIRIAM EGAN SIMONS, M.A., Critic Teacher in Commercial Education.

Education

CARL WALTER SALSER, Ed.M., Professor of Education.

HERBERT REYNOLDS LASLETT, Ph.D., Professor of Educational Psychology; Director of Supervised Teaching.

ERNEST WILLIAM WARRINGTON, M.A., Professor of Religion.

FRANK WINTHROP PARR, Ph.D., Professor of Secondary Education.

RILEY JENKINS CLINTON, Ed.D., Professor of Education.

GRANT ALEXANDER SWAN, B.S., Assistant Professor of Physical Education.

RENA HEAGEN, C.P.H., Assistant Professor of Hygiene.

Home Economics Education

FLORENCE BLAZIER, Ph.D., Professor of Home Economics Education.

FRANCES WRIGHT JONASSON, B.S., State Supervisor and Teacher Trainer in Vocational Home Economics.

MERLE BONNEY DAVIS, B.S., Critic Teacher in Home Economics Education.

RUTH MORRIS FOREST, B.S., Critic Teacher in Home Economics.

Industrial Education

GEORGE BRYAN COX, B.S., Professor of Industrial Education.

ORVILLE DANIEL ADAMS, M.S., Associate Professor of Trade and Industrial Education.

FRANK LLOYD FRANCE, B.S., Instructor in Industrial Education.

General Information

THE general purpose of the School of Education, operating jointly at the University and the State College, is to organize and correlate all the forces under the control of the State Board of Higher Education which have for their ultimate aim growth in educational efficiency in the state of Oregon so far as the training of teachers for the high schools of the state is concerned, together with all other forms of education not distinctly elementary.

The preparation of teachers for high schools is provided on a parallel basis for assigned specialties at the University and the State College under the control of the Director of High School Teacher Training at Eugene.

At the State College are given major curricula preparing for teaching of biological and physical sciences, mathematics, agriculture, home economics, industrial arts, secretarial science, and approved combinations of subjects, and for educational and vocational guidance.

At the University are given general education courses, training for educational administrators, and major curricula preparing for teaching of literature, languages, arts and music, physical education, the social sciences, business administration, and approved combinations of subjects, and for work with atypical children.

In planning the curricula 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.

School of Education Offices. The offices of the School of Education are in Shepard Hall, second floor. Practice teaching is carried on in both the senior high school and the junior high school of Corvallis.

Student Programs. It is assumed in the School of Education that no two students will take or need exactly the same courses. Consequently, special attention is given each student in planning his work and in making necessary adjustments in it from time to time. Members of the Education staff constitute a personnel clinic and give much of their time to individual work with students.

Supervised Teaching. Facilities are provided for supervised teaching in all the respective subject-matter fields. Students have the opportunity of observing the application of the special methods of teaching, and then may acquire, under supervision, such skill as will lead to the actual work of the school. Model lessons by the supervisors in charge serve as illustrations to guide the student teachers in the applications of the principles underlying instruction. Lesson plans are worked out. Eventually supervised teaching is done.

Appointment Bureau. Full information is collected concerning the preparation and experience of graduates who are prepared and qualified to teach. This information is available at all times to superintendents and

boards of education. Certification requirements and the school laws of other states are made available to students. Graduates elected to teach in other states are recommended for certificates when endorsed by the Dean of the School of Education and the Registrar. To pay in part for preparing credentials a fee of one per cent of the first year's salary is charged all who are placed in teaching positions through the appointment bureau. An initial registration fee of $2.00 is charged each candidate and a postage fee of 25¢ is charged when papers are sent at the request of the candidate.

Baccalaureate Degrees. The degree of Bachelor of Arts or Bachelor of Science is conferred upon the students of the School of Education who have met the institutional requirements for the respective degrees.

The degree of Bachelor of Science in Education is conferred upon students of the School of Education on completion of 192 term hours including the prescribed curriculum of the School of Education. At least 27 term hours in upper division Education courses must be submitted.

Graduate Degrees. The School of Education offers graduate work leading to the M.S. degree under the same conditions and procedures which apply in the case of other branches of the College, in which all graduate work is carried on under the Graduate Committee. The regulations governing graduate study are given in the section of the catalog on Graduate Division.

Teachers' Certificates. Graduates of the School of Education are entitled to teaching certificates as provided in the Oregon school law. Certificates are 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 state certificate, or a five-year state certificate, or a state life certificate, secured in accordance with the provisions of this section, is hereby authorized to act as city superintendent of the schools of any city.

(5) High school certificates are granted only to applicants who present credits amounting to at least three term hours each in Educational Psychology, Secondary Education, Principles (Technique) of Teaching and Supervised Teaching.

Fees are as follows, payable to the state superintendent of public instruction:

One-year certificate	$2.00
Five-year certificate	3.00

Requirements for the Teaching Certificate. In conformity with the foregoing, the School of Education designates courses Ed 311, 312, and 313 as courses to be taken during the junior year for certification, and as prerequisites for other advanced courses in the department, and Ed 315, Supervised Teaching, to be taken during the senior year.

Graduation Requirements. Applicants for the bachelor's degree from the School of Education will submit 36 term hours of Education, not less than 27 of which will be upper division courses. The courses required for certification are stated in the paragraph above. In every case Elementary Psychology is a prerequisite for the advanced courses in Education but may not be counted in filling the 36-hour requirement. Besides fulfilling the major in Education itself, candidates for graduation will submit also either one subject-matter norm or two minor norms (see Norms for Prospective Teachers).

Special Requirements. In the case of elementary year-sequences in the sciences, foreign languages, stenography or typing, the entire year-sequence must be completed (e.g., Ch 101, 102, 103) before credit is allowed. If an elementary foreign language is undertaken in this institution, two years of it must be completed if it is to be counted toward graduation in the School of Education.

Professional Curricula

THE following courses of study show the work in the School of Education that should be followed by students who are intending to become high school teachers or whose special interest lies in the fields of secondary education or guidance and counseling. Related work in other schools is shown only when it is necessary in building the proper curriculum.

SUGGESTED COURSES FOR NORMAL SCHOOL GRADUATES

Junior Year	Term hours 1st	2d	3d
Secondary Education (Ed 311), Principles of Teaching (Ed 313), Educational Psychology (Ed 312)	3	3	3
Principles of Economics (Ec 201, 202, 203)	3	3	3
Senior Year			
Adolescence: Its Psychology and Pedagogy (Ed 420)	—	—	3
Measurement in Secondary Education (Ed 416)	—	3	—

SUGGESTED COURSES FOR PROSPECTIVE HIGH SCHOOL TEACHERS

A. Senior High School Teachers

Freshman Year	Term hours 1st	2d	3d
Methods of Study (Ed 101)	3	----	----
Mental Hygiene (Ed 102)	----	3	----
Introduction to Education (Ed 103)	----	----	3

Sophomore Year			
Elementary Psychology (Psy 201, 202, 203) (no education credit)	3	3	3
Elementary Psychology Laboratory (Psy 204, 205, 206) (no education credit)	1	1	1

Junior Year			
Secondary Education (Ed 311)	3	----	----
Educational Psychology (Ed 312)	----	3	----
Principles of Teaching (Ed 313) (may be taken in senior year but must precede supervised teaching)	----	----	3
Measurement in Secondary Education (Ed 416)	----	----	3

Senior Year			
Special Methods	3 *or*	3	----
Supervised Teaching (Ed 315)	5	2	----
	or	2	5
One or more terms from Ed 420, 454, and one other course in Secondary Education	----	----	3

The remaining hours in education are elective.

Normal school graduates will take Ed 311 and 313 in the junior year, also Ed 312 in case this field has not been covered previously. Two terms are required from Ed 420, 454, 528. The remaining hours in education are elective.

Norms: One teaching norm is required. If possible, one major and one minor norm, or two minor norms, should be met.

B. Junior High School Teachers

Freshman and Sophomore Years

Same as for Senior High School Teachers.

Junior Year	Term hours 1st	2d	3d
Secondary Education (Ed 311)	3	----	----
Educational Psychology (Ed 312)	----	3	----
Principles of Teaching (Ed 313) (Must precede supervised teaching)	----	----	3
Measurement in Secondary Education (Ed 416)	----	----	3

Senior Year			
Supervised Teaching in Junior High School	5	2	----
	or	2	5
Adolescence: Its Psychology and Pedagogy (Ed 420), Civic Education (Ed 489)	----	3	3

Normal school graduates will take Ed 311, also 312, in case this field has not been covered previously, and Supervised Teaching in the Junior High School. The remaining hours in education are elective.

CURRICULUM FOR EDUCATIONAL AND VOCATIONAL GUIDANCE

The following general sequence of courses is suggested for those students looking forward to work as counselors, deans of girls, deans of boys, teachers of occupations courses, and other phases of guidance work in connection with the public schools and other social agencies and organizations.

Freshman and Sophomore Years	Term hours 1st	2d	3d
Methods of Study (Ed 101)	3	---	---
Mental Hygiene (Ed 102)	---	3	---
Introduction to Education (Ed 103)	---	---	3
English Composition (Eng 111, 112, 113)	2–3	2–3	2–3
Physical or Biological Science	3–4	3–4	3–4
Elementary Psychology (Psy 201, 202, 203)	3	3	3
Elementary Psychology Laboratory (Psy 204, 205, 206)	1	1	1
Principles of Economics (Ec 201, 202, 203)	3	3	3
History Cycle	3	3	3
Extempore Speaking (Sp 111, 112, 113)	3	3	3
Junior Year			
Secondary Education (Ed 311)	3	---	---
Educational Psychology (Ed 312)	---	3	---
Principles of Teaching (Ed 313)	---	---	3
Elements of Sociology (Soc 201, 202, 203)	3	3	3
Adolescence: Its Psychology and Pedagogy (Ed 420)	---	---	3
Educational Sociology (Soc 314)	---	---	3
Measurement in Secondary Education (Ed 416)	---	---	3
Literature (English or American)	3	3	3
Senior Year			
Vocational Guidance (Ed 485)	3	---	---
Occupational Information (Ed 487)	---	3	---
Vocational Counseling (Ed 486)	---	---	3
Supervised Teaching (Ed 315)			
Statistical Method in Education (Ed 417)	3	---	*or* 3
Civic Education (Ed 489)	3	---	---
Individual Investigation			

CURRICULUM FOR PROSPECTIVE TEACHERS OF GENERAL AGRICULTURE AND GENERAL SCIENCE

The School of Education provides, also, curricula intended to give training in such groups of allied subjects as must commonly be taught by the same teacher in a high school of moderate size.

Certain high schools, unable to provide vocational (Smith-Hughes) agriculture wish, nevertheless, to secure teachers of science who also are trained in agriculture. This curriculum is designed to serve two purposes: (1) to improve the teaching of science by including a number of courses in agriculture which will furnish materials and situations well adapted to illustrate and apply important principles and laws of science commonly operating in situations familiar to students in rural communities; (2) to make it possible for the science teacher to offer a separate course in agriculture either in lieu of a general science course or for its vocational and vocational guidance values. Students in the General Agriculture curriculum will complete 36 hours in Education and 36 hours in Agriculture.

Prospective students of vocational (Smith-Hughes) agriculture should refer to the curriculum outlined under the School of Agriculture.

Freshman Year	Term hours 1st	2d	3d
Methods of Study (Ed 101)	3	---	---
Mental Hygiene (Ed 102)	---	3	---
Introduction to Education (Ed 103)	---	---	3
English Composition (Eng 111, 112, 113)	3	3	3
General Botany (Bot 201, 202, 203)	3	3	3
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
Elements of Horticulture (Hrt 111)	---	---	3
Military Science (men)	1	1	1
[1]Physical Education	1	1	1
Electives	3	3	---
	17	17	17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Suggested Electives in Agriculture	Term hours 1st	2d	3d
Stock Judging I (AH 111)	----	3 *or*	3
Elements of Dairying (DH 211)	3 *or*	3	----
Cereal Production (FC 111)	3 *or*	----	3

Sophomore Year

General Zoology (Z 201, 202, 203)	3	3	3
Principles of Economics (Ec 201, 202, 203)	3	3	3
General Sociology (Soc 211)	----	----	4
Outlines of Psychology (Psy 211)	----	4	----
Soils (Sls 211, 212)	3	3	----
Military Science (men)	1	1	1
Physical Education	1	1	1
Geology (G 201)	3	----	----
General Bacteriology (Bac 204)	----	3	----
Electives	3	----	5
	17	18	17

Suggested Electives in Agriculture

Dairy Herd Management (DH 322)	----	3	----
Cereal Production (FC 111)	3	---- *or*	3
Practical Poultry Keeping (PH 211)	3 *or*	3	----
Livestock Management (AH 221)	3	---- *or*	3
Forage and Root Crop Production (FC 211)	3 *or*	----	3

Junior Year

General Physics (Ph 201, 202, 203)	4	4	4
Soil Drainage and Irrigation (Sls 213)	----	----	3
Animal Nutrition (AH 411)	----	----	4
Applied Plant Genetics (FC 330)	5	----	----
Educational Psychology (Ed 312)	3	----	----
Secondary Education (Ed 311)	----	3	----
Principles of Teaching (Ed 313)	----	----	3
Electives	5	10	3
	17	17	17

Suggested Electives in Agriculture

Pruning (Pom 431)	----	3	----
Fruit Production (Pom 415)	----	----	4
Principles of Farm Management (FM 211)	----	----	3
Rural Electrification (AE 331)	----	----	3
Principles of Vegetable Production (VC 321)	3	----	----

Senior Year

Farm Motors (AE 211) *or* Automobile Mechanics (AE 312)	----	3	----
Diseases of Livestock (VM 341)	4	----	----
Teaching General Agriculture and Related Science (AEd 321)	----	3	----
Supervised Teaching (Ed 315)	----	3	3
Rural Education (Ed 341)	----	----	3
Measurement in Secondary Education (Ed 416)	----	3	----
Electives	13	5	11
	17	17	17

Suggested Electives in Agriculture

Automobile Mechanics (AE 314)	----	----	3
Agricultural Economics (AEc 211)	----	----	3
Soil Fertility Lectures (Sls 425)	----	3	----
Seed Production (FC 414)	3	----	----

Norms for Prospective Teachers

NO graduates will be recommended for teaching positions who have not completed, in addition to the professional requirements in Education and Psychology, the academic preparation outlined under either *A* or *B* below:

A. For students whose major courses are included in the subjects commonly taught in the high schools of the state—namely, biological science, general science, commercial branches, English, French, German, history, home economics, industrial arts, Latin, mathematics, music, physical education, physical science (physics and chemistry), and Spanish—the requirement is a major course of study including a major norm and a minor norm.

B. For students whose major courses are not included in the foregoing list of subjects commonly taught in the high school, the requirement is two minor norms.

Students who have started to complete norms as outlined by former legislation, may either continue with their original programs or substitute the new norms as given below.

Students who, before entering the School of Education, have already taken courses covering the subject-matter of the norms may substitute these with the consent of the head of the department and the Dean of the School of Education. General substitution of courses of different subject-matter cannot be made.

C. Certain subject-matter courses entirely outside the norms are of such great help in the placement of teachers that students should provide places for them in their programs for the junior and senior years. These include certain courses offered for teacher-training students in such fields as oral English, extemporaneous speech, journalism, economics, sociology, political science, biology, and others. Students should consult with their advisers in the School of Education as to the specific courses offered for them by the respective departments.

Following is the list of major and minor norms intended to correspond to the main lines of high school teaching which are undertaken by State College graduates seeking recommendation.

Agriculture*

MAJOR NORM

	Term hours
Cereal Production (FC 111) *or* Forage and Root Crop Production (FC 211)	3
Stock Judging I (AH 111) *or* Livestock Management I (AH 221)	3
Elements of Horticulture (Hrt 111)	3
Elements of Dairying (DH 211)	3
Soils (Sls 211, 212)	6
Practical Poultry Keeping (PH 211)	3
Soil Drainage and Irrigation (Sls 213)	3
Animal Nutrition (AH 411) *or* Soil Fertility Lectures (Sls 425)	4 *or* 3
Principles of Farm Management (FM 211)	3
Farm Motors (AE 211)	3
Agricultural Economics (AEc 211)	3
Principles of Agricultural Breeding (FC 315)	3
	40 *or* 39

*Students preparing to teach a combination of science and agriculture will in addition to the required subjects in Agriculture take year-sequences in Botany, Chemistry, Physics, and Zoology, and in addition one-term courses in Bacteriology, Geology, and Organic Chemistry.

MINOR NORM

	Term hours
Cereal Production (FC 111)	3
Elements of Horticulture (Hrt 111)	3
Stock Judging I (AH 111)	3
Elements of Dairying (DH 211)	3
Soils (Sls 211, 212)	6
Practical Poultry Keeping (PH 211)	3
Principles of Farm Management (FM 211)	3
Agricultural Economics (AEc 211)	3
Principles of Agricultural Breeding (FC 315)	3
	30

Biological Sciences

MAJOR NORM

General Zoology	9
General Botany	9
[1]General Entomology	3
[1]General Bacteriology	3
Electives in the field of biology	9–12
	33–36

MINOR NORM

General Zoology	9
General Botany	9
[1]General Entomology	3
[1]General Bacteriology	3
	24

Commercial Branches.—Secretarial Science[2]

MAJOR NORM

Stenography (SS 111, 112, 113)	9
Typing (SS 121, 122, 123)	6
Constructive Accounting (BA 111, 112, 113)	12
Applied Stenography (SS 211, 212, 213)	9
Office Procedure (SS 311)	5
Business Law (BA 256)	4
	45

MINOR NORM

Stenography (SS 111, 112, 113)	9
Typing (SS 121, 122, 123)	6
Applied Stenography (SS 211, 212, 213)	9

General Science

MAJOR NORM

Physical Science—lower division work, including one year-sequence	16
Biological Science—lower division work, including one year-sequence	15
Biological or Physical Science—upper division work	6
	37

MINOR NORM

Physical Science—lower division work, including one year-sequence	16
Biological Science—lower division work, including one year-sequence	15
	31

Note: Survey courses in science are counted in General Science norms only with the written approval of the student adviser.

[1]Other electives in the field of biology may be substituted when these courses are not offered.

[2]Students having had one year or more of typing or shorthand will receive advanced standing according to ability shown in placement test provided by the Department of Secretarial Science.

Home Economics	Term hours
MAJOR NORM	
Foods:	
Principles of Dietetics (FN 225)	2
A. For those electing Chemistry	
Foods (FN 220, 221, 222)	9
B. For those not electing Chemistry	
Foods (FN 211, 212, 213)	9
Clothing:	
A. For those electing Art	
Textiles (CT 250)	3
Clothing (CT 211, 212)	6
B. For those not electing Art	
Clothing Selection (CT 217)	3
Clothing Selection and Construction (CT 218, 219)	6
Household Administration:	
Child Care and Training (HAd 225)	3
Household Management (HAd 340)	4
Introduction to Home Economics (HAd 101)	3
Electives from at least two of the following groups to complete 40 hours	13
A. *Foods*	
Food Purchasing (FN 411)	3
Experimental Cookery (FN 435)	3
Quantity Cookery and Catering (IEc 311)	3
Cafeteria Management (IEc 320)	3
B. *Clothing*	
House Furnishing (CT 231)	3
Applied Design (CT 335)	3
Costume Design (CT 311)	3
Clothing (CT 312)	3
House Furnishing (CT 331)	3
House Furnishing (CT 431)	3
C. *Household Administration*	
Home Management House (HAd 350)	4
Behavior Problems (HAd 421)	2
MINOR NORM	
Foods:	
Principles of Dietetics (FN 225)	2
A. For those electing Chemistry	
Foods (FN 220, 221)	6
B. For those not electing Chemistry	
Foods (FN 211, 212)	6
Clothing:	
A. For those electing Art	
Textiles (CT 250), Clothing (CT 211, 212)	9
B. For those not electing Art	
Clothing Selection (CT 217)	3
Clothing Selection and Construction (CT 218, 219)	6
Household Administration:	
Child Care and Training (HAd 225)	3
Household Management (HAd 340)	4
Introduction to Home Economics (HAd 101)	3
	27

Industrial Arts

MAJOR NORM (Basic Major—Woodworking emphasis)

	Term hours
Methods in Woodworking (IA 111, 112)	6
Wood Turning (IA 220)	2
Fiber Furniture Weaving (IA 226)	2
Millwork—Machine Woodwork (IA 311)	3
Furniture Construction (IA 312)	2
Linear Drawing and Lettering (GE 111)	2
Mechanical Drawing (GE 112, 113)	4
Lower Division Drawing (AA 291)	3
Machine and Tool Maintenance (IA 225)	2
Wood and Metal Finishing (IA 222)	2
Trade Analysis (IEd 472)	3
The General Shop and Its Problems (IEd 473)	2
Written and Visual Teaching Aids (IEd 474)	3
	36

MINOR NORM

Methods in Woodworking (IA 111, 112)	6
Wood Turning (IA 220)	2
Fibre Furniture Weaving (IA 226)	2
Millwork—Machine Woodwork (IA 311)	3
Linear Drawing and Lettering (GE 111)	2
Mechanical Drawing (GE 112, 113)	4
Industrial Arts Organization (IEd 330)	2
Trade Analysis (IEd 472)	3
The General Shop and Its Problems (IEd 473)	2
	36

Mathematics

MAJOR NORM

Unified Mathematics (Mth 101, 102, 103 or equivalent)	12
[1]Differential and Integral Calculus or equivalent	12
Two terms of upper division mathematics	6
	30

MINOR NORM

Unified Mathematics (Mth 101, 102, 103 or equivalent)	12
*Differential and Integral Calculus or equivalent	12
	24

Physical Sciences

MAJOR NORM

General Chemistry	15
General Physics	12
General Geology or advanced courses in chemistry or physics	9–12
	36–39

MINOR NORM

General Chemistry	15
General Physics	12
	27

The following minor norms are available at the State College. These may fulfill requirements of a minor norm taken in conjunction with a major course of study or the two-minor-norm requirement.

English

MINOR NORM

	Term hours
English Literature	9
Two terms of Shakespeare	6
Advanced English Composition (Eng 216)	3
American Literature	9
	27

[1]Students may substitute two terms of calculus and one term of either Modern Geometry, Higher Algebra, or Theory of Equations and Determinants, for three terms of calculus.

French

MINOR NORM — Term hours

Twenty-seven hours above RL 1, 2, 3 (first year), including:

Second Year French (RL 4, 5, 6)	12
French Literature (RL 311, 312, 313)	9
Electives approved by Department	6
	27

German

MINOR NORM

Twenty-seven hours above Ger 1, 2, 3 (first year) including:

Second Year German (Ger 4, 5, 6)	12
German Literature	9
Electives approved by Department	6
	27

History, Civics, Economics

MINOR NORM

History of Western Civilization (Hst 201, 202, 203)	9
The World Since 1914 (Hst 209)	3
History of American Civilization (Hst 224, 225)	6
Modern Governments (PS 201, 202)	8
	26

Music

MINOR NORM

Public School Music and Seminar	6
Sightsinging and Ear-training	6
Voice Class	6
Piano Class	6
	24

Unless the student has had previous training in piano, additional work may be needed to cope with the pianistic problems of school music. If the student is already competent in accompanying, the indicated requirement will be adjusted according to student's needs.

Orchestral Organization, while not required, is advised for students who may have to assist with school orchestras.

Physical Education

MINOR NORM (MEN)

Introduction to Physical Education (PE 121, 122, 123)	6
Physical Education Laboratory (PE 174, 175, 176)	6
Physical Education Laboratory (PE 274, 275, 276)	6
Coaching of Football (PE 347) Coaching of Basketball (PE 346) Coaching of Baseball (PE 348) Coaching of Track and Field (PE 349) — Three courses selected from this group	6
Minimum hours for recommendation to coach one or more sports in connection with other teaching work	24

MINOR NORM (WOMEN)

Introduction to Physical Education (PE 121, 122, 123)	6
Physical Education Laboratory (PE 124, 125, 126)	6
Physical Education Laboratory (PE 224, 225, 226)	6
Technique of Sports (PE 341, 342)	6
	24

Spanish

MINOR NORM

Twenty-seven hours above RL 11, 12, 13 (first year), including:

Second Year Spanish (RL 14, 15, 16)	12
Spanish Literature (third year) (RL 341, 342, 343)	9
Electives approved by Department	6
	27

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 Education.

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 and Education (for Smith-Hughes teaching) can be met in either of two ways: first, by majoring in the Agricultural Education curriculum, which includes requirements in both Agriculture and Education; second, by pursuing one of the three other curricula in Agriculture in the sophomore year and any of the major curricula in General and Specialized Agriculture during the junior and senior years. The latter plan will be approved provided sufficient electives are available for meeting the course requirements in Agriculture as outlined in the Agricultural Education curriculum (School of Agriculture) as well as the 23 credits in Education.

(3) Depending on the student's previous training and experience and his choice of courses, 70 to 75 term hours of special work in Agriculture are required. The sequence and distribution of courses are given in the Agricultural Education curriculum. Regardless of the department in which the student majors he should have a minimum of subject-matter courses in the respective departments as follows:

(a) 12 hours in Agricultural Engineering

(b) 10 hours in Animal Husbandry

(c) 6 hours in Dairy Husbandry
(d) 9 hours in Horticulture
(e) 9 hours in Farm Crops
(f) 9 hours in Farm Management and Agricultural Economics
(g) 9 hours in Soils
(h) 3 hours in Poultry Husbandry
(i) 3 hours in Veterinary Medicine

As early as possible in his college course the prospective teacher should advise with the head of the Department of Agricultural Education regarding the courses he should select in each of the fields of agriculture mentioned above and the various qualifications essential in teaching vocational agriculture.

Requirements in Education. The courses in Education and Psychology required for state certification are described under the respective departments. The sequence and distribution of these courses are as follows:

Junior Year	Term hours 1st	2d	3d
[1]Educational Psychology (Ed 312)	3	---	---
Secondary Education (Ed 311)	---	3	---
Principles of Teaching (Ed 313)	---	---	3
Senior Year			
Special Methods in Agriculture (Ed 328)	5	---	---
[2]Supervised Teaching (Ed 315)	---	3	3
Methods in Teaching Evening and Part-Time Classes in Agriculture (AEd 313)	---	2	---
Rural Survey Methods (AEd 533)	---	---	2

Special Curricula in Agricultural Education will be outlined for students preparing to teach agriculture in city schools or a combination of subjects including Agriculture as requested in the smaller rural high schools. See page 177 for curriculum suggestion.

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 Ed 341, 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

UPPER DIVISION COURSES

AEd 313. **Methods in Teaching Evening and Part-Time Classes in Agriculture.** Second term, 2 hours.

Students in this course participate in recruiting, organizing, and teaching evening and part-time classes for both young and adult farm-

[1]Ed 312 must be preceded by Psy 211.
[2]Ed 315 may be taken any two terms.

ers in the vicinity of Corvallis. Problems arising therefrom form the basis of the course. Prerequisite: Ed 328. Professor Gibson.

AEd 321. **Teaching General Agriculture and Related Science.** Second term, 3 hours.

For prospective teachers of science who may wish to be in a position to offer a separate course in agriculture or to strengthen their science teaching by the utilization of the materials in agriculture well adapted to apply the principles and laws of science commonly operative in the student's natural environment; aims, materials, methods. Three recitations. Prerequisites: Ed 311, 312, 313. Professor Gibson.

Ed 328. **Special Methods in Agriculture.** First term, 5 hours.

Problems and methods of organizing and teaching vocational agriculture in high schools, in accordance with the provisions of state and federal legislation. Prerequisite: Ed 313. Five recitations. Professor Gibson.

Ed 407. **Education Seminar.** Two terms, hours to be arranged.

Class and individual studies and reports on special problems in the teaching of agriculture and the administration of Agricultural Education. Prerequisites: Ed 311, 312, 313, 328. Professor Gibson.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Advanced and graduate students may select special problems which they are qualified to study. Ability to select and outline such problems will be a condition for taking this work. Professor Gibson.

Ed 503. **Thesis.** Terms and hours to be arranged.

The preparation of a thesis for an advanced degree.

AEd 516. **Extension Course in Teacher Training,** Any term, hours to be arranged.

Teachers of vocational agriculture in service who cannot be relieved of their professional duties to pursue courses that are offered in the Summer Session may make use of this course to continue their professional improvement. Personal conferences, follow-up instruction, and supervision, supplemented by correspondence and reports. Prerequisites: Ed 311, 312, 313, 328. Professor Gibson.

AEd 533. **Rural Survey Methods.** Third term, 2 hours.

The technique of making agricultural and rural education surveys, together with methods of analyzing, interpreting, and using the material and results as a basis for evaluating and formulating programs in Agricultural Education. Field studies required. Open to graduates with teaching experience and seniors by special permission. Prerequisites: Ed 311, 312, 313, 328. Professor Gibson.

Commercial Education

IN conjunction with the department of Secretarial Science the School of Education is able to meet the demand for well-prepared teachers of commercial branches in secondary schools. Such teachers are prepared in cooperation with the School of Business Administration. In the selection of their collegiate courses in both secretarial science and education, students should advise with the head of the department of Education. Teachers of commercial science are thus prepared in a way 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 Education and the School of Business Administration.

The 23 credits in Education required for a certificate to teach in accredited high schools must be earned during the junior and senior years.

DESCRIPTION OF COURSES

UPPER DIVISION COURSE

Ed 329. **Special Methods in Commerce.** Second term, 3 hours.

Principles of education as used in the development of skills and precisions, largely motor, involved in the learning of such activities as are found in stenography, typing, and accounting. Lectures covering aims, materials, standards, methods of presentation, organization of courses, and arrangement of curricula. Prerequisites: BA 111, 112, 113; SS 311, 312; Ed 311, 312, 313. Three lectures. Associate Professor Stutz.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Problems in commercial education. Associate Professor Stutz.

Ed 503. **Thesis.** Terms and hours to be arranged.

Education

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

Ed 101. **Methods of Study.** Any term, 3 hours.

Specific methods of study as applied to various subject-matter fields, together with the general principles of note-taking, study schedule, fixing study habits, and evaluations of the various broad fields of human learning. Three recitations. Professor Parr.

Ed 102. **Mental Hygiene.** Any term, 3 hours.

Intended to help the student in making his adjustments to conditions of college life by cultivating proper habits of study and of intellectual activity. Deals with the habits, attitudes, and proper functioning of a normal mind. Professor Chambers.

Ed 103. **Introduction to Education.** Any term, 3 hours.

Brief discussion of the meaning, function and scope of education; organization and function of each division of the American system. An orientation survey course of the entire educational field. Three recitations. Professor Parr.

UPPER DIVISION COURSES

Ed 311. **Secondary Education.** Any term, 3 hours.

An extensive study of the problems of the high school from the standpoint of the teacher, involving a consideration of its aims, functions, and characteristics. Prerequisites: Psy 201, 202, 203. Three recitations. Professor Parr.

Ed 312. **Educational Psychology.** Any term, 3 hours.

A study of the laws of learning and their application to the classroom; motivation in learning, transfer of training, memory, forgetting, and the psychology of secondary school subjects. Prerequisites: Psy 201, 202, 203. Three recitations. Professor Laslett.

Ed 313. **Principles of Teaching.** Any term, 3 hours.

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. Prerequisite: Ed 312. Three recitations. Professor Clinton.

Ed 315. **Supervised Teaching.** Any term, 10 hours maximum.

Experience in classroom procedures along the lines of the student's academic preparation and interests. Prerequisites: Ed 311, 312, 313. Professor Laslett.

Ed 324. **Methods and Materials in Biological Science.** First term, 2 hours.

Investigation of kinds and sources of materials for botany and biology; equipment to be used; local materials to be had in various sections of Oregon; effective methods of organizing and presenting this material to high school pupils. Prerequisites: Ed 311, 312, 313. Miss Patton.

Ed 325. **Methods and Materials in Physical Science.** First term, 2 hours.

Study and comparison of classroom procedures and laboratory technique in physics and chemistry; careful attention to supplies and equipment and their effective and economical use. Prerequisites: Ed 311, 312, 313. Mr. Houser.

Ed 326. **Methods and Materials in Mathematics.** Second term, 2 hours.

Selection and study of the essential elements of high school algebra, geometry, and trigonometry with consideration of the objectives

and standards of mathematics teaching in the high school. Prerequisites: Ed 311, 312, 313. Mr. Houser.

Ed 328. **Special Methods in Agriculture.** First term, 5 hours.

Problems and methods of organizing and teaching vocational agriculture in high schools, in accordance with the provisions of state and federal legislation. Prerequisite or accompaniment: Ed 313. Five recitations. Professor Gibson.

Ed 329. **Special Methods in Commerce.** Second term, 3 hours.

Principles of education as used in the development of skills and precisions, largely motor, involved in the learning of such activities as are found in stenography, typing, and accounting. Lectures covering aims, materials, standards, methods of presentation, organization of courses, and arrangement of curricula. Prerequisites: BA 111, 112, 113; SS 311, 312; Ed 311, 312, 313. Three lectures. Associate Professor Stutz.

Ed 331. **Special Methods in Home Economics.** First term, 3 hours.

An introduction to the field of home economics education. Study of Smith-Hughes problems in home economics. Principles of teaching applied to home economics instruction. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

Ed 332. **Methods of Teaching Related Art.** First term, 3 hours.

Selection and organization of subject-matter in art in its application to vocational courses authorized under the Smith-Hughes act; special methods in teaching related art. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

Ed 333. **Special Methods in Industrial Arts.** First term, 3 hours.

A study of methods for effective presentation of subject-matter in the industrial arts courses of the secondary schools; preparation of course outlines and lesson plans; classroom management and the organization of personnel. Prerequisites: Ed 311, 312, 313, IEd 330. Three recitations.

Ed 341. **Rural Education.** Second term, 3 hours.

Open to all students, prospective high school teachers and others alike, who desire to acquire some foundation for a philosophy of rural life and training for leadership in rural education. New methods of utilizing the student's rural, social, and economic environment for vitalizing different phases of the high school instruction, while achieving objectives common to all secondary education, and increasing farm, home, and town-country efficiencies. Various forms of continuation and rural extension education for out-of-school youths and adults. Students in this course will actively participate in planning and executing studies and programs in rural education for high school pupils, out-of-school youths, and adults. Prerequisite: junior standing. Three recitations. Professor Gibson.

Ed 407. **Education Seminar.** Any term, 1 or 2 hours.

Reports of current educational meetings, book reviews, discussions of special topics investigated by members. Prerequisites: Ed 311 312, 313. Professor Salser and staff.

Ed 411. **School Hygiene.** Third term, 2 hours.

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 311, 312, 313; one term of biological science. Two recitations. Assistant Professor Heagen.

Ed 412. **School Sanitation.** Second term, 2 hours.

General sanitation of school yard and arrangement of buildings; toilets; plumbing; water supply; heat; light; ventilation; seats; blackboards and cleanliness. Prerequisites: Ed 311, 312, 313. Two recitations. Assistant Professor Heagen.

Ed 416. **Measurement in Secondary Education.** Any term, 3 hours.

A study of the construction and desirable uses of various standard tests and scales for measuring achievements in secondary school subjects. Such elements of statistical method will be given as are necessary for intelligent use of the tests. Prerequisites: Ed 311, 312, 313, or equivalent. Three recitations. Professor Clinton.

Ed 417. **Statistical Method in Education.** First or third term, 3 hours.

The fundamental elements only of statistical methods designed to furnish the basis for a scientific procedure in educational measurements; methods of treating collective facts, average facts, and correlated facts, as applied to giving and scoring tests, finding costs, etc. Prerequisite: Ed 416. Three recitations. Professor Clinton.

Ed 420. **Adolescence: Its Psychology and Pedagogy.** Third term, 3 hours.

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, 202, 203; Ed 312. Three recitations. Professor Salser.

Ed 454. **History of Education.** First term, 3 hours.

A general review of the growth and development of education and its relation to the civilization of the times; with particular reference to the educational philosophies of Plato, Aristotle, Renaissance educators, Comenius, Locke, Rousseau, Pestalozzi, Froebel, Herbart, Herbert Spencer and Dewey. Prerequisites: Ed 311, 312, 313. Three recitations. Professor Salser.

Ed 461. **Psychology of Childhood.** First term, 3 hours.

A study of the mental development of the child. Native responses; play, self assertion, instinctive social attitudes; speech, emotions; simple mental processes; complex mental processes; mental organization. Prerequisites: Ed 311, 312, 313. Three recitations. Professor Laslett.

Ed 485. **Vocational Guidance.** First term, 3 hours.

The study of the means and methods of assisting students in junior and senior high schools in solving the problems of choosing, preparing for and making progress in a suitable vocation. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Salser.

Ed 486. **Vocational Counseling.** Third term, 3 hours.

More advanced and technical than Ed 485. 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 485. Three recitations. Professor Salser.

Ed 487. **Occupational Information.** Second term, 3 hours.

Methods of collecting, analyzing, and evaluating source material having to do with local, state and national occupations. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Salser.

Ed 488. **Vocational Education.** Second term, 3 hours.

The place and need of vocational education in a democracy with special emphasis upon the evolution of the philosophy of vocational education as a phase of the general education program. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Gibson.

Ed 489. **Civic Education.** First or third term, 3 hours.

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: Ed 311, 312, 313 or equivalent. Three recitations. Professor Salser.

Ed 490. **Character Education.** Any term, 3 hours.

The place of character in the social purposes of education; distinction between training and instruction; the dynamic function of the feelings; the conditioning of interests; the function of ideals; the formation of habits; the integration of habits and attitudes. Analysis of typical procedure. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Warrington.

Ed 492. **Character Education Problems.** First term, 3 hours.

The bearing of social change on conduct; democratic participation in the group thought-life as a method of resolving new issues; how build the habit of group thinking; how develop facility in forming reasoned judgment; the study of the technique of leadership in the group-thinking process; examination of successful plans now in use; application to program building and the selection of activities. Prerequisite: Ed 490. Three recitations. Offered summer only. Professor Warrington.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

In addition to the regular courses listed above, members of the staff stand ready to supervise research and investigation by qualified graduate students. Registration by permission of the staff member or members in whose field the investigation lies. Prerequisite: graduate standing in Education.

Problems in Agricultural Education—Professor Gibson.
Problems in Commercial Education—Associate Professor Stutz.
Problems in Educational Psychology—Professor Laslett.
Problems in Guidance—Professor Salser.
Problems in History of Education—Professor Jewell.
Problems in Home Economics Education—Professor Blazier.
Problems in Industrial Arts Education—Professor Cox.
Problems in Measurements—Professor Clinton.
Problems in Secondary Education—Professor Parr.
Problems in Social or Moral Education—Professor Warrington.

Ed 503. **Thesis.** Terms and hours to be arranged.

Ed 505. **Reading and Conferences.** Terms and hours to be arranged.

Ed 507. **Seminar.** Terms and hours to be arranged.

Ed 521. **History of American Education.** Third term, 3 hours.

Lectures, reports, and discussions treating the intellectual development of America with special reference to education. Knowledge of American history a requisite. Open to seniors and graduates who have met the practice teaching requirement. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Salser.

Ed 524. **Curriculum Construction.** Second term, 3 hours.

The problems of building junior and senior high school curricula. Curriculum theories and policies since 1900; principles for selecting and organizing subject-matter; courses of study in various fields; principles of curriculum organization; type programs; important studies in this field. Prerequisites: Ed 311, 312, 313 or equivalent. Three recitations. Professor Parr.

Ed 528. **Philosophy of Education.** Second term, 3 hours.

A study of the broad fundamental principles and problems of education, with some attempt at their solution. The meaning of philosophy; the philosophy of education; principal rules, formulae; the value of a correct philosophy of education for the teacher and school administrator. Prerequisites: Ed 311, 312, 313. Three recitations. Professor Salser.

Ed 555. **College and University Teaching.** One term, 2 hours.

Includes a consideration of mental tests in their application to college situations, the objective examination, other movements in the

field of college teaching. The lectures and problems studied will be outlined by the members of the faculty best equipped to present them. Prerequisite: graduate standing in Education. Two recitations. Professor Parr.

Ed 556. **College and University Teaching.** One term, 2 hours.

This quarter's work will consist of the consideration of the pedagogy of particular college subjects offered by members of the respective departments. Prerequisite: graduate standing in Education. Two recitations. Professor Parr.

Ed 561. **Advanced Educational Psychology.** Any term, 2 hours.

A discussion of the experimental material which seems most useful and relevant to educational psychology. Open to graduate students with preliminary training in education and psychology. Prerequisite: graduate standing in Education. Two recitations. Professor Laslett.

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 Education.

DESCRIPTION OF COURSES

UPPER DIVISION COURSES

Ed 331. **Special Methods in Home Economics.** First term, 3 hours.

An introduction to the field of home economics education. Study of Smith-Hughes problems in home economics. Principles of teaching applied to home economics instruction. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

Ed 332. **Methods of Teaching Related Art.** First term, 3 hours.

Selection and organization of subject-matter in art in its application to vocational courses authorized under the Smith-Hughes act; special methods in teaching related art. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

HEd 411. **The Curriculum in Home Economics.** Any term, 3 hours.

A study of the basic principles of curriculum construction applied to the organization of home economics courses in secondary schools. Prerequisite: Ed 331. Three recitations. Professor Blazier.

HEd 413. **The Supervision of Home Projects.** Third term, 2 hours.

A study of the use of home projects in home economics instruction with field work in supervision of home projects. Prerequisite: HEd 411. One recitation; 1 two-hour laboratory period. Professor Blazier.

HEd 415. **Adult Education in Home Economics.** Second term, hours to be arranged.

Study of problems in the adult education program authorized under the Smith-Hughes Act. Field work in promoting, organizing, observing, and teaching adult classes. Prerequisite: HEd 411. Professor Blazier.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Problems in home economics education. Professor Blazier.

Ed 503. **Thesis.** Terms and hours to be arranged.

Industrial Education

JOINTLY with the Department of Industrial Arts, the Department of Industrial Education trains 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 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 Education) is responsible for the professional teacher-training courses and applied pedagogy. The curriculum in Industrial Arts Education and descriptions of courses in shop technology are printed under School of Engineering.

Graduate Study in Industrial Education. Many school systems, and some state departments of education, now require all teachers 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. Programs of study leading to the degree of Master of Science are outlined by this department for industrial arts or industrial education students and teachers with approved graduate standing.

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 vocational 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

UPPER DIVISION COURSES

IEd 330. **Industrial Arts Organization.** Third term, 2 hours.

Selection and organization of subject-matter for shop work and drawing courses in secondary schools; evaluation of jobs, projects, and class problems of several types and the formulation of general plans for teaching industrial arts subjects. Prerequisites: Ed 313 and junior standing. Two recitations.

Ed 333. **Special Methods in Industrial Arts.** First term, 3 hours.

A study of methods for effective presentation of subject-matter in the industrial arts courses of secondary schools; preparation of course outlines and lesson plans; classroom management and the organization of personnel. Prerequisites: Ed 313, IEd 330. Three recitations.

IEd 370. **History of Manual and Industrial Arts.** Second term, 3 hours.

Historical sketch of the development of manual arts in Europe and in America. A study of the developments leading to the present interpretation of the aims and purposes of the industrial arts. Prerequisite: junior standing. Three recitations. Offered alternate years. Offered 1933-34.

IEd 472. **Trade Analysis.** Third term, 3 hours.

Intended for all teachers of shop subjects vocational or nonvocational. The careful analysis of a trade into its unit operations and the formulation of plans for teaching. Prerequisite: Ed 333 either prerequisite or parallel. Three recitations.

IEd 473. **The General Shop and Its Problems.** First term, 2 hours.

A study of the "general shop" type of 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. Prerequisites: Ed 311, 312, 313, 330. Two recitations.

IEd 474. **Written and Visual Teaching Aids.** Second term, 3 hours.

A study of types of instruction sheets and visual aids as a means to more efficient teaching in large and diversified classes. Evaluation of available instructional aids and practice in the writing of instruction sheets. Prerequisite: IEd 473 or equivalent. Three recitations.

IEd 475. **Project Analysis and the Contract Plan.** Summer, 2 hours.

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 recitations.

IEd 480. **Foreman Training.** Second term, 3 hours.

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 supervision of products and the handling of men. Prerequisite: senior standing or consent of instructor. Three recitations. Offered alternate years. Not offered 1933-34.

IEd 482. **The Conference Method.** One term, 3 hours.

Designed to develop ability in conference leading. Includes the presentation of the technique of conference leading, reinforced with actual practice in conducting conferences on assigned topics. Prerequisite: Ed 333 or consent of instructor. Two two-hour conference periods. Extramural or summer session.

IEd 484. **Teaching Supplementary Subjects.** One term, 3 hours.

Selection of content in mathematics, drawing and science, for presentation as supplementary subjects in the Smith-Hughes vocational program. 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. Three recitations. Extramural or summer session.

IEd 488. **The Part-Time School and Its Problems.** One term, 3 hours.

A study of Federal and State laws affecting part-time schools; types of pupils; desirable characteristics of teachers; work of the coordinator; individual practice and follow-up; cooperation with outside organizations. Prerequisite: Ed 488 or equivalent. Three recitations. Extramural or summer session.

IEd 489. **Evening and Continuation Schools.** One term, 2 hours.

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 488 or consent of instructor. Two recitations. Extramural or summer session.

IEd 491. **Organization and Administration of Industrial Education.** One term, 3 hours.

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 488 and consent of instructor. Three recitations. Extramural or summer session.

IEd 492. **Supervision of Industrial Education.** One term, 2 hours.

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 488, IEd 491. Two recitations. Extramural or summer session.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Problems in industrial arts education.

Ed 503. Thesis. Terms and hours to be arranged.

IEd 507. **Seminar in Industrial Education.** Any term, 2 hours.

A discussion of special problems of organization and administration confronting the teacher of industrial arts education and of vocational trade and industrial education. Two recitations to be arranged.

School of Engineering and Industrial Arts

Faculty

HARRY STANLEY ROGERS, C.E., Dean of the School of Engineering and Industrial Arts.

BESSIE MARIE SKAALE, B.S., Secretary to the Dean.

Chemical Engineering

CHARLES SAMUEL KEEVIL, Sc.D., Professor of Chemical Engineering; Head of Department.

GEORGE WALTER GLEESON, B.S., Assistant Professor of Chemical Engineering.

Civil Engineering

HARRY STANLEY ROGERS, C.E., Professor of Civil Engineering; Head of Department.

JAMES RINALDO GRIFFITH, C.E., Professor of Structural Engineering.

SAMUEL MICHAEL DOLAN, C.E., Associate Professor of Civil Engineering.

CHARLES ARTHUR MOCKMORE, M.S., Associate Professor of Civil Engineering.

BURDETTE GLENN, M.S., Assistant Professor of Civil Engineering.

GLENN WILLIS HOLCOMB, M.S., Assistant Professor of Civil Engineering; Chairman of General Engineering.

FRED MERRYFIELD, M.S., Assistant Professor of Civil Engineering.

GEORGE BURKHALTER HERINGTON, D.E., Consulting Engineer, Executive Secretary, Portland A. G. C., Lecturer on Construction Administration.

Electrical Engineering

RICHARD HAROLD DEARBORN, E.E., Professor of Electrical Engineering; Head of Department.

LAWRENCE FISHER WOOSTER, M.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, M.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 Education; Head of Department; Director of Engineering Shops.

AMBROSE ELLIOTT RIDENOUR, B.S., Assistant Professor of Industrial Arts.

WILLIAM HAMILTON HORNING, Instructor in Forging.

EDWIN DAVID MEYER, B.S., Instructor in Industrial Arts.

ROBERT CHARLES RHYNEARSON, M.S., Instructor in Machine Shop.

ALFRED CLINTON HARWOOD, Mechanician.

Mechanical Engineering

FREDERICK GOTTLIEB BAENDER, M.M.E., Professor of Mechanical Engineering; Head of Department.

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, M.S., Assistant Professor of Mechanical Engineering.

EARL CLARK WILLEY, B.S., Instructor in Mechanical Engineering.

WILLIAM HOWARD PAUL, B.S., Instructor in Mechanical Engineering.

Mechanics and Materials

SAMUEL HERMAN GRAF, M.S., Professor of Mechanics and Materials; Head of Department.

CHARLES EDWIN THOMAS, M.M.E., Associate Professor of Mechanics and Materials.

IVAN FREDERIC WATERMAN, C.E., Assistant Professor of Mechanics and Materials.

JAMES CAREY OTHUS, M.S., Assistant Professor of Mechanics and Materials.

Mining Engineering

JAMES HERVEY BATCHELLER, B.S. (Min. E.), Professor of Mining Engineering.

Curricula in Engineering and Industrial Arts

B.S., M.S. Degrees

Chemical Engineering
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 Chemical Engineering with an option in Industrial Chemistry; a general curriculum in Civil Engineering with an option in Highway Engineering; a general power curriculum in Electrical Engineering with an option in communications; a general curriculum in Mechanical Engineering with an option in Aeronautical Engineering; curricula in Industrial Arts Education and Industrial Administration.

Requirements for Graduation. In each of the four-year curricula offered in the School of Engineering the fulfillment of the Lower Division group requirements for technical and professional schools is prescribed.

In each of the four-year engineering curricula the student must complete the upper division work as outlined or elected in the Engineering School with the approval of the department head and the dean.

A total of 204 term hours including the required work in physical education and military science is required for the bachelor's degree.

Curricula Organization. The curricula offered in the Engineering School are organized into the following curricula groups.

A. Chemical Engineering and Industrial Chemistry including a lower division common curriculum and differentiated upper division curricula in these two fields.

B. Civil, Electrical, and Mechanical Engineering including a common freshman curriculum and differentiated sophomore and upper division curricula in these three fields.

C. Industrial Arts Education and Industrial Administration including a lower division common curriculum and differentiated upper division curricula in these two fields.

Engineering curricula are organized about four general fields of knowledge or training and the sequence of courses in each curriculum is determined for the purpose of developing strong continuity in the various fields. The four fields are: (1) general engineering science and technology; (2) mathematics and physical science; (3) language, literature, English, and social science; and (4) military education, physical education, and free electives.

Exploratory Contacts. The lower division curricula in so far as possible have been arranged to provide early contact with engineering training for those who are undetermined in the selection of a major engineering field. In the case of the curricula in Civil, Electrical, and Mechanical Engineering a common freshman year is provided. In the case of Chemical Engi-

neering and Industrial Chemistry a common lower division program is provided. Similarly, for Industrial Arts Education and Industrial Administration a common lower division program is provided.

Curricula groups A and B as listed above are differentiated by their primary foundations in chemistry and physics. An undecided student who desires exploratory contact with chemical engineering should register in curricula group A, for should he decide after the first term to investigate curricula group B, he may do so without increasing his undergraduate period of training. One who, on the contrary, explores curricula group B and decides at the end of his freshman year to transfer to curricula group A will find his training necessarily extended beyond four years.

Business Option. In any of the engineering curricula a student may elect a group of business and allied service courses listed below and will find it possible to include them in the elected curriculum by omitting a sequence of technical courses in the senior year. These courses are scheduled collaterally with technical courses.

Junior Year	Term hours 1st	2d	3d
Principles of Accounting for Engineers (BA 385), Accounting for Engineers and Foresters (BA 386), Cost Accounting for Industrials (BA 494)	3	3	3
Elements of Organization and Production (BA 221)	4	---	---
Elements of Finance (BA 222)	---	4	---
Elements of Marketing (BA 223)	---	---	4
	7	7	7

Senior Year			
Business and Agricultural Statistics (BA 469)	3	---	---
Outlines of Economics (Ec 211)	---	4	---
Money and Banking (Ec 413)	---	---	4
Production Management (BA 413)	4	---	---
Business Law (BA 256, 258)	---	4	4
	7	8	8

A. Chemical Engineering and Industrial Chemistry

LOWER DIVISION CURRICULUM

Freshman Year	Term hours 1st	2d	3d
Chemical Engineering Survey (ChE 111)	2	---	---
General Chemistry (Ch 204, 205, 206)	5	5	5
Trigonometry and Elementary Analysis (Mth 121, 122, 123) *or* Mathematical Analysis (Mth 131, 132, 133)	5	5	5
Linear Drawing and Lettering (GE 111), Elementary Mechanical Drawing (GE 112)	---	2	2
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
	17	17	17

Sophomore Year			
General Physics (Ph 201, 202, 203)	4	4	4
Qualitative Analysis (Ch 231), Quantitative Analysis (Ch 232, 233)	5	5	5
Differential and Integral Calculus (Mth 201, 202, 203, *or* Mth 204, 205, 206)	4	4	4
Lower Division courses in Language and Literature or Social Science group	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
	18	18	18

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

CHEMICAL ENGINEERING

Junior Year	Term hours 1st	2d	3d
Chemical Technology (ChE 311, 312, 313)	4	4	4
Organic Chemistry (Ch 430, 431, 432)	4	4	4
Physical Chemistry (Ch 440, 441, 442)	4	4	4
Mechanics (MM 351, 352)	3	3	---
Strength of Materials (MM 353)	---	---	3
Electives	3	3	3
	18	18	18

Senior Year			
Chemical Engineering (ChE 411, 412, 413)	3	3	3
Chemical Engineering Laboratory (ChE 414)	---	---	3
Chemical Engineering Projects (ChE 421, 422)	3	3	---
Industrial Chemical Laboratory (ChE 432)	---	2	---
Chemical Plant Design (ChE 433)	---	---	2
Materials of Engineering (MM 311)	3	---	---
Direct Currents, Alternating Currents (EE 351, 352)	---	3	3
Seminar (ChE 407)	1	---	---
Electives	5	4	4
	15	15	15

INDUSTRIAL CHEMISTRY

Junior Year			
Chemical Technology (ChE 311, 312, 313)	4	4	4
Organic Chemistry (Ch 430, 431, 432)	4	4	4
Physical Chemistry (Ch 440, 441, 442)	4	4	4
Electives	6	6	6
	18	18	18

Senior Year			
Industrial Chemistry (ChE 420)	3	---	---
Industrial Stoichiometry (ChE 431)	2	---	---
Industrial Chemical Laboratory (ChE 432)	---	2	---
Chemical Thermodynamics (Ch 445, 446)	3	3	---
Undergraduate Research (ChE 401)	3	3	3
Seminar (ChE 407)	1	---	---
Electives	3	7	12
	15	15	15

B. Civil, Electrical, and Mechanical Engineering

COMMON FRESHMAN YEAR	Term hours 1st	2d	3d
Trigonometry and Elementary Analysis (Mth 121, 122, 123) *or* Mathematical Analysis (Mth 131, 132, 133)	5	5	5
Engineering Physics (Ph 111, 112, 113)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Linear Drawing and Lettering (GE 111), Elementary Mechanical Drawing (GE 112), Mechanical Drawing (GE 113)	2	2	2
Engineering Problems (GE 101, 102, 103)	2	2	2
Military Science	1	1	1
[1]Physical Education	1	1	1
	17	17	17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

CIVIL ENGINEERING

Sophomore Year

	Term hours 1st	2d	3d
Differential and Integral Calculus (Mth 201, 202, 203, *or* Mth 204, 205, 206)	4	4	4
Elementary General Chemistry (Ch 201, 202, 203)	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
Military Science	1	1	1
Advanced Physical Education	1	1	1
	17	18	18

Junior Year

Strength of Materials (MM 354)	4	---	---
Structural Analysis (CE 381)	---	4	---
Reinforced Concrete (CE 371)	---	---	4
Hydraulics (CE 311, 312), Hydraulic Machinery (CE 313)	3	3	3
Materials of Engineering (MM 311)	3	---	---
Structural Laboratory (MM 427)	---	3	---
Roads and Pavements (HE 313)	---	---	4
Engineering Geology (G 324)	3	---	---
Electives	4	6	6
	17	16	17

Senior Year

NORM

Structural Engineering (CE 482), Structural Design (CE 483)	4	4	---
Masonry and Foundations (CE 472)	4	---	---
	8	4	---

Students have choice of General or Highway Option.

GENERAL OPTION

Senior Year Norm	8	4	---
Building Design (CE 475)	---	---	4
Hydrology (CE 411), Hydraulic Design (CE 412)	---	3	3
Contracts and Specifications (HE 427)	3	---	---
Estimating and Cost Analysis (CE 460)	---	3	---
Engineering Administration (CE 461)	---	---	3
Electives	7	7	7
	18	17	17

HIGHWAY OPTION

Senior Year Norm	8	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
Electives	3	7	10
	18	17	17

ELECTRICAL ENGINEERING

Sophomore Year

Differential and Integral Calculus (Mth 201, 202, 203), *or* (Mth 204, 205, 206)	4	4	4
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
Introduction to Electrical Engineering (EE 201, 202, 203)	4	4	4
Machine Shop Practice (IA 260)	2	---	---
Forging and Welding (IA 250)	---	2	---
Foundry Practice (IA 240)	---	---	2
Plane Surveying (CE 226)	3	---	---
Elements of Machine Design (ME 242)	---	3	---
Extempore Speaking (Sp 111)	---	---	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
	18	18	18

Junior Year	Term hours 1st	2d	3d
Electrical Engineering (EE 311, 312, 313)	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
Electives	5	5	5
	17	17	17

Senior Year

NORM

Electrical Engineering (EE 411, 412, 413)	3	3	3
Electrical Design (EE 414, 415, 416)	1	1	1
Materials of Engineering (MM 311)	—	3	—
Industrial Engineering (ME 471)	—	—	3
Electives	4	4	4
	8	11	11

Students have choice of Power or Communication Option.

POWER OPTION

Senior Year Norm	8	11	11
Electrical Laboratory (EE 421, 422, 423)	3	3	3
Electrical Transients (EE 451)	3	—	—
High Voltage Engineering (EE 452, 453)	—	3	3
Hydraulic Power Plants (CE 322) *or* Heat Power Engineering (ME 333)	3	—	—
	17	17	17

COMMUNICATION OPTION

Senior Year Norm	8	11	11
Electron Tubes and Circuits (EE 463)	3	—	—
Radio Communication (Ph 331)	—	3	—
Engineering of Sound Systems (EE 465)	—	—	3
Communication Laboratory (EE 461)	3	—	—
Electrical Characteristics of Transmission Circuits (EE 455)	—	3	—
Electrical Communication (EE 462)	—	—	3
Elective	3	—	—
	17	17	17

MECHANICAL ENGINEERING

Sophomore Year

Differential and Integral Calculus (Mth 201, 202, 203, *or* Mth 204, 205, 206)	4	4	4
Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
Heat Engineering (ME 221, 222, 223)	2	2	2
Foundry Practice (IA 240)	2	—	—
Machine Shop Practice (IA 260)	—	2	—
Forging and Welding (IA 250)	—	—	2
Descriptive Geometry (ME 211)	3	—	—
Mechanism (ME 213)	—	3	—
Plane Surveying (CE 226)	—	—	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
Electives	2	2	2
	18	18	18

Junior Year

Heat Engineering (ME 321, 322, 323)	3	3	3
Mechanical Engineering Laboratory (ME 351, 352, 353)	2	2	2
Mechanics (MM 351, 352)	3	3	—
Strength of Materials (MM 353)	—	—	3
[1]Materials of Engineering (MM 311)	—	—	3
[1]Hydraulics (CE 341), Hydraulic Machinery (CE 342)	3	3	—
Metallography and Pyrometry (MM 481)	—	—	3
Electives	6	6	3
	17	17	17

[1]Students planning to elect the Aeronautical Option take EE 355 first term, MM 311 second term in place of CE 342, and ME 343 third term.

Senior Year

NORM	Term hours 1st	2d	3d
Machine Design (ME 411, 412, 413)	3	3	3
Engineering Laboratory (ME 451, 452)	2	2	---
Fuel Engineering (ME 441, 442)	3	3	---
Electives	3	3	8
	11	11	11

Students have choice of General or Aeronautical Option.

GENERAL OPTION			
Senior Year Norm	11	11	11
Power Plant Engineering (ME 431, 432)	3	3	---
Fuel Engineering (ME 443)	---	---	3
Direct Currents (EE 351), Alternating Currents (EE 352), Alternating Current Machinery (EE 353)	3	3	3
	17	17	17

AERONAUTICAL OPTION			
Senior Year Norm	11	11	11
Aero Propulsion (ME 421)	3	---	---
Structural Analysis (CE 381, 485)	4	3	---
Airplane Design (ME 425, 426)	---	3	3
Electrical Ignition Systems (EE 355)	---	---	3
	18	17	17

C. Industrial Arts Education and Industrial Administration

LOWER DIVISION CURRICULUM

Freshman Year

	Term hours 1st	2d	3d
Pattern Making (IA 110)	3	---	---
Methods in Woodworking (IA 111, 112)	---	3	3
Foundry Practice (IA 141)	3	---	---
Forging and Welding (IA 152)	---	3	---
Machine Shop (IA 163)	---	---	3
Linear Drawing and Lettering (GE 111)	2	---	---
Mechanical Drawing (GE 112, 113)	---	2	2
English Composition (Eng 111, 112, 113)	3	3	3
Lower Division Courses in Biological Sciences Group or Physical Sciences Group	3–4	3–4	3–4
Military Science	1	1	1
[1]Physical Education	1	1	1
	16–17	16–17	16–17

Sophomore Year

Lower Division Drawing (AA 291)	3	---	---
Lower Division Decorative Design (AA 295) *or* Descriptive Geometry (CE 211)	---	3	---
Carpentry (IA 223) *or* [2]Lower Division Decorative Design (AA 295—second course)	---	---	3
House Planning and Architectural Drawing (AA 178)	3	---	---
House Planning and Architectural Drawing (AA 179) *or* Elements of Machine Design (ME 242)	---	3	---
House Planning and Architectural Drawing (AA 180) *or* Machine Drawing (ME 243)	---	---	3–2
Sheet Metal Work (IA 280)	---	---	3
Departmental Electives	2	2	---
Lower Division courses in Science group	3–4	3–4	3–4
[3]Elementary Psychology (Psy 201, 202, 203) *or* [4]Business English (Eng 217), Extempore Speaking (Sp 111), Parliamentary Procedure (Sp 231)	3	3	3
Military Science	1	1	1
Advanced Physical Education	1	1	1
	16–17	16–17	16–17

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.
[2]Technical option to be selected according to intended goal.
[3]Required of students majoring in Industrial Arts Education.
[4]Required of students majoring in Industrial Administration.

INDUSTRIAL ARTS EDUCATION

Junior Year

	Term hours 1st	2d	3d
Mill Work—Machine Woodwork (IA 311) *or* Production Machine Work (IA 363)	3	----	----
Automobile Mechanics (AE 312, 313, 314)	3	3	3
Machine and Tool Maintenance (IA 225 *or* 265)	2	----	----
Wood and Metal Finishing (IA 222)	----	2	----
Educational Psychology (Ed 312)	3	----	----
History of Manual and Industrial Arts (IEd 370)	----	3	----
Industrial Arts Organization (IEd 330)	----	----	2
Secondary Education (Ed 311)	3	----	----
Principles of Teaching (Ed 313)	----	3	----
Measurement in Secondary Education (Ed 416)	----	----	3
Trade Analysis (IEd 472)	----	----	3
Departmental electives	----	3	3
General electives	3	3	3
	17	17	17

Senior Year

Practical Electricity (IA 270)	3	----	----
Metallography and Pyrometry (MM 481) *or* Commercial Woods (F 334)	----	----	3
The General Shop and Its Problems (IEd 473)	2	----	----
Written and Visual Teaching Aids (IEd 474)	----	3	----
Shop Planning and Organization (IA 411)	----	----	3
Special Methods in Industrial Arts (Ed 333)	3	----	----
Supervised Teaching (Ed 315)	----	3	3
Departmental electives	3	5	2
Education electives	3	3	3
General electives	3	3	3
	17	17	17

INDUSTRIAL ADMINISTRATION

Junior Year

Production Machine Work (IA 363)	3	----	----
Shop Planning and Organization (IA 411)	----	3	----
Production Engineering (IA 463)	----	----	3
Machine and Tool Maintenance (IA 225 or 265)	2	----	----
Time and Motion Studies (IA 262)	----	1	----
Trade Analysis (IEd 472)	----	----	3
Elements of Organization and Production (BA 221)	4	----	----
Elements of Finance (BA 222)	----	4	----
Elements of Marketing (BA 223)	----	----	4
Principles of Accounting for Engineers (BA 385), Accounting for Engineers and Foresters (BA 386), Cost Accounting for Industrials (BA 494)	3	3	3
Departmental electives	3	3	3
General electives	3	2	2
	18	16	18

Senior Year

Materials of Engineering (MM 311)	3	----	----
Foreman Training (IEd 480)	----	3	----
Metallography and Pyrometry (MM 481) *or* Commercial Woods (F 334)	----	----	3
Business and Agricultural Statistics (BA 469)	3	----	----
Outlines of Economics (Ec 211)	----	4	----
Money and Banking (Ec 413)	----	----	4
Production Management (BA 413)	4	----	----
Business Law (BA 256, 258)	----	4	4
Departmental electives	4	3	3
General electives	3	3	3
	17	17	17

General Engineering

ENGINEERING courses required in the common freshman year for Civil, Electrical, and Mechanical Engineering are grouped in the department of General Engineering. The courses include Engineering Problems (GE 101, 102, 103) and three courses in Engineering 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

LOWER DIVISION COURSES

GE 101, 102, 103. **Engineering Problems.** Three terms, 2 hours each term.

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 engineering fields; 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. Parallel with Ph 111, 112, 113. One lecture; 2 two-hour problem periods.

GE 111. **Linear Drawing and Lettering.** First or second term, 2 hours.

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. Three two-hour drawing periods.

GE 112. **Elementary Mechanical Drawing.** Second or third term, 2 hours.

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. Three two-hour drawing periods.

GE 113. **Mechanical Drawing.** Third term, 2 hours.

A continuation of GE 112; also freehand orthographic and perspective sketching; practical application of drawing principles to working drawings; use of charts and diagrams. Prerequisite: GE 112. Three two-hour drawing periods.

Chemical Engineering

THE curriculum in Chemical Engineering is designed to give a broad training in principles fundamental to chemical industry. It aims to lay a foundation for responsible work in laboratory or plant, and to prepare the student for graduate work in either chemistry or chemical engineering. To this end the student is first given a thorough grounding in chemistry, mathematics, and physics. This is followed by professional work which falls into three groups: (1) courses which give a thorough knowledge of the fundamental principles of chemistry; (2) courses in mechanical and electrical engineering subjects; and (3) courses which deal with chemical engineering as a separate entity. The last group includes a thorough study of the unit operations of chemical engineering and their applications to chemical processes.

The curriculum is intended to give a broad training in fundamentals, rather than specialized training for a narrow field. A corresponding breadth of opportunity is presented, comprising the entire field of chemical industry. Many positions of responsibility, particularly in research and development work, however, demand a more extensive training than can be given in four years, and students with the proper qualifications are strongly advised to pursue graduate work in chemistry or 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.

Equipment. The Chemical Engineering department is housed in the Mines Building where excellent laboratory facilities have been provided for instruction in both chemical engineering and industrial chemistry. Considerable equipment is available for studies in the unit operations of chemical engineering, including many of the instruments commonly employed to obtain engineering data. An adequate supply of the usual reagents and chemical apparatus is on hand for laboratory courses and research.

DESCRIPTION OF COURSES

LOWER DIVISION COURSE

ChE 111. **Chemical Engineering Survey.** First term, 2 hours.

The field of chemical engineering is discussed with reference to the preparation required and the opportunities presented. Training in the methods and point of view of the engineer is given by means of elementary problems. One lecture; 2 two-hour problem periods.

UPPER DIVISION COURSES

ChE 311, 312, 313. **Chemical Technology.** Three terms, 4 hours each term.

An introductory study of the unit operations of chemical engineering and their applications in industrial processes. One lecture; 1 two-hour problem period; 1 four-hour laboratory period.

ChE 401. **Undergraduate Research.** Terms and hours to be arranged.

Consultation, library, and laboratory work. Training in the methods of conducting a scientific investigation.

ChE 403. **Thesis.** Term and hours to be arranged.

Elective on approval for undergraduates whose records indicate ability and initiative to complete special projects.

ChE 407. **Seminar.** Any term, 1 hour.

Reports on selected topics. Effective oral presentation of material is emphasized. One period.

ChE 411, 412, 413. **Chemical Engineering.** Three terms, 3 hours each term.

A quantitative treatment of the unit operations of chemical engineering, involving the application of fundamental principles and scientific data to the solution of problems. Two lectures; 1 two-hour problem period.

ChE 414. **Chemical Engineering Laboratory.** Third term, 3 hours.

A laboratory study of a selected few of the more important unit operations of chemical engineering. One lecture; 1 four-hour laboratory period.

ChE 420. **Industrial Chemistry.** One term, 3 hours.

A study of the more important industrial chemical processes. Lectures and assigned reading. Three periods.

ChE 421, 422. **Chemical Engineering Projects.** First and second terms, 3 hours each term.

Individual projects selected to correlate principles and unit operation of chemical engineering.

ChE 431. **Industrial Stoichiometry.** First term, 2 hours.

Calculations of the industrial chemical processes. One lecture; 1 two-hour problem period.

ChE 432. **Industrial Chemical Laboratory.** Second term, 2 hours.

The small-scale development of a chemical process, followed by a report on plant layout and an estimation of the probable economic return. One lecture; 1 three-hour laboratory period.

ChE 433. **Chemical Plant Design.** Third term, 2 hours.

Problems in the design of chemical plants, including a consideration of economic factors, the construction of flow sheets, and the selection and arrangement of equipment. Two two-hour computation periods.

ChE 451. **Sanitary Chemistry.** First term, 3 hours.

The treatment and disposal of waste products. Two lectures; 1 three-hour laboratory period.

GRADUATE COURSES

ChE 501. **Graduate Study and Research.** Terms and hours to be arranged.

The investigation of problems in chemical engineering or industrial chemistry for an advanced degree.

ChE 503. **Graduate Thesis.** Terms and hours to be arranged.

Research and preparation of a thesis for an advanced degree.

ChE 521. **Economic Balance.** Second term, 3 hours.

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.

ChE 532. **Diffusional Processes.** Second term, 4 hours.

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.

ChE 542. **Chemical Engineering Calculations.** Third term, 3 hours.

A thorough quantitative study of selected unit operations.

ChE 553. **Heat Transmission.** Third term, 4 hours.

Development of the theory underlying the transmission of heat, with applications to the design of typical heat-transfer equipment.

ChE 563. **Applied Thermodynamics.** First term, 3 hours.

A study of the principles of thermodynamics with applications to typical chemical engineering problems.

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.

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 instruments, 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

LOWER DIVISION COURSES

CE 211. **Descriptive Geometry.** First or second term, 3 hours.

A study of the principles of orthographic projection and of their applications to the graphical solution of engineering problems. Prerequisite: GE 112. One recitation; 2 three-hour drawing periods.

CE 221. **Plane Surveying.** First or third term, 5 hours.

Theory, use, and adjustment of level and transit. Measurement and subdivision of land. Two recitations; 9 periods field work.

CE 222. **Plane Surveying.** Second term, 3 hours.

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; notekeeping. Prerequisite: CE 221. One recitation; 6 periods field work.

CE 223. **Plane Surveying.** Third term, 3 hours.

Use of stadia and of plane-table; topographical mapping and drawing; determination of meridian by stellar and by solar observation. Prerequisite: CE 222. One recitation; 6 periods field work.

CE 224. **Precise Surveying and Geodesy.** Any term, 3 hours.

Instruction in precise leveling, triangulation, base line measurement, stellar and solar observations. Prerequisite: CE 223. One recitation; 6 periods field work.

CE 226. **Plane Surveying.** First or third term, 3 hours.

Theory, use, and adjustment of engineer's level and transit. One recitation; 6 periods field work.

CE 231. **Field Curves.** Second term, 3 hours.

Instruction and field work in simple curves and compound curves as related to railroads, highways, and canals. Prerequisite: CE 223. Two recitations; 3 periods field work.

CE 232. **Curves and Earthwork.** Third term, 3 hours.

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. One recitation; 6 periods field work.

UPPER DIVISION COURSES

CE 311. **Hydraulics.** First term, 3 hours.

A study of the principles underlying pressure and flow of water; laboratory measurements of pressure and flow. Planned particularly for Civil Engineering students. Two recitations; 3 periods laboratory work.

CE 312. **Hydraulics (Advanced).** Second term, 3 hours.

A continuation of CE 311. A study of the impulse and reaction of jets and energy of water. Prerequisite: CE 311. One recitation; 4 periods laboratory work.

CE 313. **Hydraulic Machinery.** Third term, 3 hours.

Operation, characteristics, efficiency, theory, design, and installation of pumps and turbines; laboratory studies. Planned particularly for Civil Engineering students. Prerequisite: CE 312. Two recitations; 3 periods laboratory work.

CE 321. **Hydraulics.** Third term, 3 hours.

A study of the principles underlying and laboratory measurements of the pressure, flow, and energy of water. Planned particularly for Electrical Engineering students. Two recitations; 3 periods laboratory work.

CE 322. **Hydraulic Power Plants.** First term, 3 hours.

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. Two recitations; 3 periods laboratory work.

CE 331. **Navigation.** First term, 3 hours.

Fundamental laws of navigation; longitude, latitude, spherical trigonometry; commercial flight routes; flight instruments. Three recitations.

CE 341. **Hydraulics.** First term, 3 hours.

A course similar to CE 321 for students in Mechanical Engineering. Two recitations; 3 periods laboratory work.

CE 342. **Hydraulic Machinery.** Second term, 3 hours.

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. Two recitations; 3 periods laboratory work.

CE 371. **Reinforced Concrete.** Third term, 4 hours.

Study and design of slabs, beams, and columns of reinforced concrete. Prerequisite: MM 353. Two recitations; 4 periods laboratory work.

CE 381. **Structural Analysis.** First or second term, 4 hours.

Graphical and algebraic analysis of simple roof and bridge structures. Prerequisite: MM 351. Two recitations; 4 periods laboratory work.

CE 387. **Structural Analysis.** Second term, 2 hours.

Analysis of roof trusses. Prerequisite: MM 351. One recitation; 3 periods laboratory work.

CE 403. **Thesis.** Any term, hours to be arranged.

Elective on approval to undergraduates whose records indicate ability and initiative to complete special projects.

CE 407. **Seminar.** Any term, 1 hour.

Open to members of the senior classes in civil, electrical, and mechanical engineering. The purpose of the seminar is to examine and discuss the nature and function of engineering, the nature and history of engineering education, methods of thought in physical science, and the relationships between engineering, research, and the industrial revolution.

CE 411. **Hydrology.** Second term, 3 hours.

A study of precipitation, storage, and run-off; field studies in standard methods of measurement. Two recitations; 3 periods field and laboratory work.

CE 412. **Hydraulic Design.** Third term, 3 hours.

Selection, design, and construction for the storage, conveyance, distribution, control, and measurement of water. Prerequisite: CE 312. Two recitations; 3 periods laboratory work.

CE 413. **Reclamation Engineering.** Third term, 3 hours.

Preliminary investigations and design of drainage and irrigation systems. Prerequisite: CE 312. Two recitations; 3 periods laboratory work.

CE 433. **Railroad Engineering.** Second term, 3 hours.

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. Two recitations; 3 periods laboratory work.

CE 451. **Water Power Engineering.** Any term, 3 hours.

Development of water power; storage and load; characteristics of modern turbines; selection of turbines; practical problems in design. Prerequisites: CE 313, 322, or 342. One recitation; 6 periods laboratory work.

CE 452. **Water Supply.** Any term, 3 hours.

A study of the quality and quantity of water necessary for a municipal supply and of works for its collection, purification, and distribution. Two recitations; 3 periods laboratory work.

CE 453. **Sewerage.** Any term, 3 hours.

A study of the quantity of municipal sewage flow and of works for its removal and disposal. Two recitations; 3 periods laboratory work.

CE 454. **Sewage Disposal.** Third term, 3 hours.

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. Two recitations; 3 laboratory periods.

CE 455. **Water Filtration.** Third term, 3 hours.

The methods of filtering water; the problems and considerations encountered in the design and operation of filtration plants. Prerequisite: CE 452. Two recitations; 3 periods laboratory work.

CE 460. **Estimating and Cost Analysis.** Second term, 3 hours.

Procedure in quantity surveying; general and detailed considerations in establishing unit prices; subcontracts, overhead cost and profit; methods of preparing estimates in construction. Three recitations.

CE 461. **Engineering Administration.** Third term, 3 hours.

Fundamental construction operations; application of machinery to engineering construction; organization of construction operations; labor, housing, purchasing, and storing problems; financing a construction job. Three recitations.

CE 463. **Irrigation Operation.** Third term, 3 hours.

Operation and maintenance of irrigation systems; protection of canals; maintenance of structures; delivery of water; organization; financial phases of operation. Three recitations.

CE 472. **Masonry and Foundations.** First term, 4 hours.

Study and design of masonry foundations, walls, piers, dams, and arches. Prerequisite: CE 371. Two recitations; 6 periods laboratory work.

CE 473. **Reinforced Concrete and Foundation Design.** Third term, 3 hours.

Fundamental principles of reinforced concrete applied to design of power stations and machinery beds. Prerequisite: MM 353. One recitation; 6 periods laboratory work.

CE 475. **Building Design.** Third term, 4 hours.

Study of various types and design of typical structural building frames. Prerequistie: CE 371. Two recitations; 6 periods laboratory work.

CE 482. **Structural Engineering.** First term, 4 hours.

Design of simple steel structures, beams, through and deck plate girders, and viaducts. Prerequisite: CE 381. Two recitations; 6 periods laboratory work.

CE 483. **Structural Design.** Second term, 4 hours.

Design and estimating of roof and bridge trusses. Prerequisite: CE 482. Two recitations; 6 periods laboratory work.

CE 484. **Structural Design.** Third term, 5 hours.

Design of voussoir and elastic arches. Prerequisite: CE 483. Two recitations; 9 periods laboratory work.

CE 485. **Structural Analysis.** Second term, 3 hours.

Advanced course. A study of statically indeterminate structures. Prerequisite: CE 381. One recitation; 6 periods laboratory work.

CE 486. **Elastic Deformations and Secondary Stresses.** Third term, 3 hours.

A continuation of CE 485. Prerequisite: CE 485. One recitation; 6 periods laboratory work.

CE 488. **Wood and Steel Structures.** Second or third term, 3 hours.

Design of mill buildings. Prerequisite: CE 387. One recitation; 6 periods laboratory work.

CE 489. **Trusses and Towers.** First term, 3 hours.

Design of steel roof trusses and transmission towers. One recitation; 6 periods laboratory work.

GRADUATE COURSES

CE 501. **Graduate Study and Research.** Terms and hours to be arranged.

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.

CE 503. **Graduate Thesis.** Terms and hours to be arranged.

Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Electrical Engineering

DESIGNED especially to train the young engineer in fundamental principles, the curriculum in Electrical Engineering subordinates both shop and laboratory 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.

Laboratories available for instructional and experimental work comprise the sophomore laboratory, the general power laboratory, the standardizing, communication, storage battery, illumination, and high voltage laboratories. 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

LOWER DIVISION COURSES

EE 201, 202, 203. **Introduction to Electrical Engineering.** Three terms, 4 hours each term.

An introductory study of fundamental electrical phenomena and their application to electrical engineering. Two lectures; 1 two-hour problem period; 1 three-hour laboratory period.

UPPER DIVISION COURSES

EE 311, 312, 313. **Electrical Engineering.** Three terms, 3 hours each term.

A study of the electric circuit and direct and alternating current machinery. Three recitations.

EE 321, 322, 323. **Electrical Laboratory.** Three terms, 3 hours each term.

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. One lecture; 1 three-hour laboratory period.

EE 351. **Direct Currents.** First or second term, 3 hours.

A preliminary electrical course for non-electrical engineering students, covering the fundamentals of direct current circuits and direct current machines. Prerequisites: Ph 111, 112, 113. Two recitations; 1 three-hour laboratory period.

EE 352. **Alternating Currents.** Second or third term, 3 hours.

A continuation of EE 351, covering alternating current circuits. Two recitations; 1 three-hour laboratory period.

EE 353. **Alternating Current Machinery.** Third term, 3 hours.

A continuation of EE 352, with emphasis placed on the study of machines and auxiliary equipment. Two recitations; 1 three-hour laboratory period.

EE 355. **Electrical Ignition Systems.** Third term, 3 hours.

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 111, 112, 113. Two recitations; 1 three-hour laboratory period.

EE 403. **Thesis.** Any term, 3 hours each term.

Elective on approval to undergraduates whose records indicate ability to initiate and complete special projects.

EE 407. **Seminar.** Any term, 1 hour each term.

Presentation of abstracts and discussion of articles in the current electrical periodicals. One recitation.

EE 411, 412, 413. **Electrical Engineering.** Three terms, 3 hours each term.

An analysis of electric-power generation, transmission, and distribution with special reference to the economic and financial problems involved. Three lectures.

EE 414, 415, 416. **Electrical Design.** Three terms, 1 hour each term.

Design and computations supplementary to EE 401. One three-hour period.

EE 421. **Electrical Laboratory.** First term, 3 hours.

Alternating-current machinery and apparatus testing to determine the characteristics. The generation, regulation, conversion, and rectifi-

cation of alternating currents are given special consideration and study with both indicating instruments and the oscillograph. One four-hour laboratory period.

EE 422, 423. **Electrical Laboratory.** Second, third terms; 3 hours each term.

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. One four-hour laboratory period.

EE 431. **Electric Lighting.** First term, 3 hours.

Study of electric lamps and their application to exterior and interior illumination. Three recitations.

EE 432. **Industrial Lighting.** Second term, 3 hours.

Problems in the application of illumination to industrial conditions. One lecture; 2 recitations.

EE 442. **Electrical Transportation.** Second term, 3 hours.

Study of the application of electricity to street and interurban railways; traffic conditions; rolling stock; speed time curves. Three recitations.

EE 443. **Railway Electrification.** Third term, 3 hours.

A study of factors governing the electrification of trunk lines. Three lectures.

EE 451. **Electrical Transients.** First term, 3 hours.

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. One lecture; 1 recitation; 1 four-hour laboratory period.

EE 452, 453. **High Voltage Engineering.** Second and third terms, 3 hours each term.

The study and experimental investigation of high voltage and high frequency phenomena; special attention to insulation and corona problems as applied to transmission. Two lectures; 1 four-hour laboratory period.

EE 455. **Electrical Characteristics of Transmission Circuits.** Second or third term, 3 hours.

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. Two lectures; 1 three-hour laboratory period.

EE 461. **Communication Laboratory.** First term, 3 hours.

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. Two lectures; 1 three-hour laboratory period.

EE 462. **Electrical Communication.** Third term, 3 hours.

A general study of electrical communication with special attention to voice and carrier frequency, telephone problems, transmission theory, inductive interference, and related subjects. Two lectures; 1 three-hour laboratory period.

EE 463. **Electron Tubes and Circuits.** First term, 3 hours.

A study of vacuum tubes, photo-electric cells, and similar electronic devices, and their uses in electrical circuits. Two lectures; 1 three-hour laboratory period.

EE 465. **Engineering of Sound Systems.** Third term, 3 hours.

A study of the methods and apparatus used in electrical recording, reproduction, and amplification of both speech and music. Two lectures; 1 three-hour laboratory period.

EE 473. **Electrical Problems.** Third term, 2 hours.

Problems designed to review fundamental laws and methods, to correlate courses previously studied, and to apply these to engineering conditions. One two-hour computation period.

GRADUATE COURSES

EE 501. **Graduate Study and Research.** Terms and hours to be arranged.

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.

EE 503. **Graduate Thesis.** Terms and hours to be arranged.

Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Highway Engineering

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. 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.

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

UPPER DIVISION COURSES

HE 313. **Roads and Pavements.** Third term, 4 hours.

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. Four recitations.

HE 411. **Highway Engineering.** First term, 4 hours.

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. Two recitations; 2 three-hour laboratory periods.

HE 412. **Highway Engineering.** Second term, 3 hours.

Continuation of HE 411. Two recitations; 1 three-hour laboratory period.

HE 413. **Highway Engineering.** Third term, 4 hours.

Continuation of HE 411 and 412. Two recitations; 2 three-hour laboratory periods.

HE 416. **Economics of Highway Construction.** Second term, 3 hours.

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. Three recitations.

HE 417. **Highway Transportation.** First term, 3 hours.

A study of the various methods of highway transportation with especial reference to cost. Prerequisite or parallel: HE 411. Three recitations.

HE 427. **Contracts and Specifications.** Any term, 3 hours.

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. Three recitations.

HE 438. **Municipal Engineering and City Planning.** Third term, 3 hours.
The modern city streets, boulevards, and transportation systems; drainage and sanitation; water supply; lighting. A course of lectures and assigned readings. Three recitations.

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) Trades and industries.

(2) Industrial Administration: Training for junior executives in industry.
  (a) Technical operations.
  (b) Production management.

(3) General Industrial 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 shools 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.

The Curriculum in Industrial 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.

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 square feet. The principal subdepartments comprise Mechanical Drawing, Woodwork and Furniture Construction, Millwork in Wood, Wood and Metal Finishing, Pattern Making Foundry, Forging and Welding, Machine Shop, and Sheet Metal. Each of these subdepartments is provided with individual shops of ample size and is carefully equipped along modern and approved lines. These strictly departmental facilities are reinforced through the facilities and equipments of other departments, such as Art and Architecture, 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 Education).

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

IA 110. **Pattern Making.** First term, 3 hours.

Instruction and practice 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. One lecture; 6 laboratory periods.

IA 111, 112. **Methods in Woodworking.** Second and third terms; 3 hours each term.

A course in woodworking, with special reference to tool technique, applied design, and craftsmanship in new and individual projects. Primarily an elementary course, with incidental reference to course outlines and methods of teaching. One lecture; 6 laboratory periods.

IA 141. **Foundry Practice.** First term, 3 hours.

Green- and dry-sand molding, core making, melting and mixing of iron and cupola management, with suggestions for courses of study and teaching. Three three-hour laboratory periods.

IA 152. **Forging and Welding.** Second term, 3 hours.

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. Three three-hour laboratory periods.

IA 163. **Machine Shop.** Third term, 3 hours.

Exercises and projects involving instruction in the use of basic machine tools, with suggestions for courses of study and teaching. Three three-hour laboratory periods.

IA 213. **Furniture Construction Drawing.** First term, 2 hours.

A study of types and periods of furniture and an application of the principles of design to the technique of furniture and cabinet drawing. Prerequisites: GE 112, AA 295 or equivalent. Six laboratory periods.

IA 220. **Wood Turning.** Second term, 2 hours.

Thorough instruction in tool processes and lathe technique, executed through the designing, turning, and finishing of individual projects of merit. Prerequisite: IA 112. Six laboratory periods.

IA 221. **Wood Turning.** Second term, 1 hour.

Advanced course. A continuation of IA 220. Emphasis upon more intricate cuts and turning processes, special chucking devices and fancy turning. Prerequisite: IA 220. One three-hour laboratory period.

IA 222. **Wood and Metal Finishing.** Second term, 2 hours.

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. Six laboratory periods.

IA 223. **Carpentry.** Third term, 3 hours.

The fundamentals of house carpentry, involving discussion of forms and foundations and the practical application of problems in framing, use of steel square, exterior and interior finish, and estimating. Prerequisite: IA 112. One lecture; six laboratory periods.

IA 224. **Upholstering and Seat Weaving.** Third term, 2 hours.

A study of typical cases of upholstering, including foundations with and without springs. Seat and panel weaving with cane and fiber. Prerequisite: IA 112 or equivalent. Six laboratory periods.

IA 225. **Machine and Tool Maintenance (Wood Shop).** First term, 2 hours.

Methods of care and maintenance of woodworking tools, machines, and supplementary equipment. Band-saw brazing, saw sharpening, sharpening and setting of planer, jointer, tenoner and shaper knives and the repair and maintenance of hand tools. Prerequisite: IA 112. Six laboratory periods.

IA 226. **Fiber Furniture Weaving.** Second term, 2 hours.

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. Six laboratory periods.

IA 232. **Pattern Making.** Second term, 2 hours.

Advanced course. A continuation of IA 110, emphasis upon the problems in the making of patterns for more complicated machine parts and upon factors influencing production cost of these parts. Six laboratory periods.

IA 240. **Foundry Practice.** Any term, 2 hours.

Principles of iron foundry practice; use and care of cupolas; mixing and melting of iron; 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. Six laboratory periods; 3 lectures during term, to be arranged.

IA 242. **Foundry Practice.** Second term, 2 hours.

Advanced course. A continuation of IA 152 or IA 250, with emphasis on more advanced processes and a study of production costs. Six laboratory periods.

IA 243. **Brass and Alloy Foundry.** Third term, 1 hour.

Practice in brass and alloy foundry and the compounding of simple alloy mixtures. Prerequisite: IA 141 or 240. One lecture; 2 laboratory periods.

IA 250. **Forging and Welding.** Any term, 2 hours.

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. Six laboratory periods; 3 lectures during term to be arranged.

IA 252. **Blacksmithing.** First or third term, 2 hours.

Advanced course. A continuation of IA 152 or IA 250, with emphasis on farm blacksmithing and repair problems. Six laboratory periods.

IA 253. **Ornamental Iron Work.** Third term, 2 hours.

Craftsmanship in wrought iron work. The designing and making of wrought iron furnishings, lamps, light fixtures, etc. Prerequisite: IA 152 or IA 250. Six laboratory periods.

IA 254. **Heat Treating.** Third term, 2 hours.

A study of methods and materials for heat treating and the practical application of the principles of hardening, tempering, annealing and case hardening. Prerequisite: IA 152 or IA 250. One lecture; 4 laboratory periods.

IA 260. **Machine Shop Practice.** Any term, 2 hours.

Manipulation of basic machine tools with prescribed projects. Correlation of engineering, managerial, and manufacturing problems. Six laboratory periods; 3 lectures to be arranged during the term.

IA 261. **Machine Shop Practice.** First term, 2 hours.

Manipulation of basic machine tools with individual projects. Survey machines used for quantity production. Prerequisite: IA 163 or 260. Six laboratory periods.

IA 262. **Time and Motion Studies.** Second term, 1 hour.

Use of time studies as an aid in management. Methods and procedure for determining time and motion standards. Prerequisite: IA 260. One lecture; 4 laboratory periods.

IA 264. **Machine Shop.** Second term, 2 hours.

Manipulation of basic machine tools and the performance of operations requiring accomplished skills. Individual projects and problems. Application of jigs, fixtures, and dies used in modern manufacturing industries. Prerequisite: IA 261. Six laboratory periods.

IA 265. **Machine and Tool Maintenance (Machine Shop.)** First term, 2 hours.

Maintenance and repair problems for mechanical equipment; lubrication; problems in use of safety appliances. Prerequisite: IA 163 or 260. Six laboratory periods.

IA 270. **Practical Electricity.** First term, 3 hours.

Electrical wiring problems, including signal, light, and power circuits, and a study of underwriters' specifications for electrical installation. Prerequisite: Ph 203 or equivalent. One lecture; 6 laboratory periods.

IA 280. **Sheet Metal Work.** Third term, 3 hours.

Exercises and projects in sheet metal work including sheet metal pattern drafting and technical operations. Suggestions for course outline and methods of teaching. Prerequisite: GE 112. One lecture; 6 laboratory periods.

UPPER DIVISION COURSES

IA 311. **Mill Work—Machine Woodwork.** First term, 3 hours.

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. Three three-hour laboratory periods.

IA 312, 313. **Furniture Construction.** Second and third terms, 2 hours each term.

The designing and construction of furniture and cabinet work, according to the needs and ability of the individual student. Prerequisites: IA 311, AA 295. Six laboratory periods.

IA 350. **Welding Practice.** Any term, 1 hour.

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. One three-hour laboratory period.

IA 363. **Production Machine Work.** First term, 3 hours.

Problems in design of tools, jigs, fixtures, and dies in relation to quantity production. Individual problems and projects in design and tool making. Prerequisite: IA 261. One lecture; 6 laboratory periods.

IA 411. **Shop Planning and Organization.** Second or third term, 3 hours.

Planning and organizing the physical plant for different types of school or industrial shops. Second term for industrial administration majors; third term for industrial arts education majors interested in school shop planning. Prerequisite: IA 363 or Ed 315. One lecture; 6 laboratory periods.

IA 463. **Production Engineering.** Third term, 3 hours.

Principles of management applied to production problems, stressing planning and despatching, personnel organization, and use of records. Prerequisites: IA 261, 262, and IA 363 or 311. One lecture; 6 laboratory periods.

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 aeronautics. 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.

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-horsepower two-cycle oil engine fully equipped for testing; also a 100-horsepower 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 includes a selection of modern aircraft engines, both air and water cooled; a complete airplane of the navy fighter type; and numerous wing panels, tail surfaces, instruments, and miscellaneous airplane parts. A small water channel for the study of fluid flow is also available.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

ME 211. **Descriptive Geometry.** First term, 3 hours.

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. One recitation; 2 three-hour drawing periods.

ME 213. **Mechanism.** Second term, 3 hours.

A study of mechanical movements, including velocity ratios, transmission of motion by link work, gearing, cams, and belting. One recitation; 2 three-hour laboratory periods.

ME 221, 222, 223. **Heat Engineering.** Three terms, 2 hours each term.

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. Two recitations first and second terms; 1 recitation, 1 three-hour laboratory period third term.

ME 225. **Elementary Heating and Ventilating.** First term, 3 hours.

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. One lecture; 2 three-hour laboratory periods.

ME 242. **Elements of Machine Design.** Second term, 3 hours.

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. One recitation; 2 three-hour drafting periods.

ME 243. **Machine Drawing.** Third term, 2 hours.

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. Two three-hour drafting periods.

UPPER DIVISION COURSES

ME 321, 322, 323. **Heat Engineering.** Three terms, 3 hours each term.

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 203 or 206, Ph 113. Two recitations; 1 three-hour laboratory or problem period.

ME 331, 332. **Heat Power Engineering.** First and second terms, 3 hours each term.

A brief descriptive survey of the heat power plant and principal auxiliaries; study of the physical properties and laws of gases; 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; a flow sheet for a modern central station sketched; function of each piece of equipment; study of fuels, combustion, evolution of the boiler furnace, types and characteristics of boilers, furnace and boiler efficiency, superheaters, economizers, air preheaters, feed water heaters, condensers, heat transfer, flow of gases and vapors, steam turbines, and power plant piping. Prerequisites: Mth 203 or 206, Ph 113. Two recitations; 1 three-hour computation or laboratory period.

ME 333. **Heat Power Engineering.** First term, 3 hours.

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. One recitation; 1 three-hour laboratory period.

ME 343. **Aerodynamics.** Third term, 3 hours.

Fundamental laws of aerodynamics. Airfoils and airfoil combinations. Factors affecting stability, control, and performance. Prerequisite: junior standing. Three recitations.

ME 345. **Steam, Air, and Gas Power.** Second term, 3 hours.

A course adapted to the needs of Civil Engineering students. Elementary principles of thermodynamics; properties of steam; fuels and their combustion; boilers; and auxiliaries. Two recitations; 1 two-hour computation period.

ME 346. **Steam, Air, and Gas Power.** Third term, 3 hours.

Performance and operation of internal combustion engines; steam turbines, steam engines; fans, blowers, and air compressors. Various laboratory tests are made. Two recitations; 1 three-hour laboratory period.

ME 351, 352, 353. **Mechanical Engineering Laboratory.** Three terms, 2 hours each term.

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. One recitation; 1 three-hour laboratory period. Prerequisite: ME 321.

ME 403. **Thesis.** Any term, 3 hours.

Elective on approval to undergraduates whose records indicate ability and initiative to complete special projects.

ME 407. **Seminar.** Any term, 1 hour each term.

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.

ME 411, 412, 413. **Machine Design.** Three terms, 3 hours each term.

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. One recitation; 2 three-hour design periods.

ME 421. **Aero Propulsion.** First term, 3 hours.

Study of screw propellor theories; factors influencing choice of engines, propellers, and power plant accessories for specific airplane; power plant installation. Prerequisite: ME 343. Two recitations; 1 three-hour laboratory period.

ME 425, 426. **Airplane Design.** Second, third terms; 3 hours each term.

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. One recitation; 2 three-hour laboratory periods.

ME 431, 432. **Power Plant Engineering.** First, second terms; 3 hours each term.

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. Proper location of plant, selection of equipment for given conditions, and methods of determining fixed charges and operating cost. Design of a complete power plant in which special stress is placed on the economical selection of power plant apparatus. Prerequisite: ME 323. Three recitations.

ME 441, 442, 443. **Fuel Engineering.** Three terms, 3 hours each term.

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. 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.

ME 451, 452. **Engineering Laboratory.** Two terms, 2 hours each term.

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. Four periods laboratory work.

ME 461. **Heating and Ventilating.** Third term, 3 hours.

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. One recitation; 2 three-hour laboratory periods.

ME 462. **Refrigeration.** Third term, 3 hours.

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. Two recitations; 1 three-hour laboratory period.

ME 471. **Industrial Engineering.** First or third term, 3 hours.

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. Three recitations.

GRADUATE COURSES

ME 501. **Graduate Study and Research.** Terms and hours to be arranged.

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.

ME 503. **Graduate Thesis.** Terms and hours to be arranged.

Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

Mechanics and Materials

COURSES are offered covering statics, dynamics, and the strength and properties of engineering materials. In the last-named division there are, in addition to 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 non-bituminous 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

UPPER DIVISION COURSES

MM 311. **Materials of Engineering.** Any term, 3 hours.

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. One lecture; 1 three-hour laboratory period.

MM 351. **Mechanics (Statics).** First or second term, 3 hours.

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. One recitation; 2 two-hour computing periods.

MM 352. **Mechanics (Dynamics).** Second or third term, 3 hours.

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. One recitation; 2 two-hour computing periods.

MM 353. **Strength of Materials.** Second or third term, 3 hours.

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. One recitation; 2 two-hour computing periods.

MM 354. **Strength of Materials.** First term, 4 hours.

Similar to MM 353. For Civil Engineering students. Prerequisite: MM 351. Two recitations; 2 two-hour computing periods.

MM 403. **Thesis.** Any term, 3 hours each term.

Elective on approval to undergraduates whose records indicate ability to complete a satisfactory thesis.

MM 421. **Materials Testing.** First term, 3 hours.

An extension of the subject-matter and methods of MM 311 to include impact, hardness, wear, and repeated stress testing on metals, cement testing, and testing of concrete and ceramic products. Prerequisite: MM 311. One lecture; 1 four-hour laboratory period.

MM 426. **Highway Materials Laboratory.** First term, 3 hours.

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. One lecture; 1 four-hour laboratory period.

MM 427. **Structural Laboratory.** Second term, 3 hours.

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. One lecture; 1 four-hour laboratory period.

MM 441. **Fuel and Lubricant Testing.** First or second term, 3 hours.

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. One lecture; 1 four-hour laboratory period.

MM 451. **Stress Analysis.** Third term, 3 hours.

Methods of stress analysis in statically indeterminate machine elements, and problems involving thermal effects, impact loading, and vibration phenomena are some of the phases of the subject covered. Prerequisites: MM 351, 352, 353. One lecture; 2 one-hour recitations.

MM 481. **Metallography and Pyrometry.** Any term, 3 hours.

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. One lecture; 1 four-hour laboratory period.

MM 482. **Metallography.** Third term, 3 hours.

Study of alloy equilibrium diagrams; preparation of difficult specimens; high power photomicrography; correlation of thermal, electrical and magnetic properties of iron and some of its alloys with microstructure; dilatometry as related to heat-treatment; study of structure and treatment of special steels and other alloys. Prerequisite: MM 481. One lecture; 1 four-hour laboratory period.

GRADUATE COURSES

MM 501. **Graduate Study and Research.** Terms and hours to be arranged.

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.

MM 503. **Graduate Thesis.** Terms and hours to be arranged.

Original problems of a research nature chosen by the student or suggested by the department are studied and reported upon in thesis form.

MM 507. **Research Seminar.** Three terms, 1 hour each term.

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.

Mining Engineering

MINING engineering courses provide instruction in those fundamental principles of engineering technology which are basic and common to the fields of ore excavation (mining), ore dressing (beneficiation), and smelting (metal production)—the whole field, in fact, of the mineral industry. The courses in metallurgy and mining engineering are service courses open to any students properly qualified. Not all of these courses are offered in any one year. Those offered in the current year are so designated in the descriptions of courses.

Equipment. The department occupies jointly with the chemical engineering and geology departments a three-story and basement building known as the Mines Building which was designed especially to house the lecture rooms and laboratories devoted to mining, metallurgy, ore dressing, and closely allied subjects. The assaying and metallurgical laboratories occupied jointly with chemical engineering are completely equipped with the necessary apparatus for efficiently conducting experimental metallurgical operations, crushing, and grinding. Ore-dressing laboratories affording modern metallurgical testing equipment are located in the basement. Adequate class and drafting-room facilities are available in this building.

Courses in scientific and economic geology are taught in the same building under the direction of the Department of Geology, as described under School of Science.

COURSES IN METALLURGY

LOWER DIVISION COURSES

Met 163. **Mineral Industry Survey.** Third term, ½ hour.

An introductory course including engineering problems and constituting an integral part of a general survey of our mineral resources. Prerequisite: MiE 142. One lecture. Offered 1933-34.

Met 263. **Assaying.** Third term, 3 hours.

Commercial methods of wet and dry assay ores, metallurgical products. Prerequisite: Ch 232 or equivalent. One recitation; 2 three-hour laboratory periods. Offered 1933-34.

UPPER DIVISION COURSES

Met 361, 362. **Fire Assaying.** First and second terms, 2 hours each term.

Testing reagents; sampling ores; fire assay methods for precious and base metals; bullion assays. Prerequisite: Ch 232 or equivalent. Two three-hour laboratory periods. Offered 1933-34.

Met 381, 382. **Ore Dressing.** First and second terms, 3 hours each term.

The principles of crushing and concentrating ore minerals; various treatment processes. Prerequisites: G 201, 202, 202, or their equivalent. Three recitations. Offered 1933-34.

Met 383. **Ore Dressing.** Third term, 3 hours.

(Advanced course.) Continuation of Met 382. Prerequisites: Met 381, 382; Ch 232, 340. Two recitations; 1 three-hour laboratory period.

Met 461. **General Metallurgy.** First term, 3 hours.

An introduction to general metallurgy. Properties of metals, alloys, fuels, refractories; pyrometallurgy, hydrometallurgy, electrometallurgy; general operations. Prerequisites: Ch 232; G 201, 202, 203, or equivalents. Three recitations.

Met 462. **Metallurgy of the Base and Precious Metals.** Second term, 4 hours.

Metallurgy of gold, silver, copper, lead, and zinc. Short course in iron and steel included. Prerequisite: Met 461. Four recitations.

Met 463. **Hydrometallurgy.** Third term, 2 hours.

Theory and practice in leaching of ores and the precipitation of metals from solution. Prerequisite: Met 462. One recitation; 1 three-hour laboratory period.

Met 473. **Metallurgy of Iron and Steel.** Third term, 2 hours.

(Advanced course.) Prerequisite: Met 462. One recitation; 1 three-hour laboratory period.

Met 481. **Metallurgy of the Minor Metals.** First term, 3 hours.

Metallurgy of mercury, aluminum, chromium, tin, nickel, cobalt, arsenic, antimony, bismuth, tungsten, manganese, vanadium, and molybdenum. Prerequisites: Ch 232 or equivalent; G 201, 202, 203; Met 381, 382. Two recitations; 1 three-hour laboratory period.

Met 482. **Metallurgical Design.** Second term, 3 hours.

Detailed study of metallurgical practice and operation. Laboratory work on flow sheets, design problems. Prerequisites: Met 462, 481. Two recitations; 1 three-hour laboratory period.

Met 483. **Electrometallurgy.** Third term, 3 hours.

Study of electrolytic and electrothermic practice; recovery and purification of metals by electrical methods. Prerequisites: EE 351, 352, 353; Met 462, 482. Two recitations; 1 three-hour laboratory period.

Met 491, 492. **Ore Dressing Laboratory.** First and second terms, 3 hours each term.

Laboratory work in connection with Met 381, 382, 462. Prerequisites: Met 263, 361, 362, 381, 382. One seminar period; 4 two-hour laboratory periods.

COURSES IN MINING ENGINEERING

LOWER DIVISION COURSES

MiE 142. **Mineral Industry Survey.** Second term, ½ hour.

An introductory course including engineering problems and constituting an integral part of a general survey of our mineral resources. One lecture. Offered 1933-34.

MiE 243. **Excavation, Explosives, and Blasting.** Third term, 3 hours.

A course dealing with special methods of surface excavations. Three recitations.

UPPER DIVISION COURSES

MiE 343. **Mining Machinery, General Mining Operations.** Third term, 3 hours.

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. Three recitations. Offered 1933-34.

MiE 353. **Mine Surveying.** Third term, 3 hours.

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. Two recitations; 1 three-hour laboratory period. Offered 1933-34.

MiE 407. **Mining Engineering Seminar.** Any term, 1 hour each term.

Discussion of current problems, practices, developments, trends. One period.

MiE 441. **Mining Methods.** First term, 4 hours.

General considerations involved in choice of methods used to develop and mine mineral deposits. Prerequisites: GE 111, 112, 113. Four recitations.

MiE 442. **Mining Engineering.** Second term, 3 hours.

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. Three recitations.

MiE 443. **Mining Engineering.** Third term, 3 hours.

Continuation of MiE 442. Detailed consideration of problems in mine management and operation. Problem analysis. Prerequisite: MiE 442 or equivalent. One lecture; 2 three-hour laboratory periods.

MiE 461. **Mine Economics and Mining Law.** First term, 3 hours.

Special attention is given to mining costs and legal phases. Students should consult with the department before registering. Three recitations.

MiE 462. **Mine and Power Equipment.** Second term, 3 hours.

A study of mining machinery, power installation, their correlation. Students should consult with the department before registering. Prerequisite: MiE 343. Three recitations.

MiE 463. **Mine Plant Design.** Third term, 2 hours.

Advanced problem study. Students should consult with the department before registering. Prerequisites: MiE 343, 442. Two three-hour laboratory periods.

School of Forestry

Faculty

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.

Technical Forestry

THURMAN JAMES STARKER, B.S., Professor of Forestry.
EARL GEORGE MASON, M.F., Associate Professor of Forestry.
HENRY TIEDEMANN, B.S., Research Assistant.
VERN MCDANIEL, M.S., Forest Nurseryman.

Wood Products

WILLIAM JENNINGS BAKER, M.S., Associate Professor of Lumber Manufacture.
EVERALD ELMER NELSON, B.S., Research Assistant.

General Information

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 per cent of the total stand remaining in the United States.

While the lumber industry of Oregon is, comparatively, in an 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 normally 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 normally has a pay-roll of 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 appraising, 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.

Wood Products. 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, the organization and management of the plant, kiln-drying of lumber, refinement of manufacture, 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 wood products field. This curriculum may be elected following the two basic years. Students majoring in Wood Products are granted the bachelor's degree.

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 Wood Products.

Requirements for Graduation. For graduation the student is required to complete 204 hours of collegiate work. Every student before graduation must have completed the group requirements of the Lower Division. A minimum of 70 professional hours 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.

Advanced Degrees. The professional degree of Master of Science in Forestry, Logging Engineering, or Wood Products 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 hours, including an acceptable thesis.

Equipment. 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 and pulp and paper 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 wood products.

A dry-kiln of commercial size, completely equipped for research in lumber seasoning, is available for use of students in wood products.

Lands. 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 ten 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. Mrs. McDonald also made possible the acquisition of a tract of 2,000 acres of second growth Douglas fir. This land lies within seven miles of the campus and is devoted to experimental work in reforestation. The area also serves as a base for laboratory work for surveying, mapping, timber estimating, and logging railroad location. A tract of cut-over land, 92 acres in extent, is devoted to arboretum and experimental planting purposes. 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.

Curricula in Forestry

LOWER DIVISION CURRICULUM

Freshman Year	Term hours 1st	2d	3d
General Forestry (F 111)	4	---	---
Forest Protection (F 112)	---	4	---
Tree Identification (F 153)	---	---	4
General Botany (Bot 101, 102)	3	3	---
Forest Engineering (F 123)	---	---	4
Unified Mathematics (Mth 101, 102, 103)	4	4	4
English Composition (Eng 111, 112, 113)	3	3	3
Military Science	1	1	1
[1]Physical Education	1	1	1
	16	16	17

Sophomore Year			
Mensuration (F 221, 222, 223)	4	4	4
[2]Forest Engineering (F 224, 225, 226)	5	5	5
Engineering Physics (Ph 111, 112)	3	3	---
Logging Methods (LE 293)	---	---	3
[3]Outlines of Economics (Ec 211)	4	---	---
[3]Chemistry (PhS 102)	---	4	---
[3]National Government (PS 201)	---	---	4
Military Science	1	1	1
Advanced Physical Education (PE 251, 252, 253)	1	1	1
	18	18	18

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

[2]Students expecting to major in Wood Products may take approved courses in lieu of this subject.

[3]Students expecting to take advanced work in forestry or to major in forest entomology, forest pathology, or forest soils, should elect a year sequence in chemistry in lieu of Ec 211, PhS 102, and PS 201.

UPPER DIVISION CURRICULA

TECHNICAL FORESTRY

B.S. Degree

Junior Year	Term hours 1st	2d	3d
Identification of Woods (F 331)	4	---	---
Wood Utilization (F 332)	---	4	---
Dendrology (F 353)	---	---	4
Forest Pathology (Bot 305)	---	3	---
Forest Soils (Sls 214)	---	---	3
General Geology (G 201)	3	---	---
Silviculture (F 341, 342, 343)	4	4	4
Principles of Forest Entomology (Ent 321)	3	---	---
Principles of Accounting for Engineers (BA 385)	---	---	3
Electives	3	6	3
	17	17	17

Senior Year			
Forest Finance (F 411, 412)	4	4	---
Forest Economics (F 413)	---	---	4
Lumber Seasoning (WP 494)	4	---	---
Timber Mechanics (F 335)	---	4	---
Forest Regulation (F 416)	---	---	4
Forest Administration (F 311, 312, 313)	3	3	3
Seminar (F 407)	1	1	1
Electives	5	5	4
	17	17	16

Recommended Electives

Modern Governments (PS 202)	---	4	---
Business Law (BA 256, 257, 258)	4	4	4
Range and Pasture Botany (Bot 304)	3	---	---
Principles of Plant Ecology (Bot 341)	---	---	3
Forest Entomology (Ent 323)	---	---	3
Principles of Zoology (Z 130)	---	5	---
Money and Banking (Ec 413)	---	4	---
Transportation (Ec 435)	---	---	4
American Literature (Eng 161)	3 *or*	3 *or*	3
Camp Cookery (FN 250)	---	---	1
Principles of Dietetics (FN 225)	2	---	---
Climatology (Sls 319)	---	---	2
Evolution and Eugenics (Z 315)	---	---	3
International Organization and World Politics (PS 407)	4	---	---
Landscape Architecture (LA 379)	---	---	3
International Organization and World Politics (PS 408)	---	4	---
International Trade (Ec 440)	4	---	---
General Sociology (Soc 211)	---	4	---
Business and Agricultural Statistics (BA 469)	3	---	---

LOGGING ENGINEERING

B.S. Degree

Junior Year	Term hours 1st	2d	3d
Bridge Design (LE 381)	3	---	---
Logging Equipment (LE 382)	---	3	---
Logging Machine Design (LE 386)	---	---	3
General Geology (G 201)	3	---	---
Silviculture (F 345)	---	3	---
Commercial Woods (F 334)	---	---	3
Business Law (BA 256, 257)	4	4	---
Principles of Accounting (BA 385, 386)	3	3	---
Cost Accounting for Industrials (BA 494)	---	---	3
Timber Transportation (LE 374)	4	---	---
Electives	---	4	7
	17	17	16

Senior Year	Term hours 1st	2d	3d
Timber Transportation (LE 474, 475, 476)	4	4	4
Logging Plans (LE 471, 472, 473)	5	5	5
Forest Finance (F 411, 412)	4	4	----
Forest Economics (F 413)	----	----	4
Seminar (F 407)	1	1	1
Electives	3	3	3
	17	17	17

Recommended Electives

Lumber Seasoning (WP 494)	4	----	----
Production Control (WP 312)	----	4	----
Personnel Management (BA 414)	4	----	----
Labor Problems (Ec 405)	4	----	----
Transportation (Ec 435)	----	----	4
Differential and Integral Calculus (Mth 201, 202, 203)	4	4	4
Steam, Air, and Gas Power (ME 345)	----	3	----
Principles of Dietetics (FN 225)	2	----	----
Principles of Forest Entomology (Ent 321)	3	----	----

WOOD PRODUCTS

B.S. Degree

Junior Year	Term hours 1st	2d	3d
Identification of Woods (F 331)	4	----	----
Wood Utilization (F 332)	----	4	----
Wood Grading (WP 333)	----	----	4
Principles of Accounting (BA 385, 386)	3	3	----
Business Law (BA 256, 257)	4	4	----
Cost Accounting for Industrials (BA 494)	----	----	3
Transportation (Ec 435)	----	----	4
Money and Banking (Ec 413)	4	----	----
Timber Mechanics (F 335)	----	4	----
Extempore Speaking (Sp 111)	----	----	3
Electives	2	2	3
	17	17	17

Senior Year			
Forest Finance (F 411, 412)	4	4	----
Forest Economics (F 413)	----	----	4
Lumber Seasoning (WP 494)	4	----	----
The Lumber Plant (WP 495)	----	4	----
Lumber Merchandising (WP 496)	----	----	4
Production Control (WP 312)	4	----	----
General Advertising (BA 439)	3	----	----
International Trade (Ec 440)	----	3	----
Seminar (F 407)	1	1	1
Electives	----	5	8
	16	17	17

Recommended Electives

Steam, Air, and Gas Power (ME 345)	----	3	----
Materials of Engineering (MM 311)	----	3	----
Fuel and Lubricant Testing (MM 441)	3	----	----
Differential and Integral Calculus (Mth 201, 202, 203)	4	4	4
Business English (Eng 217)	----	----	3
Merchandising and Selling (BA 436)	4	----	----
Personnel Management (BA 414)	4	----	----
Business and Agricultural Statistics (BA 469)	3	----	----

The following courses constituting a minor in Business Administration, are suggested for junior and senior students majoring in Wood Products whose chief interest is in the administrative side of the business.

Junior Year	Term hours 1st	2d	3d
Business Law (BA 256, 257)	4	4	----
Principles of Accounting for Engineers (BA 385)	3	----	----
Accounting for Engineers and Foresters (BA 386)	----	3	----
Cost Accounting for Industrials (BA 494)	----	----	3
Elements of Finance (BA 222)	----	4	----
Investments (BA 463)	----	----	3

Senior Year			
Production Management (BA 413)	4	----	----
Money and Banking (Ec 413)	----	4	----
Special Problems for Engineers and Foresters (BA 403)	----	----	5
Business and Agricultural Statistics (BA 469)	3	----	----

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

LOWER DIVISION COURSE

LE 293. Logging Methods. Third term, 3 hours.

Relation between logging and forest production; yarding, skidding, and loading logs; 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. Two lectures; 1 two-hour laboratory period.

UPPER DIVISION COURSES

LE 370. Field Work. One to 6 hours.

Practical field work on some modern logging operation, performed by the student between the sophomore and junior years or between the junior and senior years. A satisfactory report based on approved outline must be submitted.

LE 374. Timber Transportation. First term, 4 hours.

Survey of the problem; development of methods; small operations. Two lectures; 2 three-hour laboratory periods.

LE 381. Bridge Design. First term, 3 hours.

Principles of the design of wood structures as applied to logging railroad practice. Stresses in simple trusses; details, specifications, and estimates for Howe truss. One recitation; 2 two-hour laboratory periods.

LE 382. **Logging Equipment.** Second term, 3 hours.

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. One lecture; 2 two-hour laboratory periods.

LE 386. **Logging Machine Design.** Third term, 3 hours.

Designing logging equipment, rigging, and tools; drawings of standard equipment constructed in camp shops. One lecture; 2 two-hour laboratory periods.

LE 471. **Logging Plans.** First term, 5 hours.

Control of area. Instrument control; surveying timbered area; preparation of topographic and relief maps; cruising. One recitation; 1 three-hour field period; 1 nine-hour field period.

LE 472. **Logging Plans.** Second term, 5 hours.

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. Three recitations; 2 two-hour laboratory periods.

LE 473. **Logging Plans.** Third term, 5 hours.

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. Three recitations; 2 two-hour laboratory periods.

LE 474. **Timber Transportation.** First term, 4 hours.

Chute and flume construction; pole roads; motor trucks; railroads adapted to logging operations. Two lectures; 2 three-hour laboratory periods.

LE 475. **Timber Transportation.** Second term, 4 hours.

Distinction between logging railroads and common carrier railroads; grades; alignment; economic theory of location and construction. Prerequisite: LE 474. One lecture; 1 nine-hour field period.

LE 476. **Timber Transportation.** Third term, 4 hours.

Structures and materials used in logging railroads, costs of surveys, construction, operation, and maintenance; bridge and tunnel construction. Prerequisite: LE 475. One lecture; 1 nine-hour field period.

GRADUATE COURSES

LE 501. **Graduate Research.** Terms and hours to be arranged.

Approved study and research for an advanced degree.

LE 503. **Graduate Thesis.** Terms and hours to be arranged.
The preparation of a thesis for an advanced degree.

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

LOWER DIVISION COURSES

F 111. **General Forestry.** First term, 4 hours.
Forest regions of the United States; the forests of the world, their distribution and importance; preliminary survey of the whole field of 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. Four lectures or recitations.

F 112. **Forest Protection.** Second term, 4 hours.
Fire suppression; fire preparedness; fire administration. Four lectures or recitations.

F 123. **Forest Engineering.** Third term, 4 hours.
Theory and use of forest surveying instruments. Measurement of distance, direction, and elevation. Three recitations; 1 three-hour laboratory period.

F 153. **Tree Identification.** Third term, 4 hours.
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. Two lectures; 1 two-hour laboratory period; 1 three-hour field period.

F 221. **Mensuration.** First term, 4 hours.
Measurement of felled timber and its products. The cubic contents; scaling and grading logs; piece and cord measurements. Three recitations; 1 three-hour field or laboratory period.

F 222. **Mensuration.** Second term, 4 hours.
Measurement of standing timber. The volume of individual trees; timber cruising; timber appraisals. Three recitations; 1 three-hour field period.

F 223. **Mensuration.** Third term, 4 hours.

The growth of timber. The growth of even-aged stands; growth of many-aged stands; growth of individual trees. Two recitations; 2 three-hour field periods.

F 224. **Forest Engineering.** First term, 5 hours.

Elements of forest mapping. Survey of a definite forest area; use of field data in map making; profiles; form lines; contour mapping; property maps; differential leveling; use of and application to forest surveys; transit and level—theory, use, and adjustments. Three recitations; 2 three-hour laboratory periods.

F 225. **Forest Engineering.** Second term, 5 hours.

Elements of forest mapping. Continuation of F 224; triangulation schemes; base-line measurements; traverses; drafting of maps; topographic conventional signs; free-hand lettering; computation of areas. Three recitations; 1 two- and 1 three-hour laboratory periods.

F 226. **Forest Engineering.** Third term, 5 hours.

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; solar and polar observations; costs. Prerequisite: F 225. Three recitations; 2 three-hour field periods.

UPPER DIVISION COURSES

F 311. **Forest Administration: Policy.** First term, 3 hours.

Development of land policies in the United States; state and Federal forest policies; private forestry. Three recitations.

F 312. **Forest Administration: Laws.** Second term, 3 hours.

A critical survey of state forest laws; the Federal laws dealing with forest lands and their administrative interpretation. Three lectures.

F 313. **Forest Administration: Control.** Third term, 3 hours.

Personnel work, and financial control on public and private forest property. Three lectures.

F 331. **Identification of Woods.** First term, 4 hours.

Study of wood structure; identification of important commercial woods; physical and structural properties. Two lectures; 2 two-hour laboratory periods.

F 332. **Wood Utilization.** Second term, 4 hours.

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. Three lectures; 1 two-hour laboratory period.

F 334. **Commercial Woods.** Third term, 3 hours.

Designed primarily to meet requirements of wood-workers and engineers. Identifying woods commonly used. Dendrology and its significance in wood technology. Seasoning, gluing, and preservation of woods. Two lectures; 1 two-hour laboratory period.

F 335. **Timber Mechanics.** Second term, 4 hours.

Mechanical properties of principal commercial timber; obtaining strength data; use of strength data. Two recitations; 2 two-hour laboratory periods.

F 341. **Silviculture: Silvics.** First term, 4 hours.

The life-history of trees; tolerance; soil requirements; climate; fire resistance; forest description; forest ecology and forest types. Three lectures; 1 three-hour laboratory period.

F 342. **Silviculture: Systems of Cutting.** Second term, 4 hours.

Marking trees for cutting; improvement of woodlands; protection as related to silviculture; natural and artificial regeneration. Three lectures or recitations; 1 three-hour laboratory period.

F 343. **Silviculture: Seeding and Planting.** Third term, 4 hours.

Collection and storage of forest tree seeds; nursery practice; field planting. Inspection of commercial and Forest Service nurseries. Three recitations; 1 three-hour laboratory period.

F 345. **Silviculture.** Second term, 3 hours.

Silvicultural practices requisite for insuring reproduction following logging; seed trees; selection cuttings; justifiable regeneration costs. For students in Logging Engineering. Three lectures or recitations.

F 353. **Dendrology.** Third term, 4 hours.

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. Two recitations; 2 two-hour laboratory periods.

F 370. **Field Work.** One to 6 hours.

Practical field work performed by the student between the sophomore and junior years or between the junior and senior years, in connection with some technical forestry work carried on by private interests, the State, or by the Forest Service. A report based on an approved outline must be submitted.

F 407. **Seminar.** Terms to be arranged, 1 hour each term.

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. One two-hour conference period.

F 411, 412. Forest Finance. First and second terms; 4 hours each term.

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. Four lectures or recitations.

F 413. Forest Economics. Third term, 4 hours.

Survey of the forest resources of the world. Progress of forest removal in the United States. Forestry and land use. Forestry and community stability. The lumber industry and its problems. Forestry in the future economic life of the country. Four lectures or recitations.

F 416. Forest Regulation. Third term, 4 hours.

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. Three lectures; 1 two-hour conference period.

F 417, 418. General Forestry. First and second terms, 2 hours each term.

Survey of the field of technical forestry. Of special interest to those who plan to enter the Federal or State Forest Service. Two recitations.

GRADUATE COURSES

F 501. Graduate Research. Terms and hours to be arranged.

Approved study and research for an advanced degree.

F 503. Graduate Thesis. Terms and hours to be arranged.

The preparation of a thesis for an advanced degree.

Wood Products

COURSES in Wood Products are designed to meet the needs of men who desire to prepare themselves for service in the wood manufacturing industry. Especial attention is given to manufacturing conditions existing in the Pacific Northwest.

DESCRIPTION OF COURSES

UPPER DIVISION COURSES

WP 312. Production Control. Second term, 4 hours.

Discussion of production control systems as applied to sawmills; cost keeping versus bookkeeping; bonus, merit, profit-sharing. Three lectures; 1 two-hour laboratory period.

WP 333. **Wood Grading.** Third term, 4 hours.

A study of basic grades and standard commercial grading rules. Two lectures; 2 two-hour laboratory periods.

WP 494. **Lumber Seasoning.** First term, 4 hours.

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. Two lectures; 2 two-hour laboratory periods.

WP 495. **The Lumber Plant.** Second term, 4 hours.

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. Three lectures; 1 two-hour laboratory period.

WP 496. **Lumber Merchandising.** Third term, 4 hours.

Lumber salesmanship; selling agencies; trade associations; standardization of sizes and grades; trade-marking; advantages of wood construction. Prerequisite: WP 495. Four lectures.

GRADUATE COURSES

WP 501. **Graduate Research.** Terms and hours to be arranged.

Approved study and research for an advanced degree.

WP 503. **Graduate Thesis.** Terms and hours to be arranged.

The preparation of a thesis for an advanced degree.

School of Home Economics

Faculty

AVA BERTHA MILAM, M.A., Dean of the School of Home Economics.

ELIZABETH MAY FLETCHER, B.S., Secretary.

Clothing, Textiles, and Related Arts

ALMA CATHERINE FRITCHOFF, M.A., Professor of Clothing, Textiles, and Related Arts; Head of Department.

MILDRED CHAMBERLAIN, Ph.B., Associate Professor of Clothing, Textiles, and Related Arts.

AZALEA LINFIELD SAGER, M.A., Associate Professor of Clothing, Textiles, and Related Arts; Extension Specialist in Clothing.

GERTRUDE STRICKLAND, Instructor in Clothing, Textiles, and Related Arts.

MARGARET LOUISE BREW, Ph.B., Instructor in Clothing, Textiles, and Related Arts.

Foods and Nutrition

JESSAMINE CHAPMAN WILLIAMS, M.A., Professor of Foods and Nutrition; Head of Department.

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.

EVRA ALTA GARRISON, M.A., Assistant Professor of Foods and Nutrition.

LILLIAN CATHERINE TAYLOR, M.A., Instructor in Foods and Nutrition.

Home Economics Education

FLORENCE BLAZIER, Ph.D., Professor of Home Economics Education; Head of Department.

FRANCES WRIGHT JONASSON, B.S., State Supervisor and Teacher Trainer in Vocational Home Economics.

LURA AMELIA KEISER, B.S., Critic Teacher in Home Economics Education.

MERLE BONNEY DAVIS, B.S., Critic Teacher in Home Economics Education.

RUTH MORRIS FOREST, B.S., Critic Teacher in Home Economics Education.

Home Economics Extension

CLARIBEL NYE, M.A., Professor and State Leader of Home Economics Extension.

AZALEA LINFIELD SAGER, M.A., Associate Professor of Clothing, Textiles, and Related Arts; Extension Specialist in Clothing.

LUCY ADA CASE, M.A., Assistant Professor of Foods and Nutrition; Extension Specialist in Nutrition.

ZELTA FEIKE RODENWOLD, M.S., Assistant Professor of Home Economics Extension; Director of Home Economics Radio Programs.

Home Economics Research

MAUD MATHES WILSON, M.A., Professor in Charge of Home Economics Research.

DOROTHY SCHREINER, M.S., Assistant in Home Economics Research.

Household Administration

SARA WATT PRENTISS, M.A., Professor of Child Development and Parent Education; Acting Head of Department.

LUCILE WINIFRED REYNOLDS, M.A., Associate Professor of Household Administration.

VERA HASKELL BRANDON, M.S., Instructor in Household Administration.

ELEANOR MAY SPIKE, M.S., Instructor in Household Administration.

Institution Economics

MELISSA HUNTER, M.A., Professor of Institution Economics.

GEORGIA CHAPMAN BIBEE, B.S., Assistant Professor of Institution Economics; Supervisor of Memorial Union Dining Service.

Purpose

ALL problems of the home and family life fall within the field of home economics. The School of Home Economics seeks to serve, directly or indirectly, every Oregon home. Through resident teaching the School makes its direct contribution to the life of the commonwealth. Students are trained for the responsibilities of homemaking and parenthood or for education, administration and management, and other work in home economics and allied fields. Through research and extension, closely coordinated with the resident teaching, effort is constantly directed toward the solution, not only of home problems generally but of Oregon home problems in particular.

Training in homemaking is fundamental in all the work of the School. A distinct curriculum, Curriculum A, 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. Similar in objective to Curriculum A, Curriculum C is planned for students who wish to enter the School of Home Economics at the beginning of the junior year following two years of general junior college work. The two curricula differ in the fact that in one general and home economics studies are taken on a parallel basis throughout the four years, while in the other the student's four-year

program is divided into two distinct parts, the first two years being devoted to general studies and the last two years being devoted largely to home economics.

In Curriculum B, 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

MODERN facilities for carrying on all phases of home economics work are provided in the Home Economics Building, the Home Management Houses, the Nursery School, and the Memorial Union dining-room facilities.

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 seven 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 Home Economics Extension department, through which the School of Home Economics 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 department supervises apprenticeship training in counties located near the College.

Curricula in Home Economics

B.A., B.S., M.A., M.S. Degrees

FOUR-YEAR curricula leading to the bachelor's degree are offered in the School of Home Economics as follows:

CURRICULUM A, a general curriculum combining a general cultural education with training in the principles of homemaking. Students wishing to teach home economics, do commercial work in the clothing field, or enter home economics journalism, may register in this curriculum.

CURRICULUM B, a professional curriculum including technical subjects and the basic arts and sciences, together with languages, history, economics, and sociology, preparing for homemaking and for home economics teaching, institutional management, extension work, and commercial fields, especially in foods. In the first two years the work is prescribed, giving the necessary foundation for any of the professional fields. In the last two years opportunity for a limited degree of specialization is afforded. Completion of this curriculum meets the requirements of the Federal Board for Vocational Education for the Smith-Hughes teacher.

A two-year upper division curriculum leading to the bachelor's degree is offered in the School of Home Economics as follows:

CURRICULUM C, a general curriculum in home economics extending through the junior and senior years, based on a general cultural curriculum completed in lower division or junior college. Students must complete during the junior and senior years enough courses in Home Economics to meet the institutional requirements for a major in Home Economics.

In addition, all departments of the School of Home Economics offer graduate work leading to advanced degrees. See the announcements of the Graduate Division.

For homemakers, special students, and students registered in other schools on the campus, the School offers service and special courses. See description of courses.

A minor in Home Economics for students in certain other schools is outlined under the respective schools.

Requirements for Graduation. For the bachelor's degree in Home Economics a minimum of 192 term hours must be completed. The work should be distributed as suggested by the following curricula. At least 45 term hours in upper division courses are required. Transfers from other institutions are required to complete at least 18 term hours in Home Economics at this institution.

Students completing the four-year curricula receive either the B.A. or the B.S. degree in accordance with the institutional requirements for the respective degrees. For the B.A. degree, 36 term hours in Arts and Letters must be completed, including requirements in a foreign language, preferably French or German.

Home Economics at **the University**. By action of the State Board of Higher Education March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Home Economics was confined to the School of Home Economics at the State College and lower division work comprising instruction in freshman and sophomore years was assigned to both the State College and the University. The lower division work in Home Economics at the University constitutes essentially the equivalent of lower division work at the State College and students finding it more convenient to spend their freshman and sophomore years at Eugene may transfer to Corvallis for their major work without loss of time in completing the requirements for a degree in home economics. Students wishing to complete at Eugene the first two years of Curriculum B should have their programs carefully planned by the head of the Home Economics department at the University.

The Lower Division program at both institutions, besides laying a broad foundation for specialization, is intended also to serve the needs of students majoring in other fields. In addition, upper division service courses prescribed as required subjects or available as electives for students registered in other fields are given as needed at the University.

Complete course offerings in Home Economics at the University are listed on page 268.

Curriculum A

Not more than one-third of the 192 term hours required for a degree in this curriculum may be in Home Economics.

Freshman Year	Term hours 1st	2d	3d
Color and Composition (AA 160, 161)	3	3	—
Landscape Architecture (LA 279)	—	—	3
Group requirement in Social Science group	3	3	3
[1]Group requirement in Science group	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Social Ethics (PE 131)	—	—	—
Appreciation of Music (Mus 120)	—	1	—
Introduction to Home Economics (HAd 101)	3 *or*	(3) *or*	(3)
[2]Physical Education	1	1	1
Elective	—	3	3
	16	17	16
Sophomore Year			
Group requirements in Language and Literature group (Literature)	3	3	3
Outlines of Economics (Ec 211)	—	4	—
Foods (FN 211, 212, 213)	3	3	3
Textiles (CT 250)	3	—	—
[3]Clothing (CT 211, 212)	—	3	3
Principles of Dietetics (FN 225)	2	—	—
Advanced Physical Education (PE 214, 215, 216)	1	1	1
Electives	3	3	6
	15	17	16

[1]May be deferred to sophomore year.
[2]General Hygiene, 2 term hours is taken one term in place of Physical Education.
[3]Students having had no previous Clothing courses are required to take CT 111 as a prerequisite to CT 211.

Junior Year	Term hours 1st	2d	3d
Household Management (HAd 340)	4	---	---
Outlines of Psychology (Psy 211)	4	---	---
Food Purchasing (FN 411)	---	(3) *or*	3
General Sociology (Soc 211)	---	4	---
Political Science	---	---	3
House Furnishing (CT 331)	3	---	---
The Family (Soc 312)	---	3	---
Electives	5	9	9
	16	16	15
Senior Year			
Electives in Home Economics (upper division)	7	---	---
Child Development (HAd 320)	---	3	---
Home Management House (HAd 350)	---	---	4
Electives	9	13	12
	16	16	16

Curriculum B

Freshman Year			
Color and Composition (AA 160, 161)	3	3	---
Landscape Architecture (LA 279)	---	---	3
Group requirement in Social Science group	3	3	3
[1]Elementary General Chemistry (Ch 201, 202, 203)	3	3	3
English Composition (Eng 111, 112, 113)	3	3	3
Social Ethics (PE 131)	---	---	---
General Hygiene (PE 111, 112, 113)	1	1	1
Appreciation of Music (Mus 120)	---	1	---
Introduction to Home Economics (HAd 101)	3	*or* (3)	*or* (3)
[2]Physical Education	1	1	1
Elective	---	---	3
	17	15	17
Sophomore Year			
Year-sequence applicable in satisfying requirement in Language and Literature group (English)	3	3	3
Organic Chemistry (Ch 221), Elementary Biochemistry (Ch 251)	5	5	---
Elementary Human Physiology (Z 211)	---	---	5
[3]Textiles (CT 250), Clothing (CT 211, 212), or Clothing Selection (CT 217), Clothing Selection and Construction (CT 218, 219)	3	3	3
Foods (Preparation, Marketing, Planning) (FN 220, 221, 222)	3	3	3
Advanced Physical Education (PE 214, 215, 216)	1	1	1
Electives	---	3	2
	15	18	17
Junior Year			
[4]Related Art	---	---	3
Costume Design (CT 311)	3	---	---
Household Management (HAd 340)	---	---	4
Clothing (CT 312)	---	3	---
General Bacteriology (Bac 201, 202)	3	3	---
Outlines of Psychology (Psy 211)	4	---	---
Outlines of Economics (Ec 211)	---	4	---
Extempore Speaking (Sp 111) or Elementary Journalism (J 111)	3	---	---
Nutrition (FN 320, 321)	---	3	3
Electives	4	3	6
	17	16	16
Senior Year			
Child Development (HAd 320)	3	---	---
Home Management House (HAd 350)	---	4	---
General Sociology (Soc 211)	---	---	4
House Furnishing (CT 331)	---	---	3
Political Science	---	---	4
Electives	9	8	3
	12	12	14

[1]May be deferred to sophomore year.
[2]General Hygiene, 2 term hours, is taken one term in place of Physical Education.
[3]Students having had no previous Clothing courses are required to take CT 111 as a prerequisite to CT 211.
[4]Choice of CT 335; AA 100, 101.

Curriculum C

Not more than one-third of the 192 term hours required for a degree in this curriculum may be in Home Economics. A minimum of 41 term hours in Home Economics is required. Of the required 41 term hours 32 to 34 are prescribed and the remaining 7 to 9 elective term hours are to be chosen from the options listed.

Freshman and Sophomore Years

During the freshman and sophomore years the student must have taken an approved program in arts and sciences leading to the Junior Certificate or equivalent. Courses in home economics need not have been taken but students who find it possible to take a year (9 term hours) of foods or of clothing and textiles, or both, will be enabled to elect a wider range of advanced courses in home economics during their junior and senior years.

Junior Year	Term hours 1st	2d	3d
Principles of Dietetics (FN 225)	2	---	---
Foods (FN 211, 212, 213) *or* (FN 220, 221, 222)	3	3	3
[1]Textiles (CT 250), Clothing (CT 211, 212) *or* Clothing Selection (CT 217), Clothing Selection and Construction (CT 218, 219)	3	3	3
House Furnishing (CT 331 or CT 231)	---	3	---
Electives	8	7	10
	16	16	16
Senior Year			
Home Economics courses to be chosen from the options listed below	3	---	4
Household Management (HAd 340)	4	---	---
Child Development (HAd 320)	---	3	---
Home Management House (HAd 350)	---	---	4
Electives	8	12	6
	15	15	14

Senior Options

From the following options 16 term hours must be chosen in order to complete the minimum of 41 required term hours in home economics.

	Term hours
Nutrition (FN 320, 321)	6
Food Purchasing (FN 411)	3
Diet in Disease (FN 420)	3
Experimental Cookery (FN 435)	3
Readings in Nutrition (FN 481)	3
Behavior Problems (HAd 421)	2
Nursery School (HAd 425)	3
Costume Design (CT 311)	3
Clothing (CT 312)	3
Applied Design (CT 335)	3
Dress Design (CT 411)	3
Commercial Clothing (CT 412)	3

Suggested Elective Combinations

Home economics students wishing to prepare for certain earning phases of home economics may elect any of the following groups of courses.

COMMERCIAL WORK IN CLOTHING AND RELATED ARTS

For students interested in commercial work in the fields of clothing, textiles, and related arts the following courses are suggested.

	Term hours
French	21
Commercial Art Design	3
Three terms of Lower Division Painting (AA 290)	9
Extempore Speaking (Sp 111)	3
Elementary Journalism (J 111)	3
Elementary Chemical Microscopy (Ch 320)	3
Dress Design (CT 411)	3
Commercial Clothing (CT 412)	3
House Furnishing (CT 431)	3
Applied Design (CT 435)	3

[1]Students having had no previous Clothing courses are required to take CT 111 as a prerequisite to CT 211.

HOME ECONOMICS TEACHING

For students preparing to teach home economics the following sequence is suggested. Additional electives should be taken to make a total of 23 term hours. Twenty-three credits in Education are required for a teaching certificate but are not required for graduation in Home Economics.

Junior Year	Term hours 1st	2d	3d
Educational Psychology (Ed 312)	3	----	----
Secondary Education (Ed 311)	----	----	3
Principles of Teaching (Ed 313)	3	----	----
Methods in Home Economics (Ed 331)	3 *or*	3 *or*	3
Senior Year			
The Curriculum in Home Economics (HEd 411)	3 *or*	3 *or*	3
Supervised Teaching (Ed 315) (hours to be arranged)	----	----	----

INSTITUTION ECONOMICS AND DIETETICS

For students in Curriculum B preparing for positions as dietitians in hospitals, dormitories, cafeterias, hotels and tea rooms, the following courses are required.

	Term hours 1st	2d	3d
Constructive Accounting (BA 111, 112)	4	4	----
Educational Psychology (Ed 312)	3	----	----
Principles of Teaching (Ed 313)	----	3	----
Quantity Cookery and Catering (IEc 311)	3	----	----
Elementary Physiological Chemistry (Ch 330)	----	----	5
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 Curriculum B preparing for positions in the field of home economics extension the following courses are suggested.

Junior Year	Term hours 1st	2d	3d
Educational Psychology (Ed 312)	----	3	----
Household Equipment (HAd 330)	----	3	----
Applied Design (CT 335)	----	----	3
Principles of Teaching (Ed 313)	----	----	3
Elementary Journalism (J 111)	3	----	----
Public Information Methods (J 213)	----	3	----
Senior Year			
Extempore Speaking (Sp 111)	3	----	----
The Family (Soc 312)	3 *or*	3	----
Methods in Home Economics Extension	2	----	2
Food Purchasing (FN 411)	----	3 *or*	3

SUGGESTED MINORS

Suggested outlines of minors in various fields, such as arts and sciences, physical education, journalism, speech and dramatics, languages, business administration and secretarial science, are supplied to students on request.

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, and textile design.

DESCRIPTION OF COURSES

REQUIRED

Curriculum A: CT 211, 212, 250, 331.
Curriculum B: CT 211, 212, 250, 311, 312, 331.
Curriculum C: CT 211, 212, 250, 331 or 231.

ELECTIVE

Curriculum A: CT 312, 335, 431.
Curriculum B: CT 411, 412, 435.
Curriculum C: CT 231, 311, 312, 331, 335, 411, 412.
For students in Business Administration, Education, Pharmacy, etc.: CT 217, 218, 219, 231.

Students planning to register for clothing courses CT 111, 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 for themselves may be furnished material through orders given the department.

LOWER DIVISION COURSES

CT 111. **Elementary Clothing and Textiles.** First or third term, 3 hours.

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. Six periods laboratory work.

CT 211. **Clothing.** First or second term, 3 hours.

Selection and construction; the selection is from the artistic standpoint; in construction, the emphasis is placed upon the use of sewing equipment, fitting, and the use of commercial patterns. Prerequisites: two terms of Lower Division Drawing. Two lectures; 2 two-hour laboratory periods.

CT 212. **Clothing.** Second or third term, 3 hours.

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. One recitation; 2 two-hour laboratory periods.

CT 217. **Clothing Selection.** First or second term, 3 hours.

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. For students not electing art. Three lectures.

CT 218, 219. **Clothing Selection and Construction.** Second and third terms, 3 hours each term.

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. Prerequisite: CT 217. Three two-hour laboratory periods.

CT 231. **House Furnishing.** First or third term, 3 hours.

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. Two recitations; 1 two-hour laboratory period.

CT 250. **Textiles.** Any term, 3 hours.

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. Two lectures; 1 two-hour laboratory period.

UPPER DIVISION COURSES

CT 311. **Costume Design.** Any term, 3 hours.

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 250, 212; two terms of Lower Division Drawing. Three two-hour laboratory periods.

CT 312. **Clothing.** Any term, 3 hours.

(Advanced course.) This course aims to develop more independence, initiative, originality, and art in selecting, planning, designing, and constructing garments for different types of figures. Skill in handling difficult materials is an object. Prerequisites: CT 212, 250, 311. One lecture; 2 two-hour laboratory periods.

CT 331. **House Furnishing.** Any term, 3 hours.

A study of the points to be considered in selecting and furnishing a small home from the standpoint of comfort, beauty, and economy. Prerequisites: One term of Lower Division Drawing; CT 250. Two recitations; 2 two-hour laboratory periods.

CT 335. **Applied Design.** Any term, 3 hours.

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-dying, batik, and stencil decoration for textiles, embroidery, weaving, block-printing. Prerequisites: two terms of Lower Division Drawing; CT 250. Three two-hour laboratory periods.

CT 411. **Dress Design.** Third term, 3 hours.

Designing, modeling, and constructing of afternoon and evening dresses; study of 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. Offered in alternate years, alternating with CT 412. Offered 1933-34. Prerequisites: CT 311, 312. One lecture; 4 periods laboratory work.

CT 412. **Commercial Clothing.** Third term, 3 hours.

(For students who wish to enter commercial or specialty shop work.) Broader training in selecting, designing, fitting, and construct-

ing garments for different types of figures; organization of work from trade standpoint; emphasis on speed, economy, effectiveness, selling features, etc. Prerequisite: CT 312. One lecture; 4 to 9 periods laboratory work. Offered in alternate years, alternating with CT 411. Not given 1933-34.

CT 431. **House Furnishing.** Third term, 3 hours.

(Advanced course.) A study of historic periods of decoration with emphasis on their backgrounds; furniture and decorative textiles and with their practical application to the home. Prerequisite: CT 335. Two lectures; 1 two-hour laboratory period. Offered in alternate years, alternating with CT 435. Not given 1933-34.

CT 435. **Applied Design.** Any term, 3 hours.

(Advanced course.) Continuation of CT 335 for students desiring more advanced work in applied design. Readings and reports. Offered in alternate years, alternating with CT 431. Given 1933-34.

GRADUATE COURSES

CT 501. **Graduate Study and Research.** Any term, hours to be arranged.

Special problems in the Clothing, Textiles, and Related Arts fields are selected for investigation and study. Readings, discussions, and conferences on subject-matter, bibliographies, and recent developments.

CT 503. **Graduate Thesis.** Any term, 6 to 12 hours.

Original problems chosen by the student or suggested by the department are studied and reported upon in thesis form.

Foods and Nutrition

SIX single laboratories for foods instruction 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

Curriculum A: FN 211, 212, 213, 225, 411.
Curriculum B: FN 220, 221, 222, 320, 321.
Curriculum C: FN 211, 212, 213, 225 or 220, 221, 222.

ELECTIVE

Curriculum A: FN 411.
Curriculum B: FN 411, 420, 435, 481.
Curriculum C: FN 320, 321, 411, 420, 435, 481.
For students in Business Administration, Education, Pharmacy, etc.: FN 211, 212, 213, 225, 250. If FN 211, 212, 213 or FN 220, 221, 222 are elected the full three terms must be completed.

LOWER DIVISION COURSES

FN 211, 212, 213.* Foods. Three terms, 3 hours each term.

An introduction to subject of foods; selection, preparation, and service. For students not electing chemistry. Prerequisite or parallel: one year of a laboratory science. Required in Curricula A and C. Two recitations; 2 two-hour laboratory periods.

FN 218. Food Selection and Preparation. Any term, 3 hours.

A unit course for students who desire to learn food selection and preparation by meal service. Elective for students other than Home Economics. One recitation; 2 three-hour laboratory periods.

FN 220, 221, 222.* Foods. Three terms, 3 hours each term.

Study of foods in their scientific and economic aspects; selection, preparation, and service. Prerequisites: Ch 201, 202, 203. Required in Curriculum B. Two recitations; 2 two-hour laboratory periods. Professor Williams.

FN 225. Principles of Dietetics. Any term, 2 hours.

Nutritive value of foods from the standpoint of newer scientific investigations, and the selection of an optimum diet for health. Some present-day problems in nutrition and recent trends in American dietary habits. Required in Curricula A and C; open to both men and women in other schools. Two lectures.

FN 250. Camp Cookery. Third term, 1 hour.

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. One lecture; 1 two-hour laboratory period.

UPPER DIVISION COURSES

FN 320. Nutrition. First or second term, 3 hours.

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 222, Ch 251. Two recitations; 1 two-hour laboratory period.

FN 321. Nutrition. Second or third term, 3 hours.

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. Prerequisites: FN 320, Z 212. Two recitations; 1 two-hour laboratory period.

FN 411. Food Purchasing. Second or third term, 3 hours.

Household marketing; study of grades, brands, and qualities of food products as found on the market; factors governing cost; food

*Home practice in food preparation is required of students who have completed FN 213 and FN 222, the character and amount of practice being arranged with the instructors in charge.

laws; the ethics of food buying and selling; field problems assigned. Prerequisite: FN 213 or 222. Two lectures; 2 two-hour laboratory periods.

FN 420. **Diet in Disease.** Third term, 3 hours.

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 211, 212. Three lectures.

FN 422. **Basal Metabolism.** First term, 3 hours.

A study of the measurement of energy metabolism in the human body with practice in the use of the respiration apparatus. Prerequisite: FN 321.

FN 423. **Animal Experimentation.** Any term, 3 hours.

A study of the quantitative methods used in nutrition research in which the white rat and guinea pig are used. Prerequisite: FN 321. Not offered 1933-34.

FN 435. **Experimental Cookery.** First term, 3 hours.

Development of experimental methods and their application to investigations in cookery and the skills involved. Acquaintance with the literature in this field. Preparation of the student for independent research in Foods. Prerequisites: Ph 114, Ch 251, FN 222. Six periods.

FN 481. **Readings in Nutrition.** One term, 3 hours.

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. Two two-hour periods. Offered alternate years. Offered 1933-34.

GRADUATE COURSES

FN 501. **Graduate Study and Research.** Any term, hours to be arranged.

Research problems for which the student is suited by previous training and ability. Assignment of problems by the professor in charge.

FN 503. **Graduate Thesis.** Terms and hours to be arranged.

Original problems chosen by the student or suggested by the department are studied and reported upon in thesis form.

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 Education.

DESCRIPTION OF COURSES

UPPER DIVISION COURSES

Ed 331. **Special Methods in Home Economics.** First term, 3 hours.

An introduction to the field of home economics education. Study of Smith-Hughes problems in home economics. Principles of teaching applied to home economics instruction. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

Ed 332. **Methods of Teaching Related Art.** First term, 3 hours.

Selection and organization of subject-matter in art in its application to vocational courses authorized under the Smith-Hughes act; special methods in teaching related art. Prerequisite or parallel: Ed 313. Three recitations. Professor Blazier.

HEd 411. **The Curriculum in Home Economics.** Any term, 3 hours.

A study of the basic principles of curriculum construction applied to the organization of home economics courses in secondary schools. Prerequisite: Ed 331. Three recitations. Professor Blazier.

HEd 413. **The Supervision of Home Projects.** Third term, 2 hours.

A study of the use of home projects in home economics instruction with field work in supervision of home projects. Prerequisite: HEd 411. One recitation; 1 two-hour laboratory period. Professor Blazier.

HEd 415. **Adult Education in Home Economics.** Second term, hours to be arranged.

Study of problems in the adult education program authorized under the Smith-Hughes Act. Field work in promoting, organizing, observing, and teaching adult classes. Prerequisite: HEd 411. Professor Blazier.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Problems in home economics education. Professor Blazier.

Ed 503. **Thesis.** Terms and hours to be arranged.

Home Economics Extension

HOME Economics Extension is a department of the School of Home Economics as well as a division of the Federal Cooperative Extension Service. In it centers 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 also the School aims to

serve the homemakers of the state by communications 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.

Home Economics Research

HOME economics research is concerned with all problems of the modern home. The program of research in foods and nutrition affords opportunity for investigation in animal experimentation, basal metabolism, child nutrition, dietotherapy, experimental work in foods, food purchasing, and other problems in this field. The facilities for such research include an animal laboratory, respiration apparatus, food laboratories, and the nursery school for problems in preschool child nutrition.

Federal funds available for home economics research through the Agricultural Experiment Station are sufficient for the employment of a full-time research worker. Projects chosen for Federal cooperation have been in the field of household administration. A study of housing arrangements from the standpoint of efficiency in household management is now in progress.

Instruction in the field of home economics research, offered in the summer session, provides training in methods of research and aids in placing the findings of research at the immediate disposal of advanced students in the field.

Household Administration

UNDER this department instruction is offered in household administration, child development, and parent education. Offices, classrooms, and equipment laboratory are located 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

Curriculum A: HAd 101, 320, 340, 350.
Curriculum B: HAd 101, 320, 340, 350.
Curriculum C: HAd 101, 320, 340, 350.

ELECTIVE

Curriculum A: HAd 330, 407, 408, 421, 425.
Curriculum B: HAd 330, 407, 408.
Curriculum C: HAd 330, 407, 408, 421, 425.
For students in Business Administration, Education, Pharmacy, etc.: HAd 225 (required in Business Administration), HAd 101, 240, and any other course for which prerequisites have been taken.

LOWER DIVISION COURSES

HAd 101. **Introduction to Home Economics.** Any term, 3 hours.

A course for beginning students to orient them in the field of home economics and to assist them in adjustments to college life. Required

of freshmen in Home Economics; open to students in other schools. Three recitations. Dean Milam.

HAd 225. **Child Care and Training.** Any term, 3 hours.

A study of the growth, development, and training of the young child. For students other than those in Home Economics degree curricula. Three recitations. Professor Prentiss.

HAd 240. **Family and Personal Budgets.** Any term, 1 hour.

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 women not majoring in Home Economics. One lecture.

UPPER DIVISION COURSES

HAd 320. **Child Development.** Any term, 3 hours.

A study of the growth and development of the young child. Prerequisite: Psy 203 or 211. Three recitations. Professor Prentiss.

HAd 330. **Household Equipment.** Second term, 3 hours.

Selection, operation, care, and arrangement of household equipment. One recitation; 2 two-hour laboratory periods. Prerequisite: one term of Foods.

HAd 340. **Household Management.** Any term, 4 hours.

An application of the principles of scientific management to the home; management of household operations and finances; family and community relationships. Prerequisites: FN 218, or 213 or 222; CT 219, or 212. Four recitations.

HAd 350. **Home Management House.** Any term, 4 hours.

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 320. Daily work in house.

HAd 407. **Seminar in Home Management.** Any term, 1 hour each term.

Discussion of research in the home management field.

HAd 408. **Seminar in Child Development.** Any term, 1 hour each term.

Discussion of research in child development as reported in scientific literature.

HAd 421. **Behavior Problems.** Second or third term, 2 hours.

A consideration of every-day problems of behavior with the aim of improving the management of children. Prerequisite: HAd 320 or 225. Two recitations. Professor Prentiss.

HAd 425. **Nursery School.** Any term, 3 hours.

Observation and study of a group of young children. Prerequisite or parallel: HAd 225 or 320. Two three-hour laboratory periods; 1 recitation. Mrs. Brandon.

GRADUATE COURSES

HAd 501. **Graduate Study and Research.** Any term, hours to be arranged.

Research problems for which the student is suited by ability and previous training. Assignments of problems by professor in charge.

HAd 503. **Graduate Thesis.** Any term, 6 to 10 hours.

Original problems chosen by the student or suggested by the department are studied and reported on in thesis form.

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

UPPER DIVISION COURSES

IEc 311. **Quantity Cookery and Catering.** First term, 3 hours.

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 213 or 222. One lecture; 2 two-hour laboratory periods. Assistant Professor Bibee.

IEc 320. **Cafeteria Management.** Summer session, 3 hours.

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. Offered in summer session only. Prerequisite: FN 213 or 222. Assistant Professor Bibee.

IEc 420. **Institutional Equipment.** Second term, 3 hours.

Study of equipment for bedrooms, living-rooms, dining-rooms, and kitchens in different types of institutions; design, materials; construction, cost, and arrangement. Prerequisite: FN 213 or 222. Three lectures. Professor Hunter.

IEc 430. **Institutional Organization and Administration.** First term, 2 hours.

Study of the principles of organization and administration as applied to various types of institutions; discussion of employment prob-

lems and training, labor laws, office records. Prerequisite: FN 213 or 222. Two lectures. Professor Hunter.

IEc 440. **Institutional Marketing.** Third term, 2 hours.

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 213 or 222. Two lectures. Professor Hunter.

IEc 450. **Institution Experience.** Third term, 4 hours.

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 311, 420, 430, 440. One lecture; 3 two-hour laboratory periods. Assistant Professor Bibee.

GRADUATE COURSES

IEc 501. **Graduate Study and Research.** Any term, hours to be arranged.

Research problems for which the student is suited by previous training and ability.

IEc 503. **Graduate Thesis.** Any term, 6 to 12 hours.

Original problems chosen by the student or suggested by the department are studied and reported on in thesis form.

COURSES AT UNIVERSITY

The following lower division and service courses in the School of Home Economics are available at the University.

CLOTHING, TEXTILES AND RELATED ARTS

LOWER DIVISION COURSES

CT 111, 112, 113. Clothing Construction. Three terms, 2 hours each term.

CT 114, 115, 116. Clothing Selection. Three terms, 1 hour each term.

CT 125. Textiles. First term, 2 hours.

CT 231. Home Planning and Furnishing. Third term, 3 hours.

FOODS AND NUTRITION

LOWER DIVISION COURSES

FN 211, 212, 213. Foods. Three terms, 3 hours each term.

FN 225. Principles of Dietetics. Any term, 2 hours.

FN 250. Camp Cookery. Third term, 1 hour.

HOUSEHOLD ADMINISTRATION

LOWER DIVISION COURSES

HAd 225. Child Care and Training. First term, 3 hours.

HAd 240. Family and Personal Budgets. Second term, 1 hour.

UPPER DIVISION SERVICE COURSE

HAd 339. Household Management. Second term, 3 hours.

School of Pharmacy

Faculty

ADOLPH ZIEFLE, Phar.D., Dean of the School of Pharmacy.

MYRTLE RUTH BURNAP, B.S., Secretary to the Dean.

Practical Pharmacy

ADOLPH ZIEFLE, Phar.D., Professor of Pharmacy.

FRANCOIS ARCHIBALD GILFILLAN, Ph.D., Professor of 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.

General Information

IN 1898, on petition of the druggists of Oregon for more thorough theoretical and practical instruction in pharmacy and related branches than could be provided in the average drug store, pharmacy was first established as a separate department of the State College. From its inception the department grew steadily, and in 1917 it was raised to the rank of school. The School is therefore an integral part of the College organization, and as a consequence has shared in the support accorded by the State of Oregon and the national government. As a result of this support, together with the fact that it is a part of a great educational institution, the School is equipped to offer standard curricula and to maintain a high degree of excellence in its work.

The School of Pharmacy is a member of the American Association of Colleges of Pharmacy, a national association organized to promote 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.

The State College is accredited by the Association of American Universities. The curricula of the School of Pharmacy are registered by the New York Board of Higher Education. 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.

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 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.

Pharmacy as a Profession for Women. No field of work offers more desirable opportunities for women than pharmacy. The work is clean, pleasant, and agreeable. 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 per cent of all drugs and druggists' sundries are purchased by women, and it is natural that those patrons should prefer to deal with women.

Entrance Without Drug-Store Experience. Students are not required to have had drug-store experience to register in the School of Pharmacy. 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.

Regulations and Standards. Class instruction, entrance requirements, and scientific standards are the same as in the other schools of the State College, as well as in other Class A schools and colleges of pharmacy. Students are trained not only in technique, power of observation, and the principles of pharmacy, but also in resourcefulness, initiative, and individual responsibility. Students share all of the advantages and enjoy the spirit of a large educational institution. 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.

Oregon Law Relating to the Practice of Pharmacy. The Oregon State Pharmacy Law is enforced by the Oregon State Board of Pharmacy. This Board recognizes two classes of pharmacists: registered pharmacists and registered assistant pharmacists. The state law outlines the scope and duties of each class of pharmacists with regard to the dispensing of prescriptions, the sale of poisons, and other professional services. A registered pharmacist can operate and manage a drug store, compound medicin-

al substances, and sell poisons, and it is his duty to train apprentices in the professional phases of pharmacy. A registered assistant pharmacist cannot operate or manage a drug store although he may be left in charge during the temporary absence of the registered pharmacist. His duties are to assist the registered pharmacist and under proper supervision he may dispense prescriptions, sell poisons, and perform other professional services in a drug store.

A resumé of the Oregon State Pharmacy Law passed in 1921 and amended in 1931 is as follows:

To qualify as REGISTERED PHARMACIST, a candidate must meet the following requirements:

1. He must be an American citizen and at least twenty years of age.
2. He must be a graduate of a school or college of pharmacy accredited by the Oregon State Board of Pharmacy.
3. He must take the registered pharmacist's examination, make a weighted average of seventy-five per cent and not fall below sixty-five per cent in any one subject.
4. He must have completed one year of practical drug-store experience under the supervision of a registered pharmacist comprising a minimum of at least 2,400 hours of work per calendar year. In no case will more than 2,400 hours of practical experience be credited for any calendar year. Blanks are provided by the State Board of Pharmacy for the registration of practical experience and all such experience must be certified to on affidavit by a registered pharmacist.

To qualify as REGISTERED ASSISTANT PHARMACIST, a candidate must meet the following requirements:

1. He must be an American citizen and at least eighteen years of age.
2. He must have completed three years of practical experience in a drug store where prescriptions of physicians are compounded and dispensed, under the supervision of a registered pharmacist. Each year of such experience must comprise at least 2,400 hours of work, but in no case will more than 2,400 hours be credited for any calendar year. The State Board of Pharmacy accredits the time actually spent in a school of pharmacy as practical experience, but in no case shall more than two years of college training be credited as practical drug-store experience.
3. He must pass the assistant pharmacist's examination given by the State Board of Pharmacy.

Eligibility for Examination. All graduates of the School of Pharmacy are eligible to take the examinations of the Oregon State Board of Pharmacy. Those graduates who pass in all subjects and who have completed one year of practical drug-store work receive the certificate of registered pharmacist. The certificates of the graduates who pass in all subjects, but who have not completed one calendar year of practical drug-store work under the supervision of a registered pharmacist, are withheld until they can fulfill this requirement. These graduates have no standing whatsoever

as registered pharmacists or registered assistant pharmacists until they can fulfill all of the requirements for the registered pharmacist's certificate.

Preparation for the Examinations of State Boards of Pharmacy. All graduates in pharmacy are required to pass the examinations of a state board of pharmacy before they can practice pharmacy. In preparation for these examinations, in addition to regular class work during the third term of each academic year, the faculty organizes review classes for senior students for the purpose of giving trial state board examinations; studying the sets of typical state board questions; studying specimens of drugs and chemicals for examination in identification; to give oral examinations and to use all other means to familiarize the students with the various subjects in which they will be examined. Because of this service graduates of the School of Pharmacy have made an outstanding record in the examinations of the Oregon State Board of Pharmacy.

Reciprocity. Since the Oregon State Board of Pharmacy is a member of the National Association of State Boards of Pharmacy, graduates who are registered by this Board are privileged to reciprocate without further examination with all states except California and New York, which do not reciprocate with any other state.

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 generously. 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 state association. 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 per cent interest. Only in exceptionally worthy cases are loans granted during the first term.

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 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.

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 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.

Correspondence. Inquiries regarding the School of Pharmacy may be addressed to the Dean. Students desiring to enter will be provided by the College Registrar with proper blanks for filing credentials.

Curricula in Pharmacy

B.S., M.S. Degrees

THE curricula of the School of Pharmacy have been outlined to fulfill the following objectives:

A. PRACTICAL PHARMACY CURRICULUM. This curriculum as outlined below is designed to provide for thorough training in pharmacy, chemistry, biology, accounting, business law, and related subjects, so that the graduate will be prepared not only to pass the examinations of state boards of pharmacy, but to serve efficiently in all branches of practical drug-store work. Since the commercial phases of pharmacy are rapidly becoming the dominant feature of the modern drug-store, a group of twenty non-resident lecturers representing all phases of the drug business give a series of lectures and demonstrations in the model drug store to the members of the senior class. This lecture series supplements the regular instruction in commercial pharmacy. In addition, students intending to engage in practical drug-store work are urged to elect additional courses in accounting and merchandising.

The following are some of the fields open to thoroughly trained and experienced pharmacists: preparation and dispensing of medicines; dispensers and clinical technicians in hospitals; managers and proprietors of drug stores; chemists and department managers for laboratories that manufacture drugs and chemicals; positions in public health work where the graduate is expected to advise the public in health and sanitation; and a variety of other positions demanding a knowledge of pharmacy and related subjects.

B. PROFESSIONAL PHARMACY CURRICULUM. Students wishing to prepare for positions demanding more intensive training in scientific and cultural subjects than is provided for in the practical pharmacy curriculum, together with basic training in pharmacy and related subjects, follow the curriculum described below. Students electing this curriculum may prepare for the following positions: research and manufacturing chemists with wholesale drug firms; for graduate work; traveling representatives with drug firms who call on physicians and pharmacists in the interest of newly discovered drugs and other substances; inspectors for state and federal bureaus; pharmacists and specialists with the United States government in the departments of public health, veterans' administration, the navy, the army, internal revenue department, federal pure food and drug laboratories, chemists with state boards of health and state food and drug laboratories; and a variety of other positions.

In addition, since the American Medical Association has recognized the State College as a Class A institution, a student by completing the professional pharmacy curriculum can qualify in the period of four years for admission to a Class A medical school and the degree of Bachelor of Science in Pharmacy.

Before any student of the College may apply for admission to a medical school, he must take a medical aptitude test. The test is given by the Association of American Medical Colleges, during the first term of each year, to students who expect to make application for admission to a medical school during that year. The student's rating in this test is an important factor in his eligibility for admission.

All Class A dental schools require one year of college predental work for admission. This includes one year's credit in English composition, zoology, physics, general inorganic chemistry, and qualitative analysis. To this may be added elective courses such as drawing, shop work, modern language and other courses recommended by dental schools. Students preparing for admission to a dental school may elect the professional pharmacy curriculum and the Dean will arrange each student's schedule so that he can complete the requirements in one year.

Options in the election of courses are permitted according to the student's interests and needs. Prior to registration for each term the Dean outlines for each student the courses he should elect to fulfill his objective, together with delinquencies. It is therefore incumbent upon all students who intend to register in the School of Pharmacy to communicate with the Dean to ascertain the course of study best suited to their needs. If a student is interested in any specific medical school or dental school, or if he desires to prepare for the examinations given to osteopaths, chiropractors, and practitioners in other healing arts, he should study current catalogs and other requirements. Upon request the Dean will furnish all information necessary to outline the student's course of study.

Advanced standing is granted to students transferring from other institutions of collegiate rank. Application for advanced standing is made on official transcript submitted to the Registrar. Upon receipt of the advanced standing report, the Dean makes a study of the student's case and outlines the program to be followed to graduate in pharmacy, to be admitted to medical schools or dental schools, or to qualify for any other objective which the student desires to attain.

The Bachelor's Degree. The degree of Bachelor of Science in Pharmacy is conferred upon those who have satisfactorily completed the subjects as outlined in the four-year curricula. These in the aggregate comprise 192 term hours.

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 State 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 under Graduate Division.

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 on 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.

PRACTICAL PHARMACY CURRICULUM

Freshman Year	Term hours 1st	2d	3d
English Composition (Eng 111, 112, 113)	3	3	3
General Chemistry (Ch 204, 205, 206)	5	5	5
History or elective	3	3	3
Theoretical Pharmacy (Phr 111, 112)	3	3	----
Pharmaceutical Processes (Phr 113)	----	----	3
[1]Physical Education	1	1	1
Military Science	1	1	1
Social Ethics (Women) (PE 131)	----	----	----
	16	16	16

Sophomore Year			
Organic Chemistry (Ch 226, 227)	5	5	----
Quantitative Analysis (Ch 232)	----	----	5
German or French (or elective)	4	4	4
General Zoology (Z 201, 202, 203)	3	3	3
Commercial Pharmacy (Phr 211, 212)	----	2	2
Advanced Physical Education	1	1	1
Military Science	1	1	1
Elective	2	----	----
	16	16	16

Junior Year			
Constructive Accounting (BA 111, 112)	4	4	----
Business Law (BA 256)	----	----	4
General Bacteriology (Bac 201)	3	----	----
Pathogenic Bacteriology (Bac 332)	----	3	----
Immunity and Serum Therapy (Bac 333)	----	----	3
Practical Pharmacognosy (PhP 331, 332)	3	3	----
Natural Products and Drug Principles (PhA 321)	3	----	----
Pharmacopoeial Testing (PhA 327)	----	3	----
Inorganic Pharmacy (Phr 311)	4	----	----
Pharmaceutical Calculations (Phr 313)	----	3	----
Galenical Pharmacy (Phr 317)	----	----	3
Galenical Preparations (Phr 318)	----	----	3
Approved elective	----	----	3
	17	16	16

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Senior Year	Term hours 1st	2d	3d
Practical Pharmacology (PhP 391, 392)	3	3	----
Experimental Pharmacology (PhP 393)	----	----	3
Proprietary Remedies (Phr 350)	----	----	3
U. S. Pharmacopoeia and National Formulary (Phr 341, 342)	3	3	----
Drug Store Practices (Phr 347, 348)	3	3	----
Manufacturing Pharmacy (Phr 344)	----	3	----
Prescription Lectures (Phr 354)	4	----	----
Prescription Incompatibilities (Phr 355)	----	4	----
Prescription Compounding (Phr 356)	----	----	3
Approved electives	3	----	6
	16	16	15

PROFESSIONAL PHARMACY CURRICULUM

In addition to the regular pharmacy curriculum, the requirements for the B.S. degree in pharmacy may also be satisfied through a professional curriculum. This curriculum is elected by students who do not desire to engage in practical drug store work but who are interested in positions demanding in addition to basic training in pharmacy additional courses in chemistry, biology, physics, modern languages, and cultural subjects.

Students electing this curriculum are under the direct supervision of the Dean, who outlines their course of study at the beginning of each term so as to insure for them the best preparation for the field in which they desire to specialize.

The essential differences between the regular pharmacy curriculum and the professional curriculum are as follows:

(1) The proportion of the strictly pharmacy subjects required is smaller than in the case of students preparing for practical drug-store work. Students pursuing a professional curriculum must, however, complete all the fundamental courses in pharmacy (a total of 45 term hours).

(2) Requirements in the physical sciences are increased by the addition of a year of physics, physical chemistry, and a course in testing for poisons and other drug principles.

(3) Additional courses in the biological sciences are required.

(4) The cultural requirements are increased by an additional year of German, one year of social science, one year of literature, and advanced courses in English.

(5) Finally, provision is made for electives in whatever fields the student desires to specialize.

Through a professional curriculum students are provided with a flexible program that not only provides thorough basic training in pharmacy but prepares them for a variety of other positions as stated above.

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

LOWER DIVISION COURSES

Phr 111, 112. **Theoretical Pharmacy.** First, second terms; 3 hours each term.

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. Two lectures; 1 recitation; 1 three-hour laboratory period. Professor Ziefle.

Phr 113. **Pharmaceutical Processes.** Third term, 3 hours.

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 112. Two lectures; 1 recitation; 1 three-hour laboratory period. Professor Gilfillan.

Phr 120. **Theoretical Pharmacy.** Any term, 4 hours.

An abbreviated course identical with Phr 111, 112 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 science courses. This course is designed to complete Theoretical Pharmacy in one term. Three lectures; 2 recitations. Assistant Professor Britt.

Phr 211, 212. **Commercial Pharmacy.** Second and third terms, 2 hours each term.

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. Three two-hour laboratory periods. Assistant Professor Britt.

Phr 220. **Household Preparations.** Any term, 3 hours.

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. One lecture; 1 recitation; 1 three-hour laboratory period. Professor Ziefle and assistants.

UPPER DIVISION COURSES

Phr 311. **Inorganic Pharmacy.** First term, 4 hours.

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 205. Two lectures; 1 recitation; 1 three-hour laboratory period. Professor Gilfillan.

Phr 313. **Pharmaceutical Calculations.** Second term, 3 hours.

Study of calculations common to pharmacy; weights and measures; percentage solution; alligations; specific gravity; thermometers; etc. Prerequisites: Phr 111, Ch 204. Two lectures; 1 recitation. Professor Gilfillan.

Phr 317. **Galenical Pharmacy.** Third term, 3 hours.

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. Pharma-

copoeia and National Formulary. Prerequisites: PhP 331, Ch 226. Two lectures; 1 recitation. Professor Gilfillan.

Phr 318. **Galenical Preparations.** Third term, 3 hours.

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 331, Ch 226. Three three-hour laboratory periods. Assistant Professor Britt.

Phr 341, 342. **U. S. Pharmacopoeia and National Formulary.** First and second terms, 3 hours each term.

All drugs in United States Pharmacopoeia and National Formulary, as well as all important unofficial drugs and preparations in the dispensatories 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 318, PhP 332, Ch 227. Two lectures; 1 recitation. Professor Gilfillan.

Phr 344. **Manufacturing Pharmacy.** Second term, 3 hours.

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 317, 318, 342; Ch 206, 227. Three three-hour laboratory periods. Associate Professor Stuhr.

Phr 347, 348. **Drug Store Practices.** First, second terms; 3 hours each term.

The stock and equipment of the model drug store are used for instruction in practical drug-store work, including preliminary problems of establishing a drug store, store arrangement, salesmanship, show-case and window trimming, inventory, keeping narcotic and poison records, taking copies of prescriptions over the telephone, and other phases of drug-store work. Mimeographed lecture notes, current trade bulletins, lectures by druggists and salesmen, and demonstrations by use of motion-pictures. Since all stock and sundries in the model drug store were donated for instructional purposes, nothing is actually sold or dispensed. Prerequisite: Phr 313. One lecture; 1 recitation; 1 three-hour laboratory period. Professor Ziefle.

Phr 350. **Proprietary Remedies.** Third term, 3 hours.

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 consid-

ered. Prerequisites: Phr 318, PhP 332, Ch 227. Two lectures; 1 recitation. Professor Gilfillan.

Phr 354. **Prescription Lectures.** First term, 4 hours.

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 318; PhP 332; Ch 206, 227. Two lectures; 1 recitation; 1 three-hour laboratory period. Associate Professor Stuhr.

Phr 355. **Prescription Incompatibilities.** Second term, 4 hours.

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 354, Ch 226. Two lectures; 1 recitation; 1 three-hour laboratory period. Associate Professor Stuhr.

Phr 356. **Prescription Compounding.** Third term, 3 hours.

In this course the students apply the principles learned in Phr 355 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 355, Ch 227. One lecture; 2 three-hour laboratory periods. Associate Professor Stuhr.

GRADUATE COURSES

Phr 501. **Graduate Research.** Terms and hours to be arranged.

Phr 503. **Graduate Thesis.** Terms and hours to be arranged.

Phr 505. **Reading and Conferences.** Terms and hours to be arranged.

Phr 507. **Seminar in Current Problems.** Terms and hours to be arranged.

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.

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

UPPER DIVISION COURSES

PhA 321. **Natural Products and Drug Principles.** First or third term, 3 hours.

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 206, 227. One lecture; 2 three-hour laboratory periods. Assistant Professor Britt.

PhA 327. **Pharmacopoeial Testing.** Second term, 3 hours.

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 321, Ch 227. One lecture; 2 three-hour laboratory periods. Assistant Professor Britt.

PhA 361, 362, 363. **Quantitative Drug Analysis.** Three terms, 3 hours each term.

Quantitative analysis of crude drugs and drug preparations by physical means or chemical methods. Polariscope, refractometer, 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 321, 327; Ch 227. One lecture; 2 three-hour laboratory periods. Assistant Professor Britt.

PhA 441. **Toxicology.** Any term, 3 hours.

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 332, PhA 321, Ch 206, 227. One lecture; 2 three-hour laboratory periods. Professor Gilfillan.

GRADUATE COURSES

PhA 501. **Graduate Research.** Terms and hours to be arranged.

PhA 503. **Graduate Thesis.** Terms and hours to be arranged.

PhA 505. **Reading and Conferences.** Terms and hours to be arranged.

PhA 507. **Seminar in Current Problems.** Terms and hours to be arranged. Conducted jointly with Phr 507 and PhP 507. See Phr 507.

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

UPPER DIVISION COURSES

PhP 331, 332. **Practical Pharmacognosy.** First and second terms, 3 hours each term.

Study of animal and vegetable drugs with reference to their habitat, botanical classification, official titles, synonyms, constituents, uses, identification, and standardization. Prerequisites: Phr 113; Ch 206, 227. Three lectures; 1 recitation. Associate Professor Stuhr.

PhP 338. **Microscopy of Drugs.** Any term, 3 hours.

Microscopic structure and characteristics of drugs; methods of identifying powdered drugs and of detecting adulterations. Prerequisites: PhP 332, Ch 226. One lecture; 2 three-hour laboratory periods. Associate Professor Stuhr.

PhP 391, 392. **Practical Pharmacology.** First and second terms, 3 hours each term.

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 318; PhP 332; Ch 206, 226. Two lectures; 1 recitation. Associate Professor Stuhr.

PhP 393. **Experimental Pharmacology.** Third term, 3 hours.

A continuation of PhP 391, 392, 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 392. Two lectures; 1 three-hour laboratory period. Associate Professor Stuhr.

PhP 481. **Pharmacological Standardization.** Any term, 3 hours.

Biological assaying, employing the methods of the U. S. P., together with certain unofficial but well-recognized procedures. Prerequisites: PhP 393, Ch 227, Bac 332, Z 203. One lecture; 2 three-hour laboratory periods. Associate Professor Stuhr.

GRADUATE COURSES

PhP 501. **Graduate Research.** Terms and hours to be arranged.

PhP 503. **Graduate Thesis.** Terms and hours to be arranged.

PhP 505. **Reading and Conferences.** Terms and hours to be arranged.

PhP 507. **Seminar in Current Problems.** Terms and hours to be arranged. Conducted jointly with Phr 507 and PhA 507. See Phr 507.

Lower Division and Service Departments

IN addition to the instruction offered in the major or degree-granting schools, lower division work is offered at the State College in the basic fields of Arts and Letters and Social Science and in the professional fields of Business Administration, Fine Arts, Journalism, and Physical Education. These all constitute major schools at the University and the work at the State College is in each case under the control of the dean of the major school and parallels the lower division work in that field at the University. Similarly, in the basic fields of Biological and Physical Science including Mathematics and in the professional field of Home Economics, which constitute major schools at the State College, lower division work parallel to that at the State College is offered at the University under the control of the respective major deans at the State College.

At each institution, in addition to the lower division work, upper division service courses in non-major as well as major fields are offered as needed, either as prescribed subjects or electives for students registered in other fields.

Unaffiliated Departments. Courses are given at the State College in the department of Military Science and Tactics and the department of Religion which are likewise unaffiliated with any of the major schools.

Arts and Letters

Faculty

CLARENCE VALENTINE BOYER, Ph.D., Dean and Director of Arts and Letters.

English

SIGURD HARLAN PETERSON, Ph.D., Professor of English; Head of Department.
*FREDERICK BERCHTOLD, A.M., Professor of English.
MAHLON ELLWOOD SMITH, Ph.D., 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., Assistant Professor of English.
HERBERT BENJAMIN NELSON, M.A., Instructor in English.
DONALD WILLIAM EMERY, M.A., Instructor in English.

*On part time 1933-34.

Modern Languages

EDITH CARTER KUNEY, A.M., Associate Professor of French; Chairman of Department.

*LOUIS BACH, A.M., Professor of Modern Languages.

MELISSA MARGARET MARTIN, A.M., Associate Professor of Spanish.

MARY EUNICE LEWIS, M.A., Associate Professor of Germanic Languages.

ALICE BELLE MYERS, A.M., Instructor in German.

Speech

CHARLES BUREN MITCHELL, M.A., Professor of Speech; Head of Department.

ELIZABETH MARIA BARNES, B.L.I., Associate Professor of Dramatics.

EARL WILLIAM WELLS, J.D., Associate Professor of Speech.

PAUL XENOPHON KNOLL, M.S., Assistant Professor of Speech.

DELOSS PALMER YOUNG, B.S., Instructor in Speech and Dramatics.

General Information

LOWER division and service courses in Arts and Letters are offered at the State College by the College of Arts and Letters under the direction of the Dean and Director of Arts and Letters at the University. By action of the State Board of Higher Education March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Arts and Letters was confined to the College of Arts and Letters at the University, and lower division work comprising instruction in the freshman and sophomore years was assigned to both the University and the State College.

The lower division instruction in English, modern languages, and speech at the State College constitutes essentially the equivalent of lower division work in these subjects at the University; and students finding it more convenient to spend their freshman and sophomore years at the State College may transfer to the University for their major work without loss of credit and with fundamental requirements for upper division work in these subjects fully met.

The instruction in the first two years is made as broad and liberalizing as possible, the aim being a general education together with preparation for specialization at the upper division level. The lower division program in Arts and Letters at the State College, besides laying a broad foundation for later specialization in Arts and Letters at the University, is intended also to serve the needs of students majoring in other fields on the State College campus. In addition, upper division service courses, prescribed as required subjects or available as electives for students registered in other fields, are given as needed at the State College.

*On leave of absence 1933-34.

English

THE lower division courses in English are intended to supply the training in writing necessary to every educated man, to afford a cultural background for those students who are limited to two years of work in the field of English, and to present the necessary foundation work for the continuation of English as a major at the University.

Literature. The study of English literature begins with an introduction in the form of either a historical presentation of the tradition of English literature or an examination of the motives and ideas of literature. This is followed by a more detailed study of periods, epochs, and centuries of English literary movements; a careful analysis of the chief literary forms such as the novel, drama, and poetry; and a more intensive study of the major authors.

Written English. The purpose of the study and practice of written English is technical accuracy in the fundamental forms of composition, the development of the power of expression, and the survey of special art forms such as versification, play-writing, and short story.

English K. All entering students are required to take an examination in English. Those who fail in this examination are enrolled in a writing course called English K, the object of which is the diagnosis and correction of defects manifested in the placement examination. Those who pass the examination enter the regular freshman course (Eng 111, 112, 113).

COURSES IN LITERATURE

LOWER DIVISION COURSES

*Eng 101, 102, 103. **English Survey.** Three terms, 3 hours each term.

A general outline course in the history of English literature. First term: from the beginnings to the seventeenth century. Second term: seventeenth and eighteenth centuries. Third term: nineteenth century. Three lectures or recitations. Not offered 1933-34. Assistant Professor Ordeman.

*Eng 104, 105, 106. **Introduction to Literature.** Three terms, 3 hours each term.

The purpose is to stimulate appreciation and criticism of literature. Study of some masterpieces in ancient, modern, and contemporary literature. Three lectures or recitations. Professor Peterson, Associate Professor Kierzek, Assistant Professors Ordeman and Colby.

Eng 161. **American Literature.** Any term, 3 hours.

Study of American literature from its beginnings to the present day. Three lectures or recitations. Professor Peterson and Assistant Professor Ordeman.

*Students intending to major in English should take either Eng 101-103 or Eng 104-106.

Eng 201, 202, 203. **Shakespeare.** Three terms, 3 hours each term.

Study of the important historical plays, comedies, and tragedies. Courses in sequence but may be taken separately. Prescribed for majors. Lectures or recitations. Professors Smith and Peterson.

Eng 261, 262. **Individual Authors.** Second and third terms, 3 hours each term.

Each term devoted to the study of a single author. Lectures or recitations. Professor Smith.

Eng 263. **Great Books.** First term, 3 hours.

Survey of some of the world's great books, including the Bible, the Odyssey, Arabian Nights, Divine Comedy, Autobiography of Benvenuto Cellini, Don Quixote, Pilgrim's Progress, Gulliver's Travels, and Faust. The emphasis is on the contribution each has made to western culture—that is, on elements of enduring greatness. Three lectures or discussion periods. Professor Smith.

Eng 264, 265, 266. **Continental European Literature.** Three terms, 3 hours each term.

The study of Continental European literature in approved translations. Lectures and reports. First term, Romance literature; second term, Germanic; third term, Slavic. Assistant Professor Colby.

Eng 271, 272, 273. **Contemporary Literature.** Three terms, 3 hours each term.

This course takes up in the different terms the study of the contemporary American novel, American poetry, and modern drama. Lectures or recitations. Associate Professor Kierzek.

Eng 274. **The Short Story.** Third term, 3 hours.

The development of the American short story; analysis of recognized masterpieces as well as of the best present-day magazine stories, with the idea of developing critical taste in reading. Professor Peterson.

Eng 275. **The Bible as Literature.** Third term, 3 hours.

Designed to stimulate and enlarge appreciation of the art and beauty of the literature of the Bible. Questions of theology and dogmas of religion are avoided. Assignments include passages which fall under the chief literary types, such as folk-lore, story telling, history, poetry, drama, wisdom literature, oratory, and the essay. Three lectures or recitations. Assistant Professor Baldwin.

COURSES IN WRITTEN ENGLISH

LOWER DIVISION COURSES

English K. First or second term, 1 hour.

A one-term course in the mechanics of composition for those who fail to pass the English placement examination. The student must pass the English placement examination or English K before he is permitted to register for any other written English course. Three recitations. Staff.

Eng 111, 112, 113. **English Composition.** Three terms, 3 hours each term.

A year course in the fundamentals of English composition and rhetoric, with frequent written themes in the various forms of discourse. Special attention is paid to correctness in fundamentals and to the organization of papers. Prerequisite: English placement examination. Three recitations. Staff.

Eng 211. **Essay Writing.** First term, 3 hours.

An advanced course in composition devoted to the study and perfection of style, and to the study of the various forms and models of the essay. Prerequisites: Eng 111, 112, 113. Three recitations. Professor Berchtold.

Eng 212. **Advanced Essay Writing.** Second term, 3 hours.

An advanced study of the essay for those interested in the problems of creative expression and prose style. Prerequisite: Eng 211. Three recitations. Professor Berchtold.

Eng 213, 214, 215. **Short Story Writing.** Three terms, 2 hours each term.

This course is designed to develop proficiency in the art of writing the short story. Prerequisite: consent of instructor. Two recitations. Professor Peterson.

Eng 216. **Advanced English Composition.** Third term, 3 hours.

For students who desire a review of the rules of composition and practice in writing. Prerequisites: Eng 111, 112, 113. Three recitations.

Eng 217. **Business English.** Any term, 3 hours.

A complete review and study of modern practices in business correspondence, organized primarily for students of Business Administration. Attention is paid to the analysis and to the writing of all types of correspondence. Prerequisites: Eng 111, 112, 113. Three recitations. Mr. Nelson.

Modern Languages

IN the department of Modern Languages instruction is offered in French, German, and Spanish. The lower division and service courses in these languages are intended to meet not only the cultural needs of all students but also the foreign language requirements found in technical curricula and needed in connection with various vocations. The student will find at the State College all courses needed in preparing for major work in the languages as offered at the University.

Students who have had one year's work in a language in high school should register for the third term of the first-year college course, or, with the approval of the instructor, for the second term. Those entering with two units of entrance credit in a language should register for the second-

year college course; those with three or more entrance units should register for the course in the literature of the language. Students having other preparation and students entering from colleges offering more or fewer hours per week in a course should confer with the instructor.

COURSES IN GERMAN

LOWER DIVISION COURSES

Ger 1, 2, 3. **First Year German.** Three terms, 4 hours each term.

Rudiments of the language; oral and written exercises; reading and translation of easy prose and poetry. Four recitations. Associate Professor Lewis.

Ger 4, 5, 6. **Second Year German.** Three terms, 4 hours each term.

Grammar, composition, and conversation. Translation of standard German authors. Prerequisites: Ger 1, 2, 3 or one year of college or two years of high school German. Four recitations. Miss Myers.

Ger 101, 102, 103. **German Literature.** Three terms, 3 hours each term.

(Third year German.) Advanced texts are used. Prerequisites: Ger 4, 5, 6 or equivalent. Three recitations. Associate Professor Lewis.

Ger 201, 202, 203. **German Literature.** Three terms, 3 hours each term.

(Third year German.) Advanced texts are used. Prerequisites: Ger 4, 5, 6 or equivalent. Not open to students who have taken Ger 101-103. Three recitations. Associate Professor Lewis.

UPPER DIVISION SERVICE COURSES

(Courses 300-399 are open to lower division students.)

Ger 311, 312, 313. **German Literature.** Three terms, 3 hours each term.

Advanced texts are used. Prerequisites: Ger 4, 5, 6 or equivalent. Not open to students who have taken Ger 101-103 or 201-203. Three recitations. Associate Professor Lewis.

Ger 320, 321, 322. **Scientific German.** Three terms, 3 hours each term.

Recommended to students in science or medicine. Articles on chemistry, physics, biology, anatomy, embryology, comparative anatomy, surgery, and the history of medicine will be read, as well as current clinical literature. Prerequisite: consent of instructor. Three recitations. Associate Professor Lewis.

COURSES IN ROMANCE LANGUAGES: FRENCH

LOWER DIVISION COURSES

RL 1, 2, 3. **First Year French.** Three terms, 4 hours each term.

Grammar, pronunciation, composition, conversation. Translation of easy French prose and poetry. Four recitations. Associate Professor Kuney.

RL 4, 5, 6. **Second Year** French. Three terms, 4 hours each term.

Review of grammar, composition, conversation, reading of modern French authors. For Engineering and Science students, arrangements are made whereby in one section training is given also in scientific vocabulary. Prerequisites: RL 1, 2, 3 or one year of college or two years of high school French or equivalent. Four recitations. Associate Professor Kuney.

RL 101, 102, 103. French **Literature**. Three terms, 3 hours each term.

(Third year French.) Reading of masterpieces of various periods. A general survey of French literature. Prerequisite: two years of college French or the equivalent. Three lectures or recitations. Associate Professor Kuney.

RL 201, 202, 203. **French Literature**. Three terms, 3 hours each term.

(Third year French.) Reading of masterpieces of various periods. A general survey of French literature. Prerequisite: two years of college French or the equivalent. Not open to students who have taken RL 101-103. Three lectures or recitations. Associate Professor Kuney.

UPPER DIVISION SERVICE COURSES

RL 311, 312, 313. French **Literature**. Three terms, 3 hours each term.

(Third year French.) Reading of masterpieces of various periods. A general survey of French literature. Prerequisite: two years of college French or the equivalent. Not open to students who have taken RL 101-103 or RL 201-203. Three lectures or recitations. Associate Professor Kuney.

COURSES IN ROMANCE LANGUAGES: SPANISH

LOWER DIVISION COURSES

RL 11, 12, 13. **First Year Spanish**. Three terms, 4 hours each term.

Grammar, composition, conversation, translation of easy prose. Four recitations. Associate Professor Martin.

RL 14, 15, 16. **Second Year Spanish**. Three terms, 4 hours each term.

Review of grammar, composition, conversation, reading of modern Spanish authors. For Business Administration students at least one section is conducted with emphasis on a commercial and industrial vocabulary. Prerequisites: RL 11, 12, 13 or one year of college or two years of high school Spanish. Four recitations. Associate Professor Martin.

RL 107, 108, 109. **Spanish Literature**. Three terms, 3 hours each term.

(Third year.) Reading of masterpieces of various periods. A general survey of Spanish literature. Prerequisite: two years of college Spanish or the equivalent. Three lectures or recitations. Associate Professor Martin.

RL 207, 208, 209. **Spanish Literature.** Three terms, 3 hours each term.

(Third year.) Reading of masterpieces of various periods. A general survey of Spanish literature. Prerequisite: two years of college Spanish or the equivalent. Not open to students who have taken RL 107-109. Three lectures or recitations. Associate Professor Martin.

UPPER DIVISION SERVICE COURSES

RL 341, 342, 343. **Spanish Literature.** Three terms, 3 hours each term.

(Third year Spanish.) Reading of masterpieces of various periods. A general survey of Spanish literature. Prerequisite: two years of college Spanish or the equivalent. Not open to students who have taken RL 107-109 or RL 207-209. Three lectures or recitations. Associate Professor Martin.

Speech

INSTRUCTION in speech has for its purpose 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.

Courses in interpretation and community drama are conducted not only as a means of rounding out the speech training, but also as an aid to prospective teachers and other community leaders in the coaching of plays and in the making of stage-settings, costumes, and other necessary equipment.

Courses in speech 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.

Many plays, intramural and intercollegiate debates, extempore speaking and oratorical contests take place on the campus each year, and much individual attention is given to students who wish to prepare for such work.

Speech Correction. A clinic is maintained by the department for those who are handicapped with the various speech impediments, such as stammering, lisping, 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.

Drama and Play Production. Courses in dramatics are intended to train the voice and the body for the interpretation of literature, to give instruction in stage design, to assist school teachers and community leaders in the coaching of plays and in the making of stage-sets, costumes and other necessary equipment. The courses at the State College, besides meeting the needs of students in the various major curricula, also lay the necessary foundation for more advanced work at the University.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

Sp 111, 112, 113. **Extempore Speaking.** Three terms, 3 hours each term.

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. Professor Mitchell, Associate Professor Wells, and Assistant Professor Knoll.

Sp 121, 122, 123. **Interpretation.** Three terms, 3 hours each term.

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. Sp 121 will be given first and second terms; Sp 122 will be given second and third terms, and Sp 123 will be given third term. Prerequisite: consent of instructor. Three recitations. Associate Professor Barnes, Mr. Young.

Sp 211, 212, 213. **Oratory Squad.** Three terms, 2 hours each term.

Preparation and delivery of original manuscript speeches. Consent of instructor must be obtained before registration. Credit in only one of these courses may be earned in any academic year. These courses are used as a means of preparation for intercollegiate competition. Prerequisites: Sp 111, 221. Two recitations. Associate Professor Wells.

Sp 214, 215, 216. **Extempore Speaking Squad.** Three terms, 2 hours each term.

Intensive drill in extempore speaking in preparation for intercollegiate competition. Consent of instructor must be obtained before registration. Credit in only one of these courses may be earned in any academic year. Prerequisites: Sp 111, 112. Two recitations. Associate Professor Wells.

Sp 217, 218, 219. **Debating.** Three terms, 2 hours each term.

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. Credit in only one of these courses may be earned in any one year. Prerequisites: Sp 111, 220, and consent of instructor. Two recitations. Professor Mitchell, Assistant Professor Knoll.

Sp 220. **Argumentation.** First or third term, 3 hours.

Consideration of the theory of argumentation; practical work in brief-drawing, collection and handling of evidence, and construction of argumentative speeches. Each student works out several briefs and delivers several speeches. Criticism on presentation and construction. Prerequisite: Sp 111. Three recitations. Associate Professor Wells.

Sp 221. **Speech Composition.** First term, 3 hours.

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 Sp 112 before electing this course. Prerequisite: Sp 111. Three recitations. Professor Mitchell, Associate Professor Wells.

Sp 222. The **Extended Address.** Third term, 3 hours.

Construction and presentation of the extended address. Each student prepares and presents several long speeches. The psychology of public speaking involving the principles of persuasion is considered. Assigned readings. Students should confer with instructor before electing this course. Section limited to ten students. Prerequisites: Sp 111, 112. Three recitations. Professor Mitchell.

Sp 231. **Parliamentary Procedure.** Third term, 3 hours.

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. Three recitations. Associate Professor Wells.

Sp 244. **Stagecraft and Lighting.** Any term, 3 hours.

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. Mr. Young.

Sp 247, 248, 249. **Community Drama.** Three terms, 3 hours each term.

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, and 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. Prerequisite: consent of instructor. Associate Professor Barnes.

Business Administration

Faculty

HARRISON VAL HOYT, Ph.D., Dean and Director of Business Administration.
JOHN ANDREW BEXELL, LL.D., Dean Emeritus of the School of Commerce.

HERBERT TOWNSEND VANCE, M.S., Professor of Business Administration; Professor of Secretarial Science.
ERNEST EVERTON BOSWORTH, A.B., C.P.A., Professor of Accounting.
FRANK LESLIE ROBINSON, M.Acct., Associate Professor of Accounting.
JEROME LLOYD LEMASTER, M.A., Associate Professor of Business Administration.
BERTHA WHILLOCK STUTZ, M.S., Associate Professor of Secretarial Science.
JAMES HAROLD IRVINE, M.B.A., Associate Professor of Accounting.
MINNIE DEMOTTE FRICK, B.S., Assistant Professor of Secretarial Science.
CURTIS KELLEY, M.B.A., Assistant Professor of Business Administration.
LILLY NORDGREN EDWARDS, M.A., Instructor in Secretarial Science.

General Information

LOWER division and service courses in Business Administration are offered at the State College by the School of Business Administration under the direction of the Dean and Director of Business Administration at the University. By action of the State Board of Higher Education, March 7, 1932, the School of Business Administration at the University and the School of Commerce at the State College were consolidated into the School of Business Administration. All major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Business Administration was confined to the School of Business Administration at the University, and lower division work comprisng instruction in the freshman and sophomore years was assigned to both the University and the State College. Secretarial Science, as a technical phase of the work of the School of Business Administration, was confined to the State College. In May 1933, the work in Secretarial Science was organized by authority of the Board into a four-year curriculum.

The work of the School of Business Administration at the State College comprises (1) lower division courses in business administration for

freshman and sophomore students parallel to those at the University, together with service courses in business administration as needed by students at the State College majoring in other fields; (2) a four-year curriculum in secretarial science at the State College, with the necessary courses in secretarial science.

Business Training Demands Broad Foundation. Sound training in business administration necessitates a wide knowledge of economics, law and liberal arts, and technical business procedure. Through careful correlation between the allied courses in economics, law, liberal arts, and business administration, the School of Business Administration bases its training in business technique on a broad foundation of this character.

Lower Division Curricula. Since the lower division work in Business Administration at the State College constitutes the full equivalent of the lower division work at the University, students finding it more convenient to spend their freshman and sophomore years at the State College may transfer to the University for their major work without loss of credit and with fundamental requirements for upper division work fully met. At the upper division and graduate level the student may select one of a number of fields of specialization. Programs of study are worked out for lower division students according to their special objectives.

Degree Curriculum in Secretarial Science. The Secretarial Science four-year curriculum is planned to meet the needs of students who wish to prepare themselves for responsible secretarial positions or for such positions as office manager, assistants to public officials, and research assistants. Students may major in Secretarial Science and minor in some other field.

For the degree of Bachelor of Secretarial Science students must satisfy all the general requirements and in addition must follow a prescribed curriculum including the first two years of shorthand and typewriting, Office Procedure (SS 311, 312), one year of accounting, business English, Elements of Organization and Production (BA 221), Elements of Finance (BA 222), Elements of Marketing (BA 223), one year of business law, and one year of principles of economics.

CURRICULUM IN SECRETARIAL SCIENCE

B.S.S. Degree

Freshman Year

	Term hours		
	1st	2d	3d
Stenography (SS 111, 112, 113)	3	3	3
Typing (SS 121, 122, 123)	2	2	2
English Composition (Eng 111, 112, 113)	3	3	3
[1]Physical Education	1	1	1
Military Science	1	1	1
Group requirement in science	3	3	3
Electives:			
Suggested—			
Home Economics, Mental Hygiene, History, Methods of Study, Language, Literature, Speech	3	3	3
	16	16	16

[1]General Hygiene, 2 term hours, is taken one term in place of Physical Education.

Sophomore Year	Term hours 1st	2d	3d
Applied Stenography (SS 211, 212, 213)	3	3	3
Elements of Organization and Production (BA 221)	4	----	----
Elements of Finance (BA 222)	----	4	----
Elements of Marketing (BA 223)	----	----	4
Principles of Economics (Ec 201, 202, 203)	3	3	3
Constructive Accounting (BA 111, 112, 113)	4	4	4
Advanced Physical Education	1	1	1
Military Science	1	1	1
	16	16	16

Junior Year			
Office Procedure (SS 311, 312)	5	5	----
Office Organization and Management (SS 313)	----	----	5
Business Law (BA 256, 257, 258)	4	4	4
Electives:			
Suggested—			
Retail Accounting; Principles of Cost Accounting; Analysis of Financial Statements; Statistics; Modern Governments; Home Economics; Sociology; Art; History; Music; Literature; Advanced Military Science; Speech	7	7	7
	16	16	16

Senior Year			
Secretarial Science (SS 411, 412)	3	3	----
Seminar in Secretarial Science (SS 407)	1	1	1
Business English (Eng 217)	3	----	----
Merchandising and Selling (BA 436)	----	4	----
General Advertising (BA 439)	3	----	----
International Trade (Ec 440)	4	----	----
Money and Banking (Ec 413)	----	4	----
Investments (BA 463)	----	----	3
Electives:			
Suggested—			
Public Finance; Transportation; Home Economics; Science; Advanced Military Science; Speech	2	4	12
	16	16	16

Facilities. The instruction in Business Administration at the State College is centered in Commerce Hall in which are located classrooms and laboratories for instruction in business subjects. Special facilities for secretarial science comprise the latest office appliances and fixtures including the standard types of typewriters, duplicators, mimeographs, dictaphones, mimeoscopes, filing cabinets, adding machines, bookkeeping machines, and accounting machines. All appliances and equipment are kept in constant repair. Students are taught how to keep in repair the appliances they use.

Commercial Education. In conjunction with the department of Secretarial Science, the School of Education is able to meet the demand for well-prepared teachers of commercial branches in secondary schools. Such teachers are prepared in cooperation with the School of Business Admin-

istration. In the selection of their collegiate courses in both Secretarial Science and Education, students should advise with the head of the department of Education. Teachers of commercial science are thus prepared in a way 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 Education and the School of Business Administration. The twenty-three credits in education required for a certificate to teach in accredited high schools must be earned during the junior and senior years.

Description of Courses

COURSES IN BUSINESS ADMINISTRATION

LOWER DIVISION COURSES

BA 111, 112, 113. **Constructive Accounting.** Three terms, 4 hours each term.

An introduction to the field of accounting and business administration. Technique of account construction and preparation of financial statements. Application of accounting principles to practical business problems, inluding a study of proprietorship from the standpoint of the single owner, the partnership, and the corporation. Required of all majors and prerequisite to all advanced work in business administration. Assistant Professor Kelley.

BA 211. **Retail Accounting.** First term, 3 hours.

A study of accounting records peculiar to retail stores. Practice sets are assigned for the purpose of familiarizing the student with the necessary forms and retail accounting routine. Prerequisites: BA 111, 112, 113. Professor Bosworth, Associate Professor Robinson.

BA 212. **Principles of Cost Accounting.** Second term, 3 hours.

A consideration of the basic principles of cost accounting, departmentalization, expense allocation, and the differences to be noted between accounting systems with which a cost system is tied in and accounting systems with no cost system involved. Problems and practice sets furnish the student with a working familiarity. Prerequisites: BA 111, 112, 113. Professor Bosworth, Associate Professor Robinson.

BA 213. **Analysis of Financial Statements.** Third term, 3 hours.

Managerial accounting, including accounting theory and practice for effective management and control of industrial and trading concerns. Emphasis is laid on the preparation, analysis, and interpretation of balance sheets and operating reports. Prerequisites: BA 111, 112, 113, 211, 212. Professor Bosworth, Associate Professor Robinson.

BA 221. **Elements of Organization and Production.** Any term, 4 hours.

A consideration of the principles of the science and philosophy of management as applied to industrial concerns. Functional management, including time study records, standardization, and planning, as

applied by Taylor and subsequent industrial managers. Required of all students majoring in Business Administration. Associate Professor Irvine.

BA 222. **Elements of Finance.** Any term, 4 hours.

A brief survey of financial institutions with attention to the possible use of each by the business man. A further study of the financial problems involved in the launching of a business enterprise, expansion, budgetary control, credits and collections, borrowing and management of earnings. Required of all students majoring in business administration. Prerequisites: BA 111, 112, 113, or equivalent. Associate Professor Irvine.

BA 223. **Elements of Marketing.** Third term, 4 hours.

A study of the methods, policies, and problems involved in marketing raw materials and manufactured products. Deals with private and cooperative marketing channels, auctions, exchanges, primary and secondary middlemen, and such marketing functions as demand creation, assembly, standardization, packaging, financing, risk-taking, distribution, and market news. Required of all students majoring in Business Administration. Professor Vance.

BA 256. **Business Law.** Any term, 4 hours.

A general course in business law correlating fundamental principles with selected cases illustrating their application to typical business situations. The law and its relation to business. Formation of contracts, offer, acceptance, consideration, performance, interpretation and discharge of contracts. Special types of contracts, insurance and suretyship. Associate Professor Le Master.

BA 257. **Business Law.** First or second term, 4 hours.

The law of negotiable instruments. Types of negotiable instruments, creation of negotiable instruments, consideration, delivery, rights and liabilities of parties. The law of principal and agent, creation of the agency, etc. The law of personal property, sales, bailments, and chattel mortgages. Associate Professor Le Master.

BA 258. **Business Law.** Third term, 4 hours.

The law of business organization, partnerships, corporations, unincorporated associations, business trusts, and joint stock companies. The law of real property, real property mortgages, landlord and tenant, and mechanics' lien law. Associate Professor Le Master.

UPPER DIVISION SERVICE COURSES

BA 361. **Accounting Fundamentals.** First or second term, 3 hours.

Principally for students in Agriculture. Deals with the basic principles of accounting rather than technique, special consideration being given to the accounting problems encountered in the various fields of agriculture with some emphasis on determination of costs of operation. One lecture; 2 recitations. Associate Professor Robinson.

BA 385. **Principles of Accounting for Engineers.** Any term, 3 hours.

An abbreviated course covering the general principles of accounting, designed especially for non-business 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 Business Administration students. Associate Professor Robinson.

BA 386. **Accounting for Engineers and Foresters.** Any term, 3 hours.

A continuation of BA 385 covering the general principles of accounting. Not open to Business Administration students. Associate Professor Robinson.

BA 403. **Special Problems for Engineers and Foresters.** One to 5 hours each term.

An opportunity to do supervised individual work in some field of special application and interest. Subjects chosen must be approved by major professor. Prerequisite: senior or graduate standing. Staff.

BA 413. **Production Management.** First term, 4 hours.

An analysis of the problems of production, factory organization, and factory management. Studied from the point of view of the production manager. Prerequisite: BA 221. Associate Professor Irvine.

BA 414. **Personnel Management.** First term, 4 hours.

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 Business Administration or Forestry and juniors and seniors in Engineering who expect to employ and manage men. Three recitations.

BA 436. **Merchandising and Selling.** Second term, 4 hours.

This course deals with retail organizations, practices, policies, and problems. It emphasizes stock control systems, buying, methods of sales promotion such as retail display and advertising, plant operation, personnel, methods of wage payment, credit, finance, receiving and marketing, mark-up, mark-downs, turn-overs, pricing, style changes, trends in retailing, expense classification and distribution. Professor Vance.

BA 439. **General Advertising.** First term, 3 hours.

Theory and Practice. The economic and social implications of advertising. The advertising agency. "The Campaign," including methods of research and coordination of advertising with marketing and merchandising processes. Selection of media. Retail and mail order advertising. The mechanics of advertising, including typography, printing, engraving, and book making. Practice in production of layouts and copywriting. Professor Vance.

BA 463. **Investments.** Third term, 3 hours.

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. Associate Professor Irvine.

BA 469. **Business and Agricultural Statistics.** First term, 3 hours.

Sources of business and agricultural statistics; study of statistical devices used in fields of business and agriculture, such as summary numbers, indices of trends, and seasonal variation; and problems involved in comparing statistical results. Three recitations. Professor Bosworth.

BA 470. **Business Statistics.** Second term, 3 hours.

Considers the causes of periods of alternate prosperity and depression; methods of predicting cyclical changes; suggested remedies for diminishing the range of business fluctuations. Not given 1933-34.

BA 494. **Cost Accounting for Industrials.** Second or third term, 3 hours.

The principles and methods of factory cost accounting, with application to practical problems. Phases of industrial management necessary to the installation and operation of a modern cost system. Prerequisite: BA 386. Professor Bosworth, Associate Professor Robinson.

COURSES IN COMMERCIAL EDUCATION

UPPER DIVISION COURSE

Ed 329. **Special Methods in Commerce.** Second term, 3 hours.

Principles of education as used in the development of skills and precisions, largely motor, involved in the learning of such activities as are found in stenography, typing, and accounting. Lectures covering aims, materials, standards, methods of presentation, organization of courses, and arrangement of curricula. Prerequisites: BA 111, 112, 113; SS 311, 312; Ed 311, 312, 313. Three lectures. Associate Professor Stutz.

GRADUATE COURSES

Ed 501. **Educational Research.** Terms and hours to be arranged.

Problems in commercial education. Associate Professor Stutz.

Ed 503. **Thesis.** Terms and hours to be arranged.

COURSES IN SECRETARIAL SCIENCE

LOWER DIVISION COURSES

SS 111, 112, 113. **Stenography.** Three terms, 3 hours each term.

Theory of Gregg shorthand; practical application of theory principles in sentence dictation. Typing (SS 121, 122, 123) 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 SS 111 for credit. Four recitations.

SS 121, 122, 123. **Typing.** Three terms, 2 hours each term.

Theory and practice of touch typing; rhythm drills, dictation exercises; writing paragraphs; punctuation and mechanical arrangement of business correspondence, legal forms, tabulating, manifolding, speed practice. Students who have had at least one year of typing are not permitted to take SS 121 for credit. Five periods laboratory work; 1 hour home assignment.

SS 211, 212, 213. **Applied Stenography.** Three terms, 3 or 5 hours each term.

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. Prerequisites: SS 113, 123 or equivalent. Three or five recitations; 3 or 5 one-hour laboratory periods; 5 hours home work.

UPPER DIVISION COURSES

SS 311, 312. **Office Procedure.** First and second terms, 5 hours each term.

Training course in stenographic methods and office practice, advanced dictation, transcripts, practical use of modern office appliances. Prerequisite: SS 213 or equivalent.

SS 313. **Office Organization and Management.** Third term, 5 hours.

Principles and practices of scientific secretarial office management, covering organization, arrangement and operation, with special consideration of the employment and training of secretarial office workers. Office efficiency problems and business ethics. Prerequisite: SS 311.

SS 407. **Seminar in Secretarial Science.** Any term, 1 hour.

Research and survey course in the organization and practice of a modern office in which the student is especially interested and prepared. One period.

SS 411, 412. **Secretarial Science.** First and second terms, 3 hours each term.

A study 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: SS 213 or equivalent. Three lectures.

Fine Arts

Faculty

ELLIS FULLER LAWRENCE, M.S., F.A.I.A., Dean and Director of Fine Arts.

Art and Architecture

JOHN LEO FAIRBANKS, Professor of Art.

IDA MARTHA MATSEN, A.M., Instructor in Art.

DOROTHY MAY BOURKE, B.A., Instructor in Art.

Landscape Architecture

ARTHUR LEE PECK, B.S., B.A., Professor of Landscape Architecture.

FREDERICK ALEXANDER CUTHBERT, M.L.D., Assistant Professor of Landscape Architecture.

Music

PAUL PETRI, Director of Music; Professor of Singing and Conductor of Choruses.

HARRY LYNDEN BEARD, M.A., Professor of Band Instruments and Conductor of Band.

LILLIAN JEFFREYS PETRI, Professor of Piano and Music Theory.

REX UNDERWOOD, Professor of Stringed Instruments; Conductor of the College Orchestra.

FLORENCE BOWDEN, B.A., Instructor in 'Cello, Violin and Small Strings; Conductor of the Mandolin and Guitar Club.

BYRON ARNOLD, A.B., Instructor in Organ, Piano, Music History and Theory.

HOWARD HALBERT, M.A., Instructor in Violin.

General Information

LOWER division and service courses in Fine Arts are offered at the State College by the School of Fine Arts under the direction of the Dean and Director of Fine Arts at the University. By action of the State Board of Higher Education, March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Fine Arts was confined to the School of Fine Arts at the University, and lower division work comprising instruction in the freshman and sophomore years was assigned to both the University and the State College.

The lower division instruction in Art and Architecture, Landscape Architecture, and Music at the State College constitutes essentially the equivalent of lower division work in these subjects at the University; and students finding it more convenient to spend their freshman and soph-

omore years at the State College may transfer to the University for their major work without loss of credit and with fundamental requirements for upper division work in these subjects fully met. The third year of the five-year curriculum in Landscape Architecture is taken at the State College.

The lower division program in Fine Arts at the State College, besides laying a broad foundation for later specialization in Fine Arts at the University, is intended also to serve the needs of students majoring in other fields. In addition, upper division service courses, prescribed as required subjects or available as electives for students registered in other fields, are given as needed at the State College.

Art and Architecture

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

AA 100, 101, 102. **Art Appreciation.** Three terms, 3 hours each term.

This course explains the arts from the human and social causes. It seeks an understanding of why men had the urge to produce the arts in the first place, and what types of usefulness the arts serve today. It shows how function, color, scale, textures, and proportions enter into one's personal habits of appreciation.

AA 160, 161, 162. **Color and Composition.** Three terms, 3 hours each term.

Elementary study of relations of line, areas, mass, neutral values and color values for pictures, decorations, and interior schemes. Applies to both creative processes and appreciation. Adapted to needs of Home Economics group.

AA 178, 179, 180. **House Planning and Architectural Drawing.** Three terms, 3 hours each term.

Small-house construction, detail drawing, and architectural drafting, with particular reference to the needs of students majoring in Industrial Arts.

AA 290. **Lower Division Painting.** Six terms, 3 hours each term.

First year, elementary studies from still life, principles of fine arrangement in solids and backgrounds, various mediums; second year, advanced studies from still life and from the head. Encourages individual achievement.

AA 291. **Lower Division Drawing.** Six terms, 3 hours each term.

The first year of progress includes the analysis of forms leading to an understanding of essential structure of common objects, casts, and antiques. Problems in simple and direct expression of structure by use of different mediums, adapted to the needs of Industrial Arts group. The second year continues the study of forms and combinations of forms. Elementary study of the human figure. Interrelationships of forms and adaptations of forms in a decorative way.

AA 295. **Lower Division Decorative Design.** Six terms, 3 hours each term.

First year, study of the principles underlying the various arrangements of lines, shapes, neutral tones and colors for purposes of decorative expression. Second year, further problems in decorative arrangements. Building up the student's capacities to plan a design intelligently for a given purpose and to carry out his designs with increasing powers to criticize himself.

Landscape Architecture

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

LA 179. **Landscape Architecture (Descriptive).** First term, 2 hours.

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. Two lectures and periodical quiz hours. Professor Peck.

LA 279. **Landscape Architecture.** Any term, 3 hours.

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. Two two-hour drafting periods; one lecture. Professor Peck.

UPPER DIVISION COURSES

LA 326, 327, 328. **Plant Materials.** Three terms, 3 hours each term.

The study of trees, shrubs, vines, and perennials and their uses in plant composition. Professor Peck.

LA 356, 357, 358. **History and Literature of Landscape Architecture.** Three terms, 2 hours each term.

These courses acquaint the student with history and literature of the art. Professor Peck.

LA 359, 360, 361. **Maintenance and Construction.** Three terms, 2 hours each term.

Concise and practical knowledge of the maintenance of parks, estates, cemeteries, and golf courses. Landscape construction work involving the handling of earth, such as golf-course construction, and the building of tennis courts, walks, roads, and water effects. Professor Peck.

LA 379. **Landscape Architecture.** Third term, 3 hours.

(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. Two lectures; 1 two-hour drafting period. Professor Peck.

LA 390. **Upper Division Landscape Design.** Three terms, 2 hours each term.

Continuation and enlargement of LA 290. Assistant Professor Cuthbert.

LA 479. **Simple Home-ground Design.** Third term, 3 hours.

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. Three two-hour laboratory periods. Professor Peck.

Music

THE courses in Music at the State College are service courses for students in the various major curricula at the institution. No degrees or diplomas are conferred in Music.

Music is recognized at the State 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 Music 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 valuable features in all phases of the work.

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 described on another page.

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.

Courses. Instruction in music is intended for students pursuing one of the degree curricula who take music courses as electives. A maximum of twelve credits in applied music may be counted toward a degree in the several degree-granting schools. Credits in music theory may be elected subject to the approval of the dean of the school in which the student is registered.

Students enter the College with all degrees of previous proficiency in music. Consequently a considerable range of music courses has been provided. For students carrying a heavy program of required work, a number of music courses are offered carrying from one to three hours credit, while for students in curricula providing opportunity for more elective work, music courses carrying more credit are offered. Such students, on approval of the Director, as determined by their previous preparation, may choose the more comprehensive courses.

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. Artist students may register in the advanced courses. Violin or Singing students are expected to take, or to have had, at least one year of piano instruction.

Individual Instruction. Courses are offered in all phases of applied music at the State College, including piano, organ, singing, violin, and violoncello, plectral instruments, and band instruments. Students may study any phase of applied music throughout four years, taking from one to six term hours in any term according to the course pursued. The maximum credit in applied music acceptable toward a B.A. or B.S. degree is twelve term hours.

At all stages of instruction in applied music, training is given in analysis of material.

Piano. Instruction in piano is offered to meet the needs of students in various stages of proficiency from the beginner to the artist student. Thorough foundation in technique is developed on a highly scientific basis. Monthly group meetings of the more advanced students give an opportunity to accustom the students to play before others. Students may take from one to six term hours each term and are required to devote from one to three hours daily to practice.

Organ. Students with adequate pianistic preparation may pursue courses in organ playing. A standard two-manual Kimbal pipe-organ is available for practice purposes at reasonable rates. The work is offered on the basis of two term hours each term covering one or two private lessons a week and one or two hours daily practice.

Singing. Students who wish to develop their singing voices are offered excellent opportunity for instruction. Each student is treated individually and is assigned exercises and songs according to his stage of vocal development. For the more advanced students opportunity to sing before various campus audiences and over the radio is provided. Students may take from one to four term hours each term, requiring from one-half to two hours daily practice.

Violin and Violoncello instruction is available to suit the requirements of the student, from beginner to finished artist. To those of adequate ability opportunity is afforded to play in the college orchestra and in similar groups and to appear as soloists before various college audiences and over the radio. Students may take from one to six term hours each term, requiring from one to three hours daily practice.

Plectral Instruments. Mandolin, guitar and banjo instruction is available at reasonable cost. Students reaching a fair degree of proficiency have opportunity to join the Mandolin and Guitar Club which meets weekly for ensemble playing. Students may take two term hours each term, requiring one hour daily practice.

Band Instruments. Courses in band instruments include cornet, trombone, clarinet, oboe, bassoon, baritone, saxophone, flute, Bb bass, Eb bass, drums, French horn, bells, and xylophone.

Regulations. Consult the Director regarding regulations governing registration, attendance, public performance of music students, etc.

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
Organ		
Mr. Arnold	24.00	48.00
Singing		
Mr. Petri	30.00	60.00
Violin, Viola, Cello		
Mr. Underwood	30.00	60.00
Miss Bowden	18.00	36.00
Mr. Halbert	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

Piano, Organ, and Orchestra Instrument Rental.

Piano

½ 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

Rental per hour	$ 0.25

COURSES IN THEORY

Mus 111, 112, 113. **Harmony I, II, III.** Three terms, 3 hours each term.

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 periods.

Mus 120. **Appreciation of Music.** Second term, 1 hour.

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. One lecture.

Mus 127, 128, 129. **Theory of Music.** Three terms, 1 hour each term.

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.

Mus 147, 148, 149. **Sightsinging and Ear-Training.** Three terms, 1 hour each term.

Writing from tonal dictation, singing melodies, rhythmic problems; rhythmic dictation. One recitation.

Mus 211, 212, 213. **Harmony IV, V, VI.** Three terms, 3 hours each term.

Continuation of Mus 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. Two periods.

Mus 221, 222, 223. **History of Music.** Three terms, 2 hours each term.

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: Mus 127, 128, 129. Two lectures.

Mus 311. **Strict Counterpoint.** First term, 3 hours.

Analysis of Bach fugues continued. Prerequisite: Mus 213. Two periods.

Mus 312. **Canon and Fugue.** Second term, 3 hours.

Prerequisite: Mus 311. Two periods.

Mus 313. **Modern Harmony.** Third term, 3 hours.

Modern interval successions; modern chord structure and resolution; scales other than diatonic; free harmonization of melodies with contrapuntal voice written in. Prerequisite: Mus 312. Two periods.

Mus 411. **Modern Harmony.** First term, 3 hours.

Continuation of Mus 313. Dual chord structure; lack of tonality; lack of melody and definite form traced and analyzed. Prerequisite: Mus 313. Two periods.

Mus 412, 413. **Composition.** Second and third terms, 3 hours each term.

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. Two periods.

Mus 421. **Pedagogy.** Second term, 1 hour.

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. One period either private or class instruction, as arranged.

Mus 422. **Orchestration.** Any term, 2 hours.

Course offered to enable the student to understand the tonal compass, proper grouping of all instruments employed in the present symphony orchestra. Practice in reading scores. Practical arranging of music for varied instrumental combinations. Prerequisites: Mus 127-129, 221-223, 411-413. One private or class instruction period, as arranged.

Mus 441, 442, 443. **Band Conducting.** Three terms, 2 hours each term.

INDIVIDUAL INSTRUCTION COURSES

Mus 154, 155, 156. **Piano.** Three terms, 2 to 6 hours each term.

Individual instruction. One to 3 hours daily practice.

Mus 157, 158, 159. **Organ.** Three terms, 2 hours each term.

One or 2 private lessons, 1 or 2 hours daily practice.

Mus 161, 162, 163. **Singing.** Three terms, 1 to 4 hours each term.
One or 2 private lessons, ½ to 2 hours daily practice.

Mus 164, 165, 166. **Violin.** Three terms, 2 to 6 hours each term.
One or 2 private lessons, 1 to 3 hours daily practice.

Mus 167, 168, 169. **Plectral Instruments.** Three terms, 1 or 2 hours each term.
Individual instruction in mandolin, guitar, and banjo. One or 2 private lessons, 1 hour daily practice.

Mus 171, 172, 173. **Band Instruments.** Three terms, 2 hours each term.
Individual instruction. In registering, students should write the name of the instrument in parentheses following course title—e.g., *Mus 171. Band Instruments (Cornet)*. Instruction is given in cornet, trombone, clarinet, oboe, bassoon, baritone, saxophone, flute, BBb bass, Eb bass, drums, French horn, bells, xylophone, and other instruments.

Mus 254, 255, 256. **Piano.** Three terms, 2 to 6 hours each term.
Continuation of Mus 156.

Mus 257, 258, 259, **Organ.** Three terms, 2 hours each term.
Continuation of Mus 159.

Mus 261, 262, 263. **Singing.** Three terms, 1 to 4 hours each term.
Continuation of Mus 163.

Mus 264, 265, 266. **Violin.** Three terms, 2 to 6 hours each term.
Continuation of Mus 166.

Mus 267, 268, 269. **Plectral Instruments.** Three terms, 1 or 2 hours each term.
Continuation of Mus 169.

Mus 271, 272, 273. **Band Instruments.** Three terms, 2 hours each term.
Continuation of Mus 173.

Mus 354, 355, 356. **Piano.** Three terms, 2 to 6 hours each term.
Continuation of Mus 256.

Mus 357, 358, 359. **Organ.** Three terms, 2 hours each term.
Continuation of Mus 259.

Mus 361, 362, 363. **Singing.** Three terms, 1 to 4 hours each term.
Continuation of Mus 263.

Mus 364, 365, 366. **Violin.** Three terms, 2 to 6 hours each term.
Continuation of Mus 266.

Mus 367, 368, 369. **Plectral Instruments.** Three terms, 1 or 2 hours each term.
Continuation of Mus 269.

Mus 371, 372, 373. **Band Instruments.** Three terms, 2 hours each term.
Continuation of Mus 273.

Mus 454, 455, 456. **Piano.** Three terms, 2 to 6 hours each term.
Continuation of Mus 356.

Mus 457, 458, 459. **Organ.** Three terms, 2 hours each term.
Continuation of Mus 359.

Mus 461, 462, 463. **Singing.** Three terms, 1 to 4 hours each term .
Continuation of Mus 363.

Mus 464, 465, 466. **Violin.** Three terms, 2 to 6 hours each term.
Continuation of Mus 366.

Mus 467, 468, 469. **Plectral Instruments.** Three terms, 1 or 2 hours each term.
Continuation of Mus 369.

Mus 471, 472, 473. **Band Instruments.** Three terms, 2 hours each term.
Continuation of Mus 373.

Journalism

Faculty

ERIC WILLIAM ALLEN, A.B., Dean and Director of Journalism.

---

*CHARLES JARVIS MCINTOSH, B.S., B.S.D., Professor of Industrial Editing.
FRED MURIEL SHIDELER, B.S., Assistant Professor of Journalism.

General Information

LOWER division and service courses in Journalism are offered at the State College by the School of Journalism under the direction of the Dean and Director of Journalism at the University. By action of the State Board of Higher Education April 30, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Journalism was confined to the School of Journalism at the University, and lower division work comprising instruction in the freshman and sophomore years was assigned to both the University and the State College.

The lower division instruction in journalism at the State College constitutes essentially the equivalent of lower division work at the University; and students finding it more convenient to spend their freshman and sophomore years at the State College may transfer to the University for their

*On part time 1933-34.

major work without loss of credit and with fundamental requirements for upper division work fully met.

The elementary courses, in addition to furnishing a certain cultural background in newspaper methods, are intended to introduce students to the fundamentals of news writing. These courses also enable students to get additional benefit out of work with the Daily Barometer, student newspaper, and serve to some extent as a training school in this work in an endeavor to keep student publications on a high plane. Journalistic instruction is also given which is designed to train students enrolled in the technical and professional schools to write competently for newspapers and magazines on the subjects or in the fields in which they are specializing. These courses are intended to meet the needs of a large number of persons who, either in public service or in private life, have occasion to prepare material for the press on industrial or technical subjects. Training is also offered in the popularization of scientific material for the press.

A full journalistic training combined with a technical specialty may be arranged in a four- or five-year curriculum utilizing the facilities at both the University and the State College.

Description of Courses

LOWER DIVISION COURSES

J 111, 112. **Elementary Journalism.** Two terms, 3 hours each term.

Fundamental principles of news writing. Intended to introduce to the students of the various technical schools the journalistic style of writing and to acquaint them with the workings of the press, both general and technical. Required for eligibility to the editorial staffs of student publications. Special sections for technical schools where enrollment justifies.

J 211. **Copyediting.** First or third term, 3 hours.

Copy reading, head writing, proof reading, and make-up. Actual experience is given in editing copy for publication. Required for all students in advanced positions on the Barometer. Prerequisite: J 111.

J 212. **Industrial Journalism.** First or third term, 3 hours.

Writing of special articles along technical lines. Study of the media for such articles. Practice in popularization of scientific material. Prerequisite: J 111.

J 213. **Public Information Methods.** Second term, 3 hours.

Intended for teachers of science and vocational subjects. Planning and executing of informational campaigns through such media as newspapers, posters, radio, circular letters. Methods of informing public of school events, progress, etc. Supervision of high school publications. Prerequisite: J 111.

J 214. **Technical Writing.** One term, 3 hours.

Writing and editing of popular and scientific bulletins. Preparing reports and writing articles for scientific publications. Preparing radio manuscripts. Planning and executing informational campaigns on scientific material. Intended primarily for research workers in fields of agriculture, home economics, engineering, and other technical fields and for extension workers and college teachers in fields of agriculture and home economics. Prerequisite: J 111.

J 223. **Editorial Writing.** Second term, 3 hours.

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 make-up of the editorial page of farm and trade journals is given attention. Prerequisite: J 111.

Military Science and Tactics

Faculty

COLONEL WILLIAM HENRY PATTERSON, Infantry; 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; 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; Graduate United States Military Academy; Graduate Field Officers' course, Infantry School; Graduate Command and General Staff School. Associate Professor of Military Science and Tactics. Executive officer of Infantry Unit, Reserve Officers' Training Corps.

MAJOR PAUL W. MAPES, Infantry; Graduate Advanced course Infantry School; Assistant Professor of Military Science and Tactics; Instructor in Infantry Unit, Reserve Officers' Training Corps.

CAPTAIN HAROLD A. COONEY, Field Artillery; Graduate United States Military Academy; Graduate Battery Officers' course, Field Artillery School. Assistant Professor of Military Science and Tactics. Instructor in Field Artillery Unit, Reserve Officers' Training Corps.

CAPTAIN LEWIS T. ROSS, C.E.; Graduate United States Military Academy; Graduate Civil Engineering course, Engineer School; Graduate Basic course, Engineer School. Associate Professor of Military Science and Tactics; Executive Officer of Engineer Unit, Reserve Officers' Training Corps.

FIRST LIEUTENANT GEORGE ALFRED ARNOLD JONES, Field Artillery; 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 FRANCIS A. GARRECHT, JR., F.A.; Graduate United States Military Academy; Graduate Battery Officers' course, Field Artillery School; Assistant Professor of Military Science and Tactics; Instructor in Field Artillery 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 LAFAYETTE WADE (D.E.M.L.), United States Army. Assistant to Professor of Military Science and Tactics. Instructor in Rifle Marksmanship, Reserve Officers' Training Corps.

SERGEANT EDWARD H. COMBS (D.E.M.L.), United States Army. Stable Sergeant, Military Stables; Assistant Instructor in Equitation.

General Information

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, 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, Field Artillery, and Engineers. An excellent R. O. T. C. cadet band affords instruction in band practice.

Uniforms Provided by the Government. Each Basic Course member of the R. O. T. C. units at this institution is provided by the United States Government with a military uniform. This uniform is returned by the student at the end of each year or upon 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 commutation of subsistence by the Government throughout the entire period during which they are pursuing the Advanced Course.

Benefits to Student. The training afforded through the Reserve Officers' Training Corps is regarded as of great value to the student pursuing it.

(a) It prepares him for places of responsibility and leadership in professional and business life.

(b) It makes for alertness, coordination, and good health.

(c) It teaches cooperation, loyalty, team work, management of men, honor, courage, self-respect, respect for others, sacrifice, duty, love of country; emphasizes citizenship; develops concentration and the power of observation; builds character and inculcates high standards of personal honor and patriotism. It also teaches good order, neatness, and truthfulness.

(d) It provides a means of applying the lessons learned in this and other departments of the College.

(e) It is an integral and valuable element in the plan of technical education.

(f) It gives a military education which will fit the student to render efficient service to the nation in time of emergency.

(g) Upon successfully completing the course, each student is given a commission as Second Lieutenant in the Officers' Reserve Corps.

(h) It provides a maximum of 24 term hours which count toward a degree.

(i) It provides attendance at summer R.O.T.C. camps, at which the student's expenses are paid, he receives a monetary per diem allowance, is furnished a complete uniform, board, lodging, medical attention, and emergency dental treatment, and is provided with recreational amusements and diversions. Attendance at such a camp is required at the end of the junior year. For cogent reasons attendance may be deferred until the end of the senior year.

(j) There is an allowance of rifle and pistol ammunition for target practice, with expert instructors, and the use of rifles and target equipment.

(k) More than $350,000 worth of the best up-to-date equipment is issued by the Government for the use of the R.O.T.C.

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 throughout 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 6 term hours in Military Science is required for graduation. This comprises 3 hours for the first year and 3 hours for the second year of the basic work. Nine hours are given for the work of each of the junior and senior years. This makes a total of 24 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 from the junior class; and 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.

Description of Courses

COURSES IN INFANTRY

LOWER DIVISION COURSES

First Year Basic Course (MS 111, 112, 113). Three terms, 1 hour each term.

Freshman year. 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 orientation; National Defense Act and R. O. T. C.; obligations of citizenship; military history and military policy; current international situation; military discipline, courtesies and customs of the service; military sanitation and first aid, military organization; map reading; leadership; and rifle marksmanship. Three periods.

Second Year Basic Course (MS 211, 212, 213). Three terms, 1 hour each term.

Sophomore year. This course aims to give students further training in the basic Infantry subjects; to inculcate leadership; to build on the knowledge they have already acquired and to prepare them to take up the Advanced Course. Interior guard duty; leadership; automatic weapons; combat training; musketry; scouting and patrolling; and combat principles. Three periods.

UPPER DIVISION COURSES

First Year Advanced Course (MS 311, 312, 313). Three terms, 3 hours each term.

Junior year. 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. Aerial photograph reading; care of animals and stable management; supply and mess management, emergency procurement of property and funds; instructional methods; machine guns; Howitzer; pistol; estimate of the situation and combat orders; marches; security; development for combat, offensive and defensive combat; and field fortifications. Five periods.

Second Year Advanced Course (MS 411, 412, 413). Three terms, 3 hours each term.

Senior year. 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. Military law; company administration and supply; Officers' Reserve Corps Regulations; tanks; mechanization; signal communications; combat intelligence; and combat training. Five periods.

COURSES IN FIELD ARTILLERY

LOWER DIVISION COURSES

First Year Basic Course (MS 121, 122, 123). Three terms, 1 hour each term.

Freshman year. Military fundamentals; orientation; National Defense Act and R. O. T. C.; obligations of citizenship; military history and policy; current international situation; military discipline, courtesies and customs of the service; military sanitation and first aid; mili-

tary organization; leadership; elementary gunnery; duties of cannoneers and the firing battery; Field Artillery ammunition and matériel. Three periods.

Second Year Basic Course (MS 221, 222, 223). Three terms, 1 hour each term.

Sophomore year. Fire control instruments; map and aerial photograph reading; battery communications, duties of battery commander's detail; care of animals and stable management; equitation; driving and draft; automotive vehicle construction and operation. Three periods.

UPPER DIVISION COURSES

First Year Advanced Course (MS 321, 322, 323). Three terms, 3 hours each term.

Junior year. Reconnaissance, Selection and Occupation of position; duties of battery officers; use of battery commander's detail; signal communications; liaison with the Infantry; elementary ballistics and dispersion; preparation of fire; conduct of fire; pistol marksmanship. Five periods.

Second Year Advanced Course (MS 421, 422, 423). Three terms, 3 hours each term.

Senior year. Command and instruction of student organizations; tactics; military law and administration; interior guard duty; marches and shelter; defense against chemical warfare; camouflage and field fortifications. Five periods.

COURSES IN ENGINEERS

LOWER DIVISION COURSES

First Year Basic Course (MS 131, 132, 133). Three terms, 1 hour each term.

Freshman year. Military fundamentals; military organization; military discipline, courtesies and customs of the service; military sanitation and first aid; National Defense Act; military history and policy; obligations of citizenship; current international situation; leadership; rifle marksmanship; weapons and musketry. Three periods.

Second Year Basic Course (MS 231, 232, 233). Three terms, 1 hour each term.

Sophomore year. Basic Engineer instruction; organization and duties of Engineers; map and aerial photograph reading; military sketching; map making; rigging; preliminary combat training; scouting and patrolling; and minor combat principles. Three periods.

UPPER DIVISION COURSES

First Year Advanced Course (MS 331, 332, 333). Three terms, 3 hours each term.

Junior year. Interior guard duty; care of animals and stable management; advanced Engineer training—military roads, their location and construction, maintenance and repair; military bridging—general, floating; military explosives and demolitions; field fortifications—trenches, emplacements, obstacles and protected shelters; combat

orders and solution of Engineer problems; combat principles of Infantry; combat principles of Engineers; and Mechanization. Five periods.

Second Year Advanced Course (MS 431, 432, 433). Three terms, 3 hours each term.

Senior year. Supply and mess management; procurement of Engineer property and funds; advanced Engineer training; construction in war; fixed bridges; combat training; organization of the ground; defense against chemical warfare; military law and administration; military history and policy; leadership. Five periods.

Physical Education

Faculty

JOHN FREEMAN BOVARD, Ph.D., Dean and Director of Physical Education.

Physical Education for Women

LAURA CORNELIA MCALLESTER, B.S., Assistant Professor of Physical Education for Women; Chairman of Department.

RENA HEAGEN, C.P.H., Assistant Professor of Hygiene.

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.

JEANETTE ALICE BRAUNS, B.S., Instructor in Physical Education for Women.

Physical Education for Men

CLAIR VAN NORMAN LANGTON, D.P.H., Professor and Director of Physical Education.

CARL ALLEN LODELL, B.S., Director of Intercollegiate Athletics.

RALPH ORVAL COLEMAN, M.A., Professor of Physical Education.

MELVIN PRICE ISAMINGER, D.P.H., Professor of Hygiene.

ALONZO L. STINER, B.S., Head Coach of Football; Instructor in Physical Education.

AMORY TINGLE GILL, B.S., Head Coach of Basketball and Baseball; Instructor in Physical Education.

OTTO CHRISTIAN MAUTHE, Assistant Professor of Physical Education.

GRANT ALEXANDER SWAN, B.S., Assistant Professor of Physical Education; Coach of Track.

JACK ERNEST HEWITT, M.A., Assistant Professor of Physical Education.

JAMES VICTOR DIXON, B.S., Instructor in Physical Education; Assistant Coach.

General Information

LOWER division and service courses in Physical Education are offered at the State College by the School of Physical Education under the direction of the Dean and Director of Physical Education at the University. By action of the State Board of Higher Education March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Physical Education was confined to the School of Physical Education at the University, and lower division work comprising instruction in the freshman and sophomore years was assigned to both the University and the State College.

The lower division work in Physical Education at the State College constitutes essentially the equivalent of lower division work at the University and students finding it more convenient to spend their freshman and sophomore years at the State College may transfer to the University for their major work without loss of credit and with fundamental requirements for upper division work fully met.

The lower division program at both institutions, besides laying a broad foundation for specialization, is intended also to serve the needs of students majoring in other fields. In addition, upper division service courses prescribed as required subjects or available as electives for students registered in other fields are given as needed at the State College.

Intramural Sports. Intramural sports are conducted by both departments of Physical Education. The department for women has charge of all women's athletics and offers for the students a wide program of activities. The department for men carries on extensive organized intramural sports programs which are separate and apart from intercollegiate athletics.

The function of intramural programs is to give every student the moral, social, physical, and educational values of competitive sports. Competition is organized between living organizations, clubs, individuals, classes, and institutional departments. The program of sports provides for both individual and team endeavor. "Athletics for all" is the purpose of intramural sports promotion.

Athletic Organizations. These include the Minor "O" Association and the Varsity "O" Association for men and the Women's Athletic Association.

Health Service. The Health Service provides medical examinations for all entering students and advises with the Physical Education departments in the proper assignment of students to activities in accord with their physical needs.

Fees. The fees paid by every student cover the use of pool and baths, locker, swimming suit, towels, bandages, and consumable supplies. Every student has a basket or locker in the gymnasium for his or her exclusive use and is urged to use the gymnasium facilities to the utmost.

Prerequisites for Major. Students working toward a major in Physical Education take all prerequisite subjects and sophomore technical subjects.

On transfer to the University these courses are accepted and adjustments made so that requirements for a degree in Physical Education can be completed in the junior and senior years. Prerequisite courses are as follows:

	Term hours
General Zoology	9
Elementary General Chemistry	12
English Composition	9
Elementary Human Physiology	6
Elements of Psychology	9
Sociology	9
Survey (elected)	12

Minor Norm. Students preparing for part-time teaching positions in physical education should take as a minor norm a minimum of 24 term hours of professional courses, of which at least 12 term hours must be activities suitable for high school situations.

On completion of the following minimum curriculum the student may be recommended for a part-time teaching position in physical education in the high schools of the state. The departments offer a wider range of studies, however, and the student is urged to take as much as his schedule will allow.

	Term hours		
	1st	2d	3d
Men:			
Introduction to Physical Education (PE 121, 122, 123)	2	2	2
Physical Education Laboratory (PE 174, 175, 176)	2	2	2
Physical Education Laboratory (PE 274, 275, 276)	2	2	2
Coaching of Football (PE 347), Coaching of Basketball (PE 346), Coaching of Baseball (PE 348), Coaching of Track and Field (PE 349) — Three courses selected from this group	2	2	2
	8	8	8
Women:			
Introduction to Physical Education (PE 121, 122, 123)	2	2	2
Physical Education Laboratory (PE 124, 125, 126)	2	2	2
Physical Education Laboratory (PE 224, 225, 226)	2	2	2
Technique of Sports (PE 341, 342)	3	3	----
	9	9	6

Required Courses. Courses PE 111, PE 114, 115, 116, PE 131, PE 214, 215, 216 (or PE 117, 118, 119, PE 217, 218, 219) for women, and PE 150, PE 151, 152, 153, PE 251, 252, 253 (or PE 157, 158, 159, PE 257, 258, 259) for men are required of all undergraduates. For the Junior Certificate both men and women students are required to complete the following:

Freshman Year

Elementary Physical Education, 1 term hour each term for two terms.
General Hygiene, 2 term hours, one term.

Sophomore Year

Advanced Physical Education, 1 term hour each term for three terms.

All work is given in regular supervised classes. The work done for credit is not merely exercise or recreation, but is given from the standpoint of instruction. Ample opportunity for exercise and recreation has been made and all of the facilities of the department are at the student's disposal outside the regular class hours.

The physical activity courses for students taking a minor in physical education (PE 224-226, for women; PE 274-276, for men) may be considered as fulfilling the physical education requirement for that year.

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.

Description of Courses

SERVICE COURSES FOR WOMEN

LOWER DIVISION COURSES

PE 111. **General Hygiene.** Any term, 2 hours.

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. Two periods.

PE 114, 115, 116. **Elementary Physical Education.** Three terms, 1 hour each term.

Required of all freshman women except those assigned to restricted work (courses PE 117, 118, 119) as a result of the physical and medical examination. All freshman students take one term of General Hygiene (PE 111) and two terms of Elementary Physical Education. Three periods.

PE 117, 118, 119. **Restricted and Corrective Gymnastics.** Three terms, 1 hour each term.

For students with temporary or permanent physical handicap referred by the Health Service, or by their family physicians. Freshmen referred to this course substitute it for PE 114, 115, 116. Three periods.

PE 131. **Social Ethics.** One term, no credit.

The purpose of this course is three-fold. It brings new students into early contact with their dean of women. It gives the dean of women the opportunity of instructing new students in the fundamental principles of conduct both on the campus and elsewhere. It brings students a vision of woman's position and responsibility in the economic, social, and spiritual life of today. Required of all freshman women. One period.

PE 214, 215, 216. **Advanced Physical Education.** Three terms, 1 hour each term.

Continuation of PE 114, 115, 116. Required of all sophomores except those assigned to restricted work (courses PE 217, 218, 219). Three periods.

PE 217, 218, 219. **Restricted and Corrective Gymnastics.** Three terms, 1 hour each term.

A continuation of PE 117, 118, 119. For sophomores. Three periods.

UPPER DIVISION COURSES

*PE 314, 315, 316. **Physical Activities.** Three terms, 1 hour each term.

A continuation of PE 214, 215, 216. Elective for juniors. Three periods.

*PE 414, 415, 416. **Physical Activities.** Three terms, 1 hour each term.

A continuation of PE 314, 315, 316. Elective for seniors. Three periods.

SERVICE COURSES FOR MEN

LOWER DIVISION COURSES

PE 150. **General Hygiene.** Any term, 2 hours.

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. Two periods.

PE 151, 152, 153. **Elementary Physical Education.** Three terms, 1 hour each term.

Physical activities taught not only for the acquisition of skill, but from the standpoint of their adaptation in the social life of the student. The time set aside is for instruction. It is hoped that the student will use the open hours provided and also the Intramural Sports for practice in these various activities. All freshman students are expected to take one term of General Hygiene and two terms of Elementary Physical Education. Three periods.

PE 157, 158, 159. **Restricted Physical Education.** Three terms, 1 hour each term.

Special programs set up for freshmen not adapted to the heavier regular classwork. Students are given individual attention and assigned to modified and corrective programs suited to their needs. This course is substituted for PE 151, 152, 153; students must, however, take the course in General Hygiene. Three periods.

PE 251, 252, 253. **Advanced Physical Education.** Three terms, 1 hour each term.

Required of sophomores. Three periods.

PE 257, 258, 259. **Restricted Physical Education.** Three terms, 1 hour each term.

*Elective physical education courses for juniors and seniors may be taken to the amount of one term hour per term and a total of not more than six term hours in addition to the physical education requirement.

A continuation of PE 157, 158, 159. For sophomores. Substitute for PE 251, 252, 253. Three periods.

UPPER DIVISION COURSES

*PE 351, 352, 353. **Physical Activities.** Three terms, 1 hour each term.

A continuation of PE 251, 252, 253. Elective for juniors. Three periods.

*PE 451, 452, 453. **Physical Activities.** Three terms, 1 hour each term.

A continuation of PE 351, 352, 353. Elective for seniors. Three periods.

PROFESSIONAL PHYSICAL EDUCATION COURSES

LOWER DIVISION COURSES

PE 121, 122, 123. **Introduction to Physical Education.** Three terms, 2 hours each term.

Required of all minors in the freshman year. This course introduces the student to the modern developments of physical education in relation to general education. The first term deals with the general aims and objectives, the second term with the history of physical education and the third term with the practical considerations, program, physical plant and personnel. Two periods.

PE 124, 125, 126. **Physical Education Laboratory.** Three terms, 2 hours each term.

Required of all women minors. This course deals with intensive instruction in all the various activities which go to make up the physical education program. Five periods.

PE 174, 175, 176. **Physical Education Laboratory.** Three terms, 2 hours each term.

Required of all men minors in the freshman year. This course offers intensive instruction for acquiring those skills and accomplishments which comprise an educationally sound physical activities program for a school. Six periods.

PE 221, 222, 223. **Fundamentals of Physical Education.** Three terms, 2 hours each term.

Required of all minors in the sophomore year. The first term is devoted to a study of general and community hygiene, the second term to human anatomy with special reference to physical education, and the third term to subject-matter and methods in teaching health education. Two periods.

*Elective physical education courses for juniors and seniors may be taken to the amount of one term hour per term and a total of not more than six term hours in addition to the physical education requirement.

PE 224, 225, 226. **Physical Education Laboratory.** Three terms, 2 hours each term.

Required of all women minors. A continuation of PE 124, 125, 126. Five periods.

PE 274, 275, 276. **Physical Education Laboratory.** Three terms, 2 hours each term.

Required of all sophomore minors (men). Continuation of the activity program begun in PE 174, 175, 176. Six periods.

UPPER DIVISION COURSES

PE 341, 342. **Technique of Sports.** Two terms, 3 hours each term.

Required of all women majors during the junior year. Technique of teaching gymnastics, rhythm training and sports. Three periods.

PE 346. **Coaching of Basketball.** First term, 2 hours.

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. Two periods.

PE 347. **Coaching of Football.** Second term, 2 hours.

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. Two periods.

PE 348. **Coaching of Baseball.** Third term, 2 hours.

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. Two periods.

PE 349. **Coaching of Track and Field.** Third term, 2 hours.

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 the participants on the field; development of certain types of individuals for certain events. Two periods.

PE 358. **First Aid.** Third term, 2 hours.

Elective for physical education majors and minors. Service course for other departments. 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 everyday life in varying occupations. Red Cross certificates are given. Two periods.

PE 359. **Athletic Training and Conditioning.** First term, 2 hours.

Elective for physical education majors and minors. 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. Two periods.

Ed 411. **School Hygiene.** Third term, 2 hours.

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 416; also one or more courses each in biological and physical science. Two periods.

Ed 412. **School Sanitation.** Second term, 2 hours.

General sanitation of school yard and arrangement of buildings; toilet; plumbing; water supply; heat; light; ventilation; seats; blackboards and cleanliness. Two periods.

PE 421. **Principles of Physical Education.** First term, 3 hours.

General philosophy and principles of physical education and its relation to general education. Three periods.

PE 422. **Tests and Measurements in Physical Education.** Second term, 3 hours.

Survey of the field; special study of typical tests, methods of scoring, principles of test building. Should be preceded by or taken simultaneously with Ed 416 whenever possible. Three periods.

PE 423. **Organization and Administration.** Third term, 3 hours.

A study of administrative problems applied to high school situations, including organization of departments, organization of instructional and recreational programs, supervision of both teaching and physical plant and routine administration. Three periods.

PE 435. **Playground and Community Recreation.** Third term, 3 hours.

Nature and function of play; adaptation of activities; program making. Playground instruction, management and supervision. Laboratory period in activities such as handicrafts, nature work, physical activities for indoor and outdoor programs.

PE 465. **Health Survey.** Second term, 3 hours.

A course for seniors only. Open to men and women. A discussion of the economic, social, biological, hygienic factors concerned in effective living. Three periods.

Religion

ERNEST WILLIAM WARRINGTON, M.A., Professor of Religion.

ESTABLISHMENT of a chair of Religion at the State College was authorized in 1928, and the first courses were offered in the fall term of 1928-29. 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

LOWER DIVISION COURSES

R 211. **The New Testament and Its Historical Background.** Second term, 2 hours.

Special attention is given to the times and conditions out of which the New Testament writings came and the problems which gave rise to the Christian movement. Two recitations. Professor Warrington.

R 220. **The Sermon on the Mount.** First term, 1 hour.

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. One recitation. Professor Warrington.

R 225. **The Prophets and Their Messages.** Third term, 1 hour.

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. One recitation. Professor Warrington.

Eng 275. **The Bible as Literature.** Third term, 3 hours.

Given by the department of English. Designed to stimulate and enlarge appreciation of the art and beauty of the literature of the Bible. Questions of theology and dogmas of religion are avoided. Assignments include passages which fall under the chief literary types, such as folk-lore, story telling, history, poetry, drama, wisdom literature, oratory, and the essay. Three lectures or recitations. Assistant Professor Baldwin.

UPPER DIVISION COURSES

R 370. **Principles of Religious Leadership.** Third term, 2 hours.

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. Two recitations. Professor Warrington.

R 461. **Orientation in Religious Thinking.** First term, 3 hours.

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. Three lectures. Professor Warrington.

R 462. **The Great Religions of the World.** Second term, 3 hours.

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. Three lectures. Professor Warrington.

R 463. **The Methods of Religion.** Third term, 3 hours.

A study of the release of 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. Three lectures. Professor Warrington.

Social Science

Faculty

JAMES HENRY GILBERT, Ph.D., Dean and Director of Social Science.

Economics

MILTON NELS NELSON, Ph.D., Professor of Economics; Head of Department of Agricultural Economics.

WILLIAM HENRY DREESEN, Ph.D., Professor of Agricultural Economics.

*ROBERT HORNIMAN DANN, M.A., Assistant Professor of Economics.

*On leave of absence.

History

JOHN B. HORNER, Litt.D., L.H.D., Emeritus Professor of History; Director of Oregon Historical Research.

EARNEST VANCOURT VAUGHN, Ph.D., Associate Professor of History.

JOSEPH WALDO ELLISON, Ph.D., Assistant Professor of History.

Political Science

ULYSSES GRANT DUBACH, Ph.D., Professor of Political Science.

FRANK ABBOTT MAGRUDER, Ph.D., Professor of Political Science.

Psychology

JESSE FRANKLIN BRUMBAUGH, A.M., Professor of Psychology.

OTHNIEL ROBERT CHAMBERS, Ph.D., Professor of Vocational Psychology.

Sociology

ELON HOWARD MOORE, Ph.D., Professor of Sociology.

*ROBERT HORNIMAN DANN, M.A., Assistant Professor of Sociology.

General Information

LOWER division and service courses in Social Science are offered at the State College by the College of Social Science under the direction of the Dean and Director of Social Science at the University. By action of the State Board of Higher Education March 7, 1932, all major work in the Oregon State System of Higher Education leading to baccalaureate and advanced degrees in Social Science was confined to the College of Social Science at the University, and lower division work comprising instruction in the freshman and sophomore years was assigned to both the University and the State College.

The lower division instruction in Economics, History, Political Science, Psychology, and Sociology at the State College constitutes essentially the equivalent of lower division work in these subjects at the University; and students finding it more convenient to spend their freshman and sophomore years at the State College may transfer to the University for their major work without loss of credit and with fundamental requirements for upper division work in these subjects fully met.

The instruction in the first two years is made as broad and liberalizing as possible, the aim being a general education together with preparation for specialization at the upper division level. The lower division program in Social Science at the State College, besides laying a broad foundation for later specialization in Social Science at the University, is intended also to serve the needs of students majoring in other fields on the State College campus. In addition, upper division service courses prescribed as required subjects, or available as electives, for students registered in other fields are given as needed at the State College.

*On leave of absence.

Economics

ECONOMICS instruction at the State College, comprising lower division and service courses, is intended to meet the cultural and informational needs of all students interested in economic problems in relation to citizenship, and to supply a lower division foundation for law, business, or public service. The courses are also selected with a view to meeting the prescriptions found in technical curricula and needed in connection with various vocational lines.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

SSc 101, 102, 103. **Background of Social Science.** Three terms, 3 hours each term.

A study is made of the factors and forces which constitute the make-up of society. The validity of the thought process and opinions of the students with respect to social phenomena is challenged. An analysis is made of scientific methods and the possibilities and limitations in the social sciences. An attempt is made to acquaint the student with the findings of psychology in regard to bias and prejudices, egoism of the crowd, habit responses, complexes and factors of wise thinking. Insight, rather than mere information, is the aim and object of the course. Assistant Professor Dann.

Ec 201, 202, 203. **Principles of Economics.** Three terms, 3 hours each term.

The principles that underlie production, exchange, and distribution. Practical problems like monetary and banking reform, trade regulations, taxation, labor movements, regulation of railways and public utilities are considered. Professors Nelson and Dreesen.

Ec 211. **Outlines of Economics.** Any term, 4 hours.

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. Not open to Business Administration students. Professor Dreesen, Assistant Professor Dann.

UPPER DIVISION SERVICE COURSES

Prescribed in major curricula in degree-granting schools at the State College and also available as electives to students majoring in such schools.

Ec 405. **Labor Problems.** First term, 4 hours.

Treats of the condition under which laborers have worked since the advent of the industrial revolution. Topics especially emphasized are: trade union policies; strikes and lockouts; trade agreements; conciliation and arbitration; immigration; unemployment; women and children in industry; prison labor; industrial education, etc. Open

to students who have studied the principles of economics or the principles of sociology. Professor Moore.

Ec 413. **Money and Banking.** Second term, 4 hours.

(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. Prerequisites: Ec 201, 202, 203, or Ec 211. Professor Dreesen.

Ec 418. **Public Finance.** Third term, 4 hours.

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. Four recitations. Professor Dreesen.

Ec 435. **Transportation.** Third term, 4 hours.

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: Ec 201, 202, 203, or Ec 211. Professor Dreesen.

Ec 440. **International Trade.** First term, 4 hours.

The theory of international trade; nature and effects of government interference in the form of bounties, subsidies, import and export duties; the commercial policies of the more important nations; consular service; foreign exchange and international banking systems; ocean routes and carriers; foreign trade organizations. Prerequisites: Ec 201, 202, 203, or Ec 211. Professor Dreesen.

Ec 475, 476, 477. **Economic Theory and Problems.** Three terms, 2 hours each term.

An advanced course dealing with economic theories and their application to current economic problems. The work contemplates a more or less elastic program covering selected topics such as value, price, distribution, money and credit, public credit and finance, foreign trade and exchange, international and intercommunity debtor-creditor problems, tariffs, imperialism, international and domestic cartels and trusts, marketing and transportation, and others. Prerequisites: Ec 201, 202, 203, or Ec 211. Professor Nelson.

History

HISTORY courses are intended to supply the necessary background for intelligent citizenship. The aim of the several courses is to afford an opportunity for a survey of world history and the development of western civilization together with a more detailed study of the English

people, the British Empire, and the history of America from the earliest period to the present.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

SSc 101, 102, 103. **Background of Social Science.** Three terms, 3 hours each term.

Complete course description is printed under department of Economics.

Hst 201, 202, 203. History of **Western Civilization.** Three terms, 3 hours each term.

A survey of the origins and development of western civilization from early times to the present. Particular attention will be given to social, economic and political factors and the relation of the past to contemporary civilization. Associate Professor Vaughn, Assistant Professor Ellison.

Hst 207, 208. **England and the British Empire.** First and second terms, 3 hours each term.

The course deals with the constitutional and political history of England and with the expansion and present position of the British Empire. The course when followed by course Hst 209 satisfies group requirements in Social Science and is accepted as the equivalent of Hst 207, 208, 209 as given at the University. Associate Professor Vaughn.

Hst 209. **The World Since 1914.** Third term, 3 hours.

The war and the problems of reconstruction in the light of their historical antecedents and causes studied with reference to evaluation of current events and sources. With Hst 207, 208 satisfies sophomore Social Science group requirement. Associate Professor Vaughn.

Hst 224, 225, 226. History of **American Civilization.** Three terms, 3 hours each term.

A course dealing with the rise and development of the United States from the early period of North American colonization to contemporary times. Special emphasis on economic, social, and cultural life and political and constitutional changes. Assistant Professor Ellison.

Political Science

THE courses in political science are designed primarily for training in intelligent citizenship and effective participation in public affairs. They aim to give the student an active interest in the structure of political life, the operation of governments, state and local, and an understanding of current political questions. Graduates of technical and professional schools are expected to take an active part in the affairs of government and through courses in political science are trained for the responsibilities of public life.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

SSc 101, 102, 103. **Background of Social Science.** Three terms, 3 hours each term.

Complete course description is printed under department of Economics.

PS 201, 202, 203. **Modern Governments.** Three terms, 4 hours each term.

(1) American National Government with special attention on contemporary reforms; (2) State and Local Governments with attention to practical operation and contemporary reforms in Oregon; (3) European Governments, a comparative study of the principal European countries with particular attention to England, France, and Germany. Professors Dubach and Magruder.

UPPER DIVISION SERVICE COURSES

Prescribed in major curricula in degree-granting schools at the State College and also available as electives to students majoring in such schools.

PS 405. **Municipal Government.** Third term, 3 hours.

Consideration of the organization, functions, and present-day problems of city and town government. The cities of the Northwest receive special attention. Professor Magruder.

PS 407, 408, 409. **International Organization and World Politics.** Three terms, 4 hours each term.

Nature and history of international relations, the League of Nations and the World Court, together with a study of political and economic realities affecting international interdependence. Professors Dubach and Magruder.

Psychology

PSYCHOLOGY courses are intended to meet the needs of students desiring a foundation in psychology for work in education, either general or vocational and to meet the service needs of various schools and departments that require psychology as a part of their program of training.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

Ed 101, 102, 103. **Education Orientation.** Three terms, 3 hours each term.

Courses Ed 101, 102, 103 are described under School of Education.

Psy 111. **Mental Hygiene.** Any term, 3 hours.

This course deals with the conditions of healthy mental development and normal reactions to life and the college environment. It inquires into habits, attitudes, and reactions of the normal mind. No credit is given to students who have taken Ed 101. Professor Chambers.

Psy 112, 113, 114. **Introduction to Reflective Thinking.** Three terms, 3 hours each term.

A course intended to develop in the student the habit of reflective thinking by self-examination and through the interpretation of fact, conduct, and experience. The student is asked to apply the processes of critical thinking to his habitual judgments and valuations of life, the world, himself, and human society. Professor Brumbaugh.

Psy 201, 202, 203. **Elementary Psychology.** Three terms, 3 hours each term.

An introductory study of the material of general experimental psychology, learning, memory, perception, imagination, sensation, attention, reasoning, instinct, emotion, will, etc. Professor Chambers.

Psy 204, 205, 206. **Elementary Psychology Laboratory.** Three terms, 1 hour each term.

An introductory course in laboratory experimental methods. This is operated in coordination with Psy 201, 202, 203, which must be taken at the same time. One laboratory period each week. Professor Chambers.

Psy 211. **Outlines of Psychology.** Any term, 4 hours.

A study of the fundamental facts of human equipment and behavior; instinct, emotion, sensation, feeling, memory, imagination, suggestion, will, reason, and personality. Professor Chambers.

Psy 212, 213, 214. **Logic.** Three terms, 3 hours each term.

A study of the forms and methods of knowledge, the general nature of scientific method and the function and limits of human understanding. The organization of knowledge for effective presentation, the problem of inference and the nature of evidence. Professor Brumbaugh.

Sociology

ALL the lower division instruction in sociology, like that in the related social sciences, is intended to contribute to the task of training for good citizenship through a better understanding of the principles that govern human associations and relationships. Particular attention is given to attitudes and habits of mind and characteristic reactions to public events and social institutions. An insight is given into contemporary social problems both urban and rural. Courses are also designed to meet the needs of those who are majoring in home economics and allied fields.

DESCRIPTION OF COURSES

LOWER DIVISION COURSES

SSc 101, 102, 103. **Background of Social Science.** Three terms, 3 hours each term.

Complete course description is printed under department of Economics.

Soc 201, 202, 203. **Elements of Sociology**. Three terms, 3 hours each term.

Analysis of social organization and culture, human nature; social changes and movements as affected by culture, biological and physical environmental factors, and a brief survey of the various social problems as well as methods of investigation. Professor Moore.

Soc 211. **General Sociology**. Any term, 4 hours.

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. Professor Moore.

UPPER DIVISION SERVICE COURSES

Prescribed in major curricula in degree-granting schools at the State College and also available as electives to students majoring in such schools.

Soc 312. **The Family**. First or second term, 3 hours.

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. Prerequisites: Soc 201, 202, 203 or equivalent. Assistant Professor Dann.

Soc 314. **Educational Sociology**. Third term, 3 hours.

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. Professor Moore.

Soc 364. **Rural Sociology**. Third term, 3 hours.

Problems of rural life and rural institutions contrasted with the problems of urban living. Attention is given to the community, the family, the school, the church, recreation and welfare activities as they find their expression in the rural setting. Assistant Professor Dann.

Soc 405, 406. **Social Problems**. First and second terms, 2 hours each term.

An analysis of the factors involved in the problems resulting from economic and social disorganization. Special attention is given to problems of poverty, pauperism, crime, and those social problems which result from changes in our industrial organization. Methods of treatment or protection are analyzed with a critical evaluation of present-day trends. Designed to serve the layman with useful knowledge which he may employ in the function of his citizenship. Prerequisites: Soc 201, 202, 203, or Soc 211. Professor Moore.

Soc 474. **Social Psychology**. Second term, 3 hours.

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: Soc 201-203 or 211; Psy 201-203 or 211. Three recitations. Not offered 1933-34. Professor Moore.

Graduate Division

GEORGE REBEC, Ph.D., Dean and Director of the Graduate Division, Oregon State System of Higher Education.
CLARA LYNN FITCH, Secretary of the Graduate Division.

IN the disciplines of undergraduate education the primary aim is to prepare the student for cultured living and effective citizenship. Professional training has the additional aim of preparing for a career. These aims continue into the graduate years, but in graduate study the dominant objective is the development of the scholar, capable of original thinking and of creative achievement in the advancement and extension of knowledge. Hence, the granting of a graduate degree indicates more than the mere completion of a prescribed amount of advanced study; it indicates rather that the student has shown both promise and performance in the field of independent scholarship.

Graduate study is defined to include all study beyond the bachelor's degree in other than strictly professional curricula. A student who has received a bachelor's degree at a standard college or university may be admitted as a graduate student at either the University or the State College. Such admission, however, does not in itself admit him to candidacy for a degree. Candidacy for an advanced degree is gained only after the student has demonstrated the thoroughness of his previous preparation and his ability to do work of graduate character.

Organization

THE Graduate Division has jurisdiction over all graduate work throughout the Oregon State System of Higher Education, leading to other than strictly professional degrees. The general direction and administration of the Graduate Division are in the hands of the Graduate Dean and the Graduate Council. The Graduate Council consists of the Graduate Dean and one member from each major school or college, all to be appointed by the Chancellor. The Graduate Dean is the chairman and executive officer of the Graduate Council. The Graduate Council formulates the rules for the Graduate Division, subject to the approval of the Graduate Faculty. The Graduate Faculty is made up of all members of the general faculties who offer courses eligible for graduate credit.

In each of the major schools or colleges there is a committee, appointed by the Chancellor, consisting of three members, of whom the chairman is the representative of his school or college on the Graduate Council. The School or College Committee works out School or College programs and standards of study, and has supervision over departmental study programs, whether such programs are laid down for the department

generally, or for the individual student; except that the actual formulation of the departmental programs, and the working out and direction of the programs of the individual students remain with the department. No School or College Committee has authority to waive or supercede any of the general rules or requirements of the Graduate Division.

General Regulations

TWO classes of graduate students are recognized: those desiring to become candidates for an advanced degree and those desiring merely to take work beyond the bachelor requirements. The former make out a curriculum in conformity with the rules hereinafter stated; the latter register for the courses they desire. In permitting the latter registration there is no implied obligation to accept credits so earned toward a degree. Whether a student is adequately prepared to enter a particular course is determined by the instructor in charge and the head of his department.

Admission. A graduate of any standard college or university is admitted to the Graduate Division by the registrar of the institution in which he wishes to enroll, upon filing an application for admission and an official transcript of the credits upon which his bachelor's degree is based. Such an admission, however, does not of itself entitle a student to become a candidate for a degree.

Preparation Required for Graduate Study. Preparation for the graduate major must be an undergraduate major in the same subject, or a fair equivalent. Preparation for the graduate minor must be at least one year-sequence of upper division work in addition to foundational courses in the subject.

Maximum Load. The maximum registration allowed graduate students is 16 term hours per term (10 for graduate assistants and fellows), 9 term hours during each summer session, and 6 term hours during each post session.

Credit Requirements. The master's degree (M.A. or M.S.) requires 45 term hours of graduate work constituting a coherent program, based upon adequate preparation. This work is normally divided into a major and a minor, 30 term hours for the major and 15 for the minor.

No definite credit requirement is set up for the degree of Doctor of Philosophy, since it is based primarily upon attainments and proved ability. The candidate chooses a major and one or two minor lines of study (if only one minor is chosen, it must be in some other than the major department) and with the assistance of his major professor outlines a curriculum devoting approximately 60 per cent of his time to the major, including thesis, and approximately 40 per cent to the minor or minors. This curriculum must be approved by the proper School or College Committee within the first term of the candidate's registration for the degree.

Grade Requirement. A grade point average of 2.00 (a B average) is required for every graduate degree. Grades below C are not accepted for graduate credit.

Residence. For the master's degree, at least three terms (or five summer sessions) of work must be completed in residence. Credit not to exceed 15 term hours may be transferred from another institution of standard rank, provided the subjects fit into a logical curriculum for the degree and are approved by the major department and the Graduate Council, and provided further that grades of A or B have been earned.

For the doctor's degree, two years of full time residence work beyond the master's degree are required, of which one year (usually the last) must be spent on the campus of the institution from which the degree is taken.

Time Limit. All work to be counted toward the master's degree, including the thesis and the final examination, must be completed within five years from the date of matriculation in the Graduate Division. Credits falling outside of this time limit may be used as foundational work, but may not be counted toward the master's degree.

Graduate Courses. All courses numbered in the 500s carry graduate credit, as do those in the 400s which have been approved by the Graduate Council, and in which graduate students are registered as such, and expected to accomplish work both quantitatively and qualitatively superior to that of undergraduate students in the same course. At least one year-sequence of 500-number character, normally of seminar or research nature, and for approximately three term hours of credit per term, is required of each candidate for the master's degree in addition to the thesis.

Degree Requirements. The Master of Arts degree rquires a reading knowledge of some foreign language, preferably French or German, as shown by examination or by adequate undergraduate courses. For the Master of Fine Arts degree a high measure of creative ability must be demonstrated.

The Doctor of Philosophy degree requires a reading knowledge of French and German demonstrated by a formal examination in each language. These examinations should be taken as early as possible in the candidate's course, and must be passed before he comes up for the preliminary examination.

It is not the policy of the Graduate Division to grant the doctor's degree to any student whose academic training, both undergraduate and graduate, has been exclusively with one institution.

Preliminary Examinations. For the master's degree, the preliminary examination should be taken as soon as the student has completed approximately 15 term hours of work. Under no circumstances may this examination be postponed longer than the completion of 30 term hours. Students who have taken their bachelor's degree with honors in the subject are exempt from the master's preliminary examination.

The candidate for the doctor's degree must pass a group of preliminary examinations in his major and minor subjects not less than one academic year before the degree is expected.

Advancement to candidacy for the degree ordinarily follows the passing of the preliminary examination and the proper recommendation to the Graduate Council by the student's major adviser, or, in the case of doctor's candidates, by the committee in charge of his work.

Thesis. Every candidate for an advanced degree must file three bound copies of an acceptable thesis, and five copies of an abstract of it, not later than two weeks before the date of his final examination. Nine term hours of credit are earned on the thesis toward the Master of Arts and the Master of Science degrees, 15 term hours toward the Master of Fine Arts, and 15 or more term hours toward the Doctor of Philosophy degree. The thesis for the Doctor of Philosophy degree must show evidence of independent research on the part of the candidate.

Final Examinations. A final oral examination of not less than two hours is required of every candidate for an advanced degree; when deemed desirable a written examination may also be required. For the master's degrees, the examining committee consists of at least three members of the Graduate Faculty, including representatives of the candidate's major and minor departments.

For the doctor's degrees the final oral examination is public, and usually of three hours duration. The candidate is expected to defend his thesis and to show a satisfactory knowledge of his chosen fields. The examining committee consists of the faculty members in general charge of the candidate's work and any additional members judged desirable by them or by the Graduate Council.

All examination committees are subject to the approval of the Graduate Dean who is, ex-officio, a member of all examining committees.

Fee. A graduate student is required to pay a registration fee of $26.00 each term, or $78.00 a year. This fee applies in the case of graduate students at the State College, the University, or in Portland.

Institutional Allocation of Graduate Work

ON the basis of the 1932 allocations of curricula in the Oregon State System of Higher Education, all graduate study leading to advanced degrees has been centralized by curricula or major subjects as follows:

At the State College—

The biological sciences, the physical sciences (including mathematics), and the technical and professional fields of agriculture, education, engineering, forestry, home economics, and pharmacy.

At the University—

Arts and letters, the social sciences, and the professional fields of business administration, education, fine arts, journalism, law, and physical education.

In certain fields graduate work may be carried on at the Medical School in Portland or at the Portland Extension Center, leading to degrees through the Graduate Division in the State College or the University.

Graduate study may be pursued on the respective campuses according to the special requirements and conditions stated on the following pages.

The courses open to graduate students are printed under the several departments.

Graduate Work at the State College

ALL graduate work at the State College is carried on under the auspices of the Graduate Division, and under the more immediate direction of a State College Graduate Committee consisting of members of the Graduate Council who are on that Campus. The College Graduate Committee, cooperating with the Graduate Council and the Graduate Dean, administers the regulations of the Graduate Division at the State College, and has general supervision over registration, examinations, and all matters relating to graduate work.

All advanced degrees awarded at the State College must have the previous approval of the College Graduate Committee before being submitted to the Graduate Council.

Correspondence relating to graduate work in fields allocated to the State College should be addressed to the State College Graduate Committee, Oregon State College, Corvallis, Oregon.

Degrees. Graduate degrees are offered at the State College as follows:

Master of Science: In the technical and professional schools, including Agriculture, Education, Engineering, Forestry, Home Economics, Pharmacy; and in Bacteriology, Botany, Chemistry, Entomology, Geology, Mathematics, Physics, Zoology.

Master of Arts: In Bacteriology, Botany, Chemistry, Entomology, Geology, Home Economics, Mathematics, Physics, Zoology.

Doctor of Philosophy: In Agriculture, Botany, Chemistry, Entomology, Geology, Mathematics, Physics, Zoology.

Departments. The departments or subjects in which graduate work may be taken leading to advanced degrees at the State College are as follows:

BIOLOGICAL SCIENCE:

Anatomy*, Bacteriology*, Botany, Entomology, Pathology*, Physiology*, Zoology.

PHYSICAL SCIENCE:

Biochemistry*, Chemistry, Geology, Mathematics, Physics.

Professional and Technical Schools:

AGRICULTURE—Agricultural Economics, Agricultural Education, Animal Husbandry, Dairy Husbandry, Extension Methods, Farm Crops, Farm Management, Horticulture (including Horticultural Products, Landscape Horticulture, Pomology, and Vegetable Crops), Poultry Husbandry, Soils and Soil Science, and Veterinary Medicine.*

*Certain phases of graduate work in this field may be pursued at the Medical School, Portland.

EDUCATION—General, Agricultural, Home Economics, Industrial, Secretarial; Educational and Vocational Guidance.

ENGINEERING AND INDUSTRIAL ARTS—Chemical Engineering and Industrial Chemistry; Civil and Highway Engineering; Electrical, Power, and Communication Engineering; Mechanical and Aeronautical Engineering; Mechanics and Materials; Industrial Arts Education and Industrial Administration.

FORESTRY—Technical Forestry, Logging Engineering, Lumber Manufacture.

HOME ECONOMICS—Clothing, Textiles, and Related Arts; Foods and Nutrition; Home Economics Education; Household Administration (including Child Development and Parent Education); Institution Economics.

PHARMACY—Practical Pharmacy, Pharmaceutical Analysis, Pharmacology*, and Pharmacognosy.

Facilities. The facilities for pursuing graduate work are excellent and include, in addition to well-equipped laboratories, the agricultural experiment station with nine branch experiment stations in different parts of the state, the engineering experiment station, a suitable reference library, and above all a scientific and technical faculty actively engaged in investigational and research work. No graduate student is permitted to undertake a thesis problem unless adequate facilities are available in the chosen field.

Assistants and Fellows. Information on fellowships and assistantships at the State College is obtainable from the sections of the catalog dealing with the several departments, or by writing directly to the department.

Graduate Work at the University

GRADUATE work at the University is carried on under the auspices of the Graduate Division, and under the direction of the Graduate Council and the Graduate Dean.

Correspondence relating to graduate work in fields allocated to the University should be addressed to the Dean of the Graduate Division, University of Oregon, Eugene, Oregon, or to the department concerned.

Degrees. Graduate degrees are offered at the University as follows:

Master of Arts: English, German, Greek, Latin, Romance Languages, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology, Art and Architecture, Landscape Architecture, Music, Education, Journalism, Physical Education.

*Certain phases of graduate work in this field may be pursued at the Medical School, Portland.

Master of Science: English, Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology, Art and Architecture, Landscape Architecture, Music, Education, Journalism, Physical Education.

Master of Fine Arts: Art and Architecture, Landscape Architecture, Music.

Master of Education: Education.

Master of Architecture: Art and Architecture.

Master of Business Administration: Business Administration.

Doctor of Philosophy: Economics, Education, English, German, History, Psychology, Romance Languages, Sociology.

Doctor of Education: Education.

Departments. The departments or subjects in which graduate work may be taken leading to advanced degrees at the University are as follows:

ARTS AND LETTERS:

English, German, Greek, Latin, Romance Languages.

SOCIAL SCIENCE:

Economics, Geography, History, Philosophy, Political Science, Psychology, Sociology.

FINE ARTS: Art and Architecture, Landscape Architecture, Music.

BUSINESS ADMINISTRATION.

EDUCATION.

JOURNALISM.

PHYSICAL EDUCATION.

Assistants and Fellows. The University has established assistantships of several ranks for graduate students of superior attainments and abilities. Such students are given a reduction in fees and a small stipend of from $300 to $400 for the nine months, for which service in the major department is rendered, in the way of correcting papers, supervising quiz sections, etc., to the amount of from fifteen to twenty hours a week. These students are given the title of graduate assistant and are limied to a program of study of not more than ten hours a term. While the master's degree may be earned in one year with the addition of the summer term, such students ordinarily seek reappointment and take two years for the degree. Students who render a lesser amount of service are called part-time graduate assistants, and receive a smaller stipend, but are also entitled to the reduction in fees.

Research Assistantships. These are awarded to graduate students of proved ability who are chosen to assist in the research projects of the faculty or of the department. The same restrictions as to registration in courses apply to these assistants, and the monetary considerations and fee reductions are essentially the same.

Graduate Work in Portland

STUDY under the Graduate Division may, in certain fields, be pursued in Portland at the Medical School or at the Portland Extension Center. Students seeking advanced degrees for such study register in the Graduate Division and take their degrees from the State College or the University according to the major subject (see the institutional allocation of graduate work, page 338).

At the Medical School. Graduate work may be taken at the Medical School, under the Graduate Division, toward the degrees of M.A., M.S., and Ph.D.. These degrees, as indicated previously, are conferred according to the major subject, in harmony with the 1932 allocations of major curricula and degrees.

At the Portland Extension Center. In a number of departments in the Portland Extension Center, it is possible to accomplish much or all of the work for the master's degrees. In other departments at least some portion of the work may be accomplished. Work toward the doctor's degree may not be taken in the Portland Extension Center.

Appointments for conferences between graduate students and the Graduate Dean or representatives of the Graduate Division from the State College or the University may be arranged by the Portland Center office.

Part III

Research and Experimentation

Research and Experimentation

ENLARGEMENT of human knowledge and the rendering of technical and technological service to the commonwealth and its various subdivisions, industries, and interests are recognized functions of all institutions of higher learning. Research and service studies in the Oregon State System of Higher Education are carried on through the interinstitutional General Research Council and through special institutional research agencies. At the State College special research activities are carried on through the Agricultural Experiment Station and the Engineering Experiment Station. At the University special research activities are carried on through the Bureau of Institutional Research and the Commonwealth Service Council. At the Medical School the nutritional causes of morbidity and mortality are investigated through the Nutritional Research Laboratory.

The General Research Council

EARL LEROY PACKARD, Ph.D., Dean and Director of Science; Chairman.
HOWARD PHILLIPS BARSS, S.M., Professor of Botany and Plant Pathology.
WILLIAM ALFRED SCHOENFELD, M.B.A., Dean and Director of Agriculture.
WILLIAM EDMUND MILNE, Ph.D., Professor of Mathematics.
RALPH W. LEIGHTON, Ph.D., Executive Secretary, Research Council.
ROBERT HOLMES SEASHORE, Ph.D., Associate Professor of Psychology.
HENRY DAVIDSON SHELDON, Ph.D., Research Professor of History and Education.
CLARENCE VALENTINE BOYER, Ph.D., Dean and Director of Arts and Letters.
OLOF LARSELL, Ph.D., Professor of Anatomy.

Natural Science Research Council

WILLIAM EDMUND MILNE, Ph.D., Professor of Mathematics; Chairman.
WILLIBALD WENIGER, Ph.D., Professor of Physics.
WALTER BENO BOLLEN, Ph.D., Assistant Professor of Bacteriology.
FRED ORVILLE MCMILLAN, M.S., Research Professor of Electrical Engineering.
EDWIN THOMAS HODGE, Ph.D., Professor of Geology.
NATHAN FASTEN, Ph.D., Professor of Zoology.
DON CARLOS MOTE, Ph.D., Professor of Entomology.
ROGER JOHN WILLIAMS, Ph.D., Professor of Chemistry.
EARL GEORGE MASON, M.F., Associate Professor of Forestry.

MAUD MATHES WILSON, M.A., Professor of Home Economics.
ETHEL IDA SANBORN, Ph.D., Assistant Professor of Botany.
RALPH RUSKIN HUESTIS, Ph.D., Professor of Zoology.
WILL VICTOR NORRIS, D.Sc., Associate Professor of Physics.

Social Science Research Council

HENRY DAVIDSON SHELDON, Ph.D., Research Professor of History and Education.
JAMES RALPH JEWELL, Ph.D., LL.D., Dean and Director of Education.
WAYNE LYMAN MORSE, LL.B., J.D., Dean and Director of Law.
CALVIN CRUMBAKER, Ph.D., Associate Professor of Economics.
LUTHER SHEELEIGH CRESSMAN, Ph.D., Professor of Sociology.
ERIC WILLIAM ALLEN, A.B., Dean and Director of Journalism.
ORIN KAY BURRELL, M.A., C.P.A., Associate Professor of Business Administration.
JAMES DUFF BARNETT, Ph.D., Professor of Political Science.
HOWARD RICE TAYLOR, Ph.D., Professor of Psychology.
HARVEY GATES TOWNSEND, Ph.D., Professor of Philosophy.
JOSEPH WALDO ELLISON, Ph.D., Assistant Professor of History.
MILTON NELS NELSON, Ph.D., Professor of Agricultural Economics.

Language, Literature, Art Research Council

CLARENCE VALENTINE BOYER, Ph.D., Dean and Director of Arts and Letters, Chairman.
GEORGE HOPKINS, A.B., Professor of Piano.
JUAN BAUTISTA RAEL, M.A., Instructor in Romance Languages.
CLARA ELIZABETH SMERTENKO, Ph.D., Professor of Latin and Greek.
GEORGE WILLIAMSON, Ph.D., Associate Professor of English.
NOWLAND BRITTIN ZANE, Associate Professor of Design.
ARTHUR LEE PECK, B.S., B.A., Professor of Landscape Architecture.
MAUD MATHES WILSON, M.A., Professor of Home Economics.

WITH the approval of the administrations of the institutions concerned and of the State Board of Higher Education, a General Research Council has been established to provide for the research interests of the staff members at the State College and the University, as separate and apart from the research programs of the Agricultural Experiment Station and the Engineering Experiment Station at the State College and the University of Oregon special service and research bureaus.

The Council is organized as a general council with three divisional councils. The general council is the budgetary group and the chairman is the budgetary officer. This council is concerned with general policies

affecting the research interests of staff members and is authorized to make grants-in-aid or otherwise assist the approved research projects initiated by staff members of the rank of instructor or higher. The divisional councils further the research interests of the fields represented, evaluate and examine the technical aspects, merit, and feasibility of projects coming before them. Projects receiving the recommendation of these councils are submitted to the General Council for action.

Grants are made by the General Research Council to individuals or groups of individuals of the rank of instructor or higher for research projects that have met the approval and received the recommendation of the appropriate divisional council. Funds may be used for equipment, materials, publications, travel within the state, and technical or clerical assistance. Research assistantships normally carrying a stipend of $500.00 each are now available for major research projects requiring the technical assistance of a graduate student. Formal applications for grants-in-aid or for research assistants are made to the chairman of the General Council or to the appropriate divisional council.

The Agricultural Experiment Station

WILLIAM ALFRED SCHOENFELD, M.B.A., Director of the Agricultural Experiment Station.

RALPH STEPHEN BESSE, M.S., Vice-Director of Agricultural Experiment Station.

Division of Agricultural Economics

ERMINE LAWRENCE POTTER, M.S., Agricultural Economist; In Charge, Division of Agricultural Economics.

Agricultural Economics

MILTON NELS NELSON, Ph.D., Agricultural Economist.

WILLIAM HENRY DREESEN, Ph.D., Agricultural Economist.

Farm Management

HENRY DESBOROUGH SCUDDER, B.S., Economist (Farm Management).

HALBERT EDGERTON SELBY, M.S., Associate Economist (Farm Management).

GUSTAV WESLEY KUHLMAN, M.S., Associate Economist (Farm Management).

ARNOLD STEWART BURRIER, M.S., Associate Economist (Farm Management).

Division of Animal Industries

PHILIP MARTIN BRANDT, A.M., Dairy Husbandman; In Charge, Division of Animal Industries.

Animal Husbandry

ORAN MILTON NELSON, M.S., Animal Husbandman.

ALFRED WEAVER OLIVER, M.S., Assistant Animal Husbandman.

Dairy Husbandry

IDWAL RALPH JONES, Ph.D., Associate Dairy Husbandman.

Poultry Husbandry

ALFRED GUNN LUNN, B.S., Poultry Husbandman.

FRANK LESTER KNOWLTON, M.S., Poultry Husbandman.

FRANK ELMER FOX, M.S., Associate Poultry Husbandman.

Veterinary Medicine

BENNETT THOMAS SIMMS, D.V.M., Veterinarian.

WALTER THEODORE JOHNSON, D.V.M., Poultry Pathologist.

JAMES NIVEN SHAW, D.V.M., Assistant Veterinarian.

ROBERT JAY, D.V.M., Associate Veterinarian, Bureau of Animal Industries, United States Department of Agriculture.

ERNEST MILTON DICKINSON, D.V.M., Assistant Poultry Pathologist.

FONSOE MARION BOLIN, D.V.M., Assistant Veterinarian, Agricultural Experiment Station; Cooperative Agent, United States Department of Agriculture.

OTTO HERBERT MUTH, D.V.M., Assistant Veterinarian, Agricultural Experiment Station; Cooperative Agent, United States Department of Agriculture.

OWEN LESTER SEARCY, B.S., Technician in Veterinary Medicine.

Division of Plant Industries

GEORGE ROBERT HYSLOP, B.S., Agronomist; In Charge, Division of Plant Industries.

Farm Crops

EARL NORMAN BRESSMAN, Ph.D., Agent, Division of Drug and Related Plants, United States Department of Agriculture.

HARRY AUGUST SCHOTH, M.S., Associate Agronomist; Forage Crops and Disease Investigation, United States Department of Agriculture.

DONALD DAVID HILL, M.S., Associate Agronomist.

BRITTAIN BRAGUNIER ROBINSON, Ph.D., Assistant Plant Breeder, United States Department of Agriculture.

GRACE COLE FLEISCHMAN, A.B., Assistant Botanist, Division of Seed Investigations, United States Department of Agriculture.

Horticulture

WALTER SHELDON BROWN, D.Sc., Horticulturist.

ARTHUR GEORGE BRISTOW BOUQUET, M.S., Horticulturist (Vegetable Crops).

ERNEST HERMAN WIEGAND, B.S.A., Horticulturist (Horticultural Products).

HENRY HARTMAN, M.S., Horticulturist (Pomology).

CARL EPHRIAM SCHUSTER, M.S., Horticulturist, United States Department of Agriculture.

WILLIS PIERRE DURUZ, Ph.D., Horticulturist (Plant Propagation).

GEORGE FORDYCE WALDO, M.S., Assistant Pomologist, Department of Horticulture.

BLISS F. DANA, M.S., Pathologist (Horticultural Crops and Diseases), United States Department of Agriculture.

JAMES CECIL MOORE, M.S., Assistant Horticulturist (Pomology).

THOMAS ONSDORFF, B.S., Assistant Horticulturist (Horticultural Products).

Soil Science

WILBUR LOUIS POWERS, Ph.D., Soil Scientist.

CHARLES VLADIS RUZEK, M.S., Soil Scientist (Fertility).

MORTIMER REED LEWIS, C.E., Irrigation and Drainage Engineer, Bureau of Agricultural Engineering, United States Department of Agriculture.

ROSCOE ELMO STEPHENSON, Ph.D., Associate Soil Scientist.

EDWARD FRITCHOFF TORGERSON, B.S., Assistant Soil Scientist (Soil Survey).

Other Departments

Agricultural Chemistry

J. SHIRLEY JONES, M.S.A., Chemist in Charge.

REGINALD HEBER ROBINSON, M.S., Chemist (Insecticides and Fungicides).

JOSEPH ROY HAAG, Ph.D., Chemist (Animal Nutrition).

DELOSS EVERETT BULLIS, M.S., Assistant Chemist (Horticultural Products).

MILES BRAYTON HATCH, B.S., Assistant Chemist.

Agricultural Engineering

FREDERICK EARL PRICE, B.S., Agricultural Engineer.

CLARENCE J HURD, B.S., Assistant Agricultural Engineer.

Bacteriology

GODFREY VERNON COPSON, M.S., Bacteriologist in Charge.

JOSEPH ELLSWORTH SIMMONS, M.S., Associate Bacteriologist.

WALTER BENO BOLLEN, Ph.D., Assistant Bacteriologist.

Entomology

DON CARLOS MOTE, Ph.D., Entomologist in Charge.

ANDREW OLOF LARSON, M.S., Entomologist (Stored Products Insects), United States Department of Agriculture.

BENJAMIN GARRISON THOMPSON, M.S., Assistant Entomologist.

FRANK GERALD HINMAN, M.S., Junior Entomologist (Stored Products Insects), United States Department of Agriculture.

SIDNEY CARROLL JONES, M.S., Assistant Entomologist.

KENNETH WIESNER GRAY, B.S., Field Assistant (Entomology).

WILLIAM DONALD EDWARDS, B.S., Field Assistant (Entomology).

ROLAND EUGENE DIMICK, M.S., Assistant in Entomology.

Home Economics

MAUD MATHES WILSON, A.M., Home Economist.

Plant Pathology

HOWARD PHILLIPS BARSS, S.M., Plant Pathologist.

SANFORD MYRON ZELLER, Ph.D., Plant Pathologist.

FLOYD DOUGLAS BAILEY, M.S., Associate Plant Pathologist, United States Department of Agriculture.

LESLIE NEWTON GOODDING, B.A., B.S., Associate Pathologist, United States Department of Agriculture.

FRANK PADEN MCWHORTER, Ph.D., Pathologist.

PAUL WILLIAM MILLER, Ph.D., Associate Pathologist, United States Department of Agriculture.

GODFREY RICHARD HOERNER, M.S., Agent, United States Department of Agriculture.

THEODORE DYKSTRA, M.S., Assistant Plant Pathologist, United States Department of Agriculture.

ALBERT RODERICK SPRAGUE, JR., Ph.D., Assistant Pathologist, United States Department of Agriculture.

HORACE HANNA MILLSAP, Agent, Bureau of Plant Industry, United States Department of Agriculture.

Publications and News Service

CHARLES DAVID BYRNE, M.S., Director of Information.

EDWIN THOMAS REED, B.S., A.B., Editor of Publications.

DELMER MORRISON GOODE, B.A., Associate Editor of Publications.

JOHN COLE BURTNER, B.S., Associate in News Service.

Branch Stations

DAVID EDMUND STEPHENS, B.S., Superintendent, Sherman County Branch Experiment Station, Moro; Senior Agronomist, United States Department of Agriculture.

LEROY CHILDS, A.B., Superintendent, Hood River Branch Experiment Station, Hood River.

FRANK CHARLES REIMER, M.S., Superintendent, Southern Oregon Branch Experiment Station, Talent.

DALE EVERETTE RICHARDS, B.S., Superintendent, Eastern Oregon Branch Experiment Station, Union.

HAROLD KARL DEAN, B.S., Superintendent, Umatilla Branch Experiment Station, Hermiston.

OBIL SHATTUCK, M.S., Superintendent, Harney Valley Branch Experiment Station, Burns.

ALBERT EDWARD ENGBRETSON, B.S., Superintendent, John Jacob Astor Branch Experiment Station, Astoria.

GEORGE ADAMSON MITCHELL, B.S., Acting Superintendent, Pendleton Field Station, Pendleton; Assistant Agronomist, Division of Dry Land Agriculture, United States Department of Agriculture.

GORDON GEORGE BROWN, A.B., B.S., Horticulturist, Hood River Branch Experiment Station, Hood River.

ARCH WORK, B.S., Associate Irrigation Engineer, Bureau of Agricultural Engineering, United States Department of Agriculture.

WILLARD WALKER ALDRICH, Ph.D., Assistant Horticulturist, Bureau of Plant Industry, United States Department of Agriculture.

LOUIS GUSTAVE GENTNER, M.S., Associate Entomologist, Southern Oregon Branch Experiment Station, Talent.

JAMES FOSTER MARTIN, M.S., Junior Agronomist, Division of Cereal Crops and Diseases, United States Department of Agriculture.

MERRILL MAHONRI OVESON, M.S., Assistant to Superintendent, Sherman County Branch Experiment Station, Moro.

ROBERT BILLINGS WEBB, M.S., Junior Agronomist, United States Department of Agriculture, Sherman County Branch Experiment Station, Moro.

ROY EMERY HUTCHISON, B.S., Assistant to Superintendent, Harney Valley Branch Experiment Station, Burns.

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 nine branch stations advantageously located in such a way as to cover the varying agricultural conditions of Oregon.

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 includes the following departments: Agricultural Economics, Agricultural Engineering, Animal Husbandry, Bacteriology, Chemistry, Dairy Husbandry, Entomology, Farm Crops, Farm Management, Home Economics, Horticulture, Plant Pathology, 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 develop-

ment 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.

The Branch Stations. The nine branch stations located at Astoria, Burns, Hermiston, Hood River, Medford, 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. The major problems under investigation at this station 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 at Burns is conducting experiments in both dry-farming and irrigation agriculture.

The Umatilla Branch Experiment Station at Hermiston is studying problems of agriculture under irrigation on the Umatilla Reclamation Project and similar lands of the Columbia River Basin.

The Hood River Branch Experiment Station deals with orchard pests and horticultural problems of this important orcharding section.

The Sherman County Dry-Farm Branch Experiment Station at Moro is conducting investigations on the major problems of dry-land farming in the Columbia Basin.

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.

The Eastern Oregon Branch Experiment Station at Union is equipped with land and buildings for experiments with both livestock and farm crops.

The Medford Branch Experiment Station is conducted jointly by the United States Department of Agriculture, Bureaus of Plant Industry and of Agricultural Engineering, and the Oregon Agricultural Experiment Station. The major investigations deal primarily with problems affecting pear production.

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 and other problems of wheat growing.

The Engineering Experiment Station

HARRY STANLEY ROGERS, C.E., Director of the Engineering Experiment Station.
SAMUEL HERMAN GRAF, M.S., Director of Engineering Research.
FREDERICK GOTTLIEB BAENDER, M.M.E., Mechanical Engineering.
GEORGE WALTER GLEESON, B.S., Chemical Engineering.

BURDETTE GLENN, M.S., Civil Engineering.
CHARLES SAMUEL KEEVIL, Sc.D., Chemical Engineering.
FRED ORVILLE MCMILLAN, M.S., Electrical Engineering.
FRED MERRYFIELD, M.S., Sanitary Engineering.
CHARLES ARTHUR MOCKMORE, M.S., Hydraulic Engineering.
WILLIAM HOWARD PAUL, B.S., Mechanical Engineering.
EUGENE CARL STARR, B.S., Electrical Engineering.
ROBERT EDWARD SUMMERS, M.S., Mechanical Engineering.
CHARLES EDWIN THOMAS, M.M.E., Mechanics and Materials.

Technical Counselors

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

BY act of the Board of Regents of the State College on May 4, 1927, the Engineering Experiment Station was established at Corvallis 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.

The Engineering Experiment Station is an integral part of the School of Engineering. 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 manufacturers and industrial associations interested in working out specific problems.

Part IV
Extension

Extension

THROUGH extension the benefits of all the state institutions of higher education are brought to the people of the state in their own communities. All divisions of the state system of higher education seek through every means possible, so far as resources and facilities permit, to serve the entire state. All extension activities of the several institutions are administered through two great coordinated extension services: the General Extension Division and the Federal Cooperative Extension Service. The latter includes all extension activities carried on jointly with the Federal government.

The General Extension Division

ALFRED POWERS, A.B., Director of General Extension and Summer Sessions.

DAN ELBERT CLARK, Ph.D., Assistant Director of General Extension and Summer Sessions.

MARY E. KENT, B.A., Secretary of General Extension.

MARGARET M. SHARP, Secretary of the Portland Extension Center.

HILDA COOPER, B.A., Secretary of the Summer Sessions.

ALFRED POWERS, A.B., Professor of Journalism.

MABLE HOLMES PARSONS, A.M., Professor of English, General Extension Division.

WALLACE LADUE KADDERLY, B.S., Manager, Radio Station KOAC.

DAN ELBERT CLARK, Ph.D., Professor of History.

ALEXANDER GOLDENWEISER, Ph.D., Professor of Thought and Culture, General Extension Division.

FRANCOIS MIRON WARRINGTON, Diplome de l'Universite de Paris, Professor of Romance Languages, General Extension Division.

WILLIAM GILBERT BEATTIE, A.B., Associate Professor of Education; Head of Department of Social Welfare, General Extension Division.

CYRUS RIPLEY BRIGGS, B.S., Director of Agricultural Programs, Station KOAC.

URIEL SELLERS BURT, Head of Department of Visual Instruction, General Extension Division.

PHILIP WOOD JANNEY, A.B., C.P.A., Assistant Professor of Business Administration, General Extension Division.

MOZELLE HAIR, B.A., Head of Correspondence Study, General Extension Division; Assistant Professor of Sociology.

ZELTA FEIKE RODENWOLD, M.S., Director of Home Economics Radio Programs, Station KOAC.

PERCY MEREDITH COLLIER, LL.B., Assistant Professor of English, General Extension Division.

HELEN MILLER SENN, B.A., Instructor in Public Speaking, General Extension Division.

GRANT STEPHEN FEIKERT, M.S., Chief Operator, Station KOAC.

THE General Extension Division of the Oregon State System of Higher Education is that agency of the University of Oregon, Oregon State Agricultural College, and the three Oregon Normal Schools which serves the people of the state with formal instruction in extension classes, correspondence study, and adult education through visual instruction, municipal service, radio, and social welfare. Its work is organized into the following departments:

At Eugene—

- Correspondence Study
- Social Welfare
- State-Wide Extension Classes
- Municipal Service

At Corvallis—

- Visual Instruction
- Radio

At Portland—

- The Portland Extension Center

A State-Wide Campus. Through the General Extension Division the curricula, personnel, and facilities of all the state institutions of higher education are made available in some degree to every citizen, group, and community in Oregon. The activities of the General Extension Division are carried on in close cooperation with those of the Federal Cooperative Extension Service and all other organized service agencies in the state.

Portland Extension Center. General Extension in Portland is carried on through the Portland Extension Center. Nearly one hundred evening, late-afternoon, and Saturday-morning classes in twenty-four different departments and professional schools are available during the academic year 1933-34. The work of these classes is of standard college or university grade. The courses are intended for persons who, because of preoccupation with bread winning or with home making, or for other reasons, cannot attend college. In these classes residence credit may be earned at the University, the State College, or the normal schools. Courses are offered in the Portland Extension Center carrying graduate credit at both the

University and the State College. For detailed information concerning the Portland Extension Center see special bulletin containing annoucements for 1933-34.

Visual Instruction. Visual Instruction service includes glass and film slides, microscopic slides, and motion-picture films usable for educational purposes by schools, community clubs, and other appropriate organizations.

A special catalog is published listing the material available.

Radio Station KOAC. The state 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 General Extension Division and are entirely free from commercialism.

The radio service is used as a means of extending throughout the state the benefits of the varied activities of all the state institutions of higher education. KOAC operates with 1,000 watts power on a frequency of 550 kilocycles by authority of the Federal Radio Commission.

The Summer Sessions. The summer sessions, although a phase of resident instruction since the summer sessions are centered on the several campuses, are administered under the General Extension Division. The 1933 summer sessions included regular six-week sessions at Eugene, Corvallis, and Portland (Portland Extension Center), offering undergraduate and graduate courses, with a post session of one month at Eugene, and twelve-week sessions at the three normal schools, divided into two divisions of six weeks each. Information concerning the summer sessions of 1934 will be issued in separate bulletins.

Federal Cooperative Extension

WILLIAM ALFRED SCHOENFELD, M.B.A., Dean and Director of Agriculture.
PAUL VESTAL MARIS, B.S., Director of Federal Cooperative Extension.
JOHN MYERS CLIFFORD, Extension Secretary.

Extension Staff at Corvallis

HARRY CASE SEYMOUR, State Leader of 4-H Club Work.
FRANK LLEWELLYN BALLARD, B.S., State County Agent Leader.
LEROY BREITHAUPT, B.S., Extension Agricultural Economist.
GEORGE OURY GATLIN, LL.B., Extension Economist in Marketing.
OVID TULLIUS MCWHORTER, B.S., Extension Horticulturist.
CLARIBEL NYE, M.A., State Leader of Home Economics Extension.
EDWIN RUSSELL JACKMAN, B.S., Extension Agronomist.

HELEN JULIA COWGILL, M.A., Assistant State Club Leader.
LEONARD JOHN ALLEN, M.S., Assistant State 4-H Club Leader.

HUBERT ELMER COSBY, Extension Poultryman.
HARRY ARTHUR LINDGREN, B.S., Extension Animal Husbandman.
WILLIAM LEROY TEUTSCH, B.S., Assistant County Agent Leader.
ROGER WILLIAM MORSE, B.S., Extension Dairyman.
AZALEA LINFIELD SAGER, M.A., State Specialist in Clothing and Textiles.
URIEL SELLERS BURT, State Specialist in Visual Instruction.

LUCY ADA CASE, M.A., Extension Specialist in Nutrition.

HAROLD H. WHITE, B.S., Assistant Agricultural Economist.
ARTHUR SOLOMON KING, M.S., Extension Specialist in Soils.

County Extension Agents

CHARLES ALBERT HENDERSON, B.S., County Extension Agent, Klamath County.
OTTIS SCHULER FLETCHER, M.S., County Agent, Lane County.
WALTER ARMAND HOLT, B.S., County Agent, Umatilla County.
HARRY GRANT AVERY, B.S., County Agricultural Agent, Union County.
ROBERT GREY FOWLER, B.S., County Agricultural Agent, Jackson County.

SYLVESTER BENJAMIN HALL, B.S., County Agent, Multnomah County.
WILLIAM BENJAMIN TUCKER, County Agricultural Agent, Crook County.
GEORGE ALLEN NELSON, B.S., County Agricultural Agent, Columbia County.
PHILIP TUTHILL FORTNER, B.S., County Extension Agent, Baker County.
JAMES RALPH BECK, B.S., County Agent, Polk County.
JOHN JERRY INSKEEP, B.S., County Extension Agent, Clackamas County.
JAY CLARK LEEDY, B.S., County Agricultural Agent, Douglas County.
CHARLES WESLEY SMITH, B.S., County Agricultural Agent, Morrow County.
RAYMOND GILBERT LARSON, B.S., County Agent, Malheur County.
DAVID HONORE KENNEDY, B.S., County Club Agent, Tillamook County.
SARA HUNTINGTON WERTZ, B.S., Home Demonstration Agent, Josephine County.
LYLE PORTER WILCOX, B.S., County Agricultural Agent, Jackson County.
MELVIN J. CONKLIN, B.S., County Agricultural Agent, Lincoln County.
SOLON TAYLOR WHITE, B.S., County Agent, Yamhill County.
NOBLE CLARK DONALDSON, B.S., County Agent, Wallowa County.
RICHARD CARL KUEHNER, B.S., County Club Agent, Lane County.
ARCHIE LEE MARBLE, B.S.A., County Agricultural Agent, Hood River County.
SARAH VINEYARD CASE, M.S., Home Demonstration Agent, Columbia County.
MABEL CLAIR MACK, B.S., Home Demonstration Agent, Jackson County.

WILLIAM FLETCHER CYRUS, B.S., County Agricultural Agent, Washington County.

WILBUR WRAY LAWRENCE, B.S., County Agricultural Agent, Wasco County.

VICTOR WALDEMAR JOHNSON, B.S., County Agricultural Agent, Lake County.

GEORGE HERRICK JENKINS, B.S., County Agricultural Agent, Coos County.

RAY GEORGE JOHNSON, B.S., County Agricultural Agent, Grant County.

RUSSEL MELVILLE MCKENNON, B.S., Assistant County Agent, Malheur County.

FRANK WILLIAM SEXTON, County Club Agent, Klamath County.

JAMES ROLAND PARKER, M.S., County Club Agent; Assistant County Agent Douglas County.

LEROY CLINTON WRIGHT, B.S., County Club Agent, Clackamas County.

CLAY CARL MILLER, B.S., County Club Agent, Multnomah County.

GERTRUDE LONETTE SKOW, B.S., Home Demonstration Agent, Lane County.

ROBERT MYRON KNOX, B.S., Assistant County Agent, Coos-Curry counties.

WILLIAM SAMUEL AVERILL, B.S., County Agent, Benton County.

FRANCES ANN CLINTON, M.S., Home Demonstration Agent, Multnomah County.

THELMA CHARLOTTE GAYLORD, B.S., Home Demonstration Agent, Clackamas County.

ERNEST MILLARD HAUSER, B.S., Assistant County Agent, Klamath County.

GUSTAVE YNGVE HAGGLUND, B.S., County Agricultural Agent, Deschutes County.

GARNET DOUGLAS BEST, B.S., Assistant County Agent, Umatilla County.

ELIZABETH VANCE ERICKSON, B.S., Home Demonstration Agent, Deschutes County.

JOSEPH BELANGER, Assistant County Agent, Washington County.

CHESTER HAROLD BERGSTROM, B.S., County Agent, Tillamook County.

CLIFFORD LOVEJOY SMITH, M.S., County Agricultural Agent, Clatsop County.

WAYNE D. HARDING, County Club Agent, Marion County.

CHARLES J. WEBER, Urban Club Agent, Portland.

FEDERAL Cooperative Extension, closely coordinated with the work of the General Extension division, 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.

The Farm and Home Interests of Oregon. The Extension Service includes all forms of cooperative 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) County Agricultural Agent Service.
(4) Home Demonstration Work.
(5) Nutrition.
(6) Four-H Club Work.
(7) Soils.
(8) Horticulture.
(9) Animal Husbandry.
(10) Dairying.
(11) Poultry Husbandry.
(12) Farm Crops.
(13) Agricultural Economics, including Marketing and the Collection and Dissemination of Agricultural Statistical Information.
(14) Rodent Control.
(15) Preparation, Printing, and Distribution of Bulletins.
(16) Visual Instruction, including chart service, lantern slides, motion-pictures.
(17) Clothing and Textiles.

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.

Part V
Miscellaneous

Sixty-fourth Annual Commencement

Degrees Conferred June 5, 1933

(Students designated by asterisks received their degrees at the close of the 1932 summer session.)

Advanced Degrees

DOCTOR OF SCIENCE

LINUS CARL PAULING
B.S. (1922), Oregon State; Ph.D. (1925), California Institute of Technology.

DOCTOR OF LAWS

CHARLES ABNER HOWARD
M.A. (1923), Oregon.

DOCTOR OF ENGINEERING

DAVID CHRISTIAN HENNY
Graduate (1881), Polytechnic School, Delft, Holland.

MASTER OF ARTS

CARL MORRIS LYMAN
Corvallis, Benton.
B.S. 1931, Oregon.
Thesis: Pantothenic Acid, its Occurence in Biological Tissues.

MASTERS OF SCIENCE

DOUGLAS GEORGE BAIRD
Portland, Multnomah.
B.S. 1932, Civil Engineering, Oregon State.
Thesis: Flow of Water in Pipe Bends.

GRACE HAYWARD BLOW
Los Angeles, California.
B.S. 1932, Home Economics, Oregon State.
Thesis: A Study of the Present Status of Supervised Teaching in Oregon.

JOHN MAXWELL BOWERSOX
Fortuna, California.
B.S. 1925, Pharmacy, Oregon State.
Thesis: An Evaluation of a Guidance Program in a California High School of Four Hundred Fifty Students.

EDNA LAWRENCE BURKE
Dallas, Polk.
B.S. 1932, Vocational Education, Oregon State.
Thesis: Weekday Religious Education in Certain Elementary Schools of Oregon.

HUSSEIN GHULAMALI CHAGLA
Karachi, India.
Dip. Ag. 1931, Poona Agricultural College, India.
Thesis: Rooting of Some Fruit Trees from Cuttings.

HOWARD COLEMAN
Corvallis, Benton.
B.S. 1931, Electrical Engineering, Oregon State.
Thesis: Absorption and Reflection Factors of Blackening Materials Used in Energy Measuring Instruments.

ARLIE BENTON COLLETT
Gold Hill, Jackson.
B.S. 1933, Oregon.
Thesis: Taxonomic Comparison of Cicuta and Oenanthe.

RALPH CORNELIUS CONRAD
Hammond, Wisconsin.
B.A. 1928, State Teachers College, Valley City, North Dakota.
Thesis: A New Method of Numerical Integration of Differential Equations of the Third Order.

JOE W. DEREMIAH
Corvallis, Benton.
B.S. 1932, Agriculture, Oregon State.
Thesis: Studies on Septoria Leaf-Spot of Rubus.

BURTON WILLIAM DUNN
Shedd, Linn.
B.S. 1930, Vocational Education, Oregon State.
Thesis: Possible Effects of Student Government on Student Honesty in a Small High School.

HARRY ARDELL FOWELLS
Corvallis, Benton.
B.S. 1932, Forestry, Oregon State.
Thesis: A Study and Summary of the Investigational Activities on the McDonald Forest with Recommendations.

HOLLY CLAIR FRYER
Yamhill, Yamhill.
B.S. 1931, Oregon.
Thesis: A Study of the Differential Equation.

HELEN ESTHER GOETZ
Albuquerque, New Mexico.
B.S. 1921, Home Economics, New Mexico.
Thesis: A Study of the Present Method of Labeling Certain Canned Foods from the Standpoint of the Consumer-Buyer.

ANNA HENRIETTA HABERLY
Decorah, Iowa.
B.S. 1923, Home Economics and Agriculture, Iowa State.
Thesis: Homemade Toys, Play Equipment, and Play Materials for the Pre-School Child and Their Evaluation for Use in the Home.

WALTER KNOWLTON HALL
Clatskanie, Columbia.
B.S. 1931, Pharmacy, Oregon State.
Thesis: Calcium, Phosphorous, and Vitamin D Requirements of Growing Chicks.

MASTERS OF SCIENCE—*Continued*

DONNA BELLE HENRY
Corvallis, Benton.
B.S. 1927, Vocational Education, Oregon State.
Thesis: The History of Public Poor Relief Administration in a Rural County—1858 to 1930 (Benton County, Oregon).

PIK WAN HOH
Canton, China.
B.A. 1929, Lingnan University, Canton, China.
Thesis: Possible Sources of Calcium and Phosphorus in the Chinese Diet.

ARTHUR FAYETTE JOHNSON
Albany, Linn.
B.S. 1930, Civil Engineering, Oregon State.
Thesis: Hydrology Studies Applicable to Oregon.

GEORGE ALFRED ARNOLD JONES
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: The Prediction of Scholastic Success at Oregon State Agricultural College.

FLORENCE MAE LEWIS
Long Beach, California.
B.S. 1915, Home Economics, Iowa State.
Thesis: Comparison of Individual Management and Centralized Planning and Supervision of Menus and Food Purchasing by a Food Director for Twelve Sorority Groups at Oregon State College.

MERLE STEPHEN LOWDEN
Crawfordsville, Linn.
B.S. 1932, Forestry, Oregon State.
Thesis: Use of the Equilibrium Content Principle in the Kiln Drying of Douglas Fir.

JAMES MONROE LUEBKE
Corvallis, Benton.
B.S. 1919, Mechanical Engineering, Oregon State.
Thesis: A Survey of Science Teaching in the High Schoois of Oregon.

MERRILL KENNETH LUTHER
Choteau, Montana.
B.S. 1923, Montana State.
Thesis: The Possibilities of Utilizing the Boy's Home Farm as a Basis for Determining the Content and Organization of the Farm Mechanics Portion of the Agricultural Course of Study for Secondary Schools.

BAIN LAUGHLIN MCKINNON
Corvallis, Benton.
B.S. 1932, Chemical Engineering, Oregon State.
Thesis: Properties of Litharge and Glycerine Mortars.

SEGUNDOY VALBUENA MAGALLANES
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: A Study of Vocational Education in the Philippines, Including Suggestions for Improving the Work.

FOREST HARMON MAJORS
Corvallis, Benton.
B.S. 1931, Mining Engineering, Oregon State.
Thesis: Sulfur Determinations by Use of Calcium Hydride.

JOHN RUPERT MERRITT
Corvallis, Benton.
B.S. 1932, Pharmacy, Oregon State.
Thesis: Some Thymol Derivatives of Possible Medicinal Value.

JAMES LEROY MIELKE
Portland, Multnomah.
B.S. 1925, Forestry, Oregon State.
Thesis: Relation of Ribes Lacustre to Management of Western White Pine.

MASTERS OF SCIENCE—*Continued*

DOROTHEA CORDLEY MUTH
Corvallis, Benton.
B.S. 1924, Home Economics, Oregon State.
Thesis: A Study of the Relationship of Good Design and Low Price in Livingroom Furniture.

LORIS C. OGLESBY
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: An Analytical Study of Some of the Problems of Oregon High Schools.

ALMA JEANETTE OLSON
Kanawha, Iowa.
B.S. 1927, Iowa State Teachers College.
Thesis: The Present Status and Newer Trends in Women's Occupations.

NORBERT EDWIN PEAVY
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: Factors Associated with Dishonesty in College Students.

OLIVER DIX PERKINS
Corvallis, Benton.
B.S. 1931, Electrical Engineering, Oregon State.
Thesis: An Investigation of Radio Ground Wave Transmission in Oregon at Broadcast Frequencies.

HARRY ANSIL PHILLIPS
Albany, Linn.
A.B. 1927, Colorado State Teachers College.
Thesis: A Critical Study and Evaluation of Industrial Arts Teacher Training Institutions and Curricula.

HENRY HARDY RAMPTON
Bountiful, Utah.
B.S. 1928, Agriculture, Utah State.
Thesis: Morphological and Economic Studies of Ryegrasses (Lolium Species) Under Western Oregon Conditions.

HENRY GEORGE RUPPEL
Corvallis, Benton.
B.A. 1920, Montana.
Thesis: The Preparation, Properties and Uses of Certain Complex Cobalt Amines.

VERNON EDWIN SHIPP
Scottsdale, Arizona.
A.B. 1932, Arizona State Teachers College.
Thesis: Unit Instruction Sheets and a Course of Study Based Upon an Analysis of Bench Wood Working as a School Activity.

ELEANOR MAY SPIKE
Echo, Umatilla.
B.S. 1925, Home Economics, Oregon State.
Thesis: An Analysis of the Finances of the Two Home Management Houses of Oregon State College for the Years 1926-27 and 1931-32 Inclusive.

ROBERT EDWARD SUMMERS
Corvallis, Benton.
B.S. 1924, Mechanical Engineering, Oregon State.
Thesis: Boiler-Water Conditioning in Western Oregon.

WILLIAM LLOYD SWERINGEN
Summerville, Union.
B.S. 1932, Agriculture, Oregon State.
Thesis: A Study of Calcium Compounds for Cream Neutralization.

HARVEY MARSHALL SWIFT
Corvallis, Benton.
B.S. 1915, Agricultural Education, Iowa State.
Thesis: Behavior of Stomata.

MASTERS OF SCIENCE—*Continued*

OSCAR ALFRED TRYGG
Baldwin, North Dakota.
B.S. 1924, Stout Institute, Menominee, Wisconsin.
Thesis: Unit Instruction Sheets.

WILLARD PHILIP TYLER
Portland, Multnomah.
B.S. 1931, Chemical Engineering, Oregon State.
Thesis: The Effect of Salts on the Apparent Iso-Electric Point of Amphoteric Electrolytes.

MERLIN RAYMOND WAGNER
Corvallis, Benton.
B.S. 1932, Stout Institute, Menominee, Wisconsin.
Thesis: A Course of Study in Printing for the Public Schools.

REX WARREN
Price, Utah.
B.S. 1931, Agriculture, Utah State.
Thesis: Relation of Moisture Content and Various Storage Methods to Grade and Quality of Mature New Western Oregon Corn and a Comparison of Oregon and Midwestern Corn.

DAVID MALIN WASHBURN
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: The Validation of a Concentration Test for College and High School Use.

ROBERT BILLINGS WEBB
Corvallis, Benton.
B.S. 1930, Agriculture, Oregon State.
Thesis: Nodal Root Development of Certain Varieties of Wheat and the Effect of Cultural Practices Upon the Depth at Which They Form.

CARL FALES WHITAKER
Corvallis, Benton.
B.S. 1922. Massachusetts State.
Thesis: The Application of Chemical and Biological Methods to the Evaluation of Oregon Hops.

THOMAS ARDEN WILSON
Corvallis, Benton.
B.S. 1932, Vocational Education, Oregon State.
Thesis: A Study of Superstitious Beliefs.

KWAN LUN WONG
Canton, China.
B.S. 1929, Agriculture, Lingnan University, Canton, China.
Thesis: Tingids of Economic Importance in Oregon with Special Reference to the Western Willow Tingid, *Corythuca salicata* Gibson.

JOHN LUTHER WURSTEN
Logan, Utah.
B.S. 1932, Utah State.
Thesis: Reclamation Investigations with Virgin Black Alkali Soils.

Bachelor's Degrees

BACHELORS OF SCIENCE

School of Agriculture

Kenneth Harold Baker
Corvallis, Benton
Eldon Edward Ball
Crockett, California
Cassius Marvin Beardsley
Corvallis, Benton
Clarence Ivan Branton
Roseburg, Douglas
Howard Wellington Buford
Long Beach, California
Neal Allan Butterfield
Woodburn, Marion
*Logan Sampson Carter
Corvallis, Benton
Stanley Charles Christian
Hanamaulu, Hawaii
William Henry Coleman
Dundee, Yamhill
Ammon Ralph Curtis
Corvallis, Benton
Marvin William Davidson
Haines, Baker
Owen Leroy Davis
Ontario, Malheur
*Edgar Eugene Ellis
Sweet Home, Linn
Edwin Carl Enegren
Marshfield, Coos
Vincent J. Enzie
Long Beach, California
Harold P. Ewalt
Corvallis, Benton
Robert Walter Finch
Fullerton, California
William J. Fink
Porterville, California
Eugene Harland Fisher
Oakland, Douglas
George Allison Fletcher
Hood River, Hood River
Darroll Koerner Frewing
Tigard, Washington
Howard Benjamin Hansen
Terrebonne, Deschutes
Norman Orville Harrang
Foster, Linn
Takis Katsoulis
Corvallis, Benton
Owen Keith Lemmon
Albany, Linn
Floyd Samuel Lewis
Corvallis, Benton
Gordon McComber
Buena Park, California
William E. Martin
Adams, Massachusetts
Edmund Anthony Meola
Corvallis, Benton
Emmett Raymond Mitchell
Amity, Yamhill
Mark Munro Morris
Berkeley, California
Albert James Moser
Portland, Multnomah
Kenneth Charles Price
Santa Ana, California
Eniz Eaton Rowland
Corvallis, Benton
Donald Henry Sherwood
Nyssa, Malheur
James Dickson Smillie
San Francisco, California
Joseph Dale Smullin
Parkdale, Hood River
Andrew Steiner
Corvallis, Benton
Charles Alexander Taggart
Portland, Multnomah
Harold Alexander Thomas
Roseburg, Douglas
Robert Stephen Thompson
Heppner, Morrow
Clark Alexander Thomson
Clackamas, Clackamas
*Isadore Nathaniel Trachtenberg
Norfolk, Virginia
*John Oscar Giertz Wieting
Corvallis, Benton
Harold Martin Wohlgemuth
Newberg, Yamhill
Joseph Harris Wright
Klamath Falls, Klamath

School of Commerce

Floyd Acarregui
Jordan Valley, Malheur
Amy Elizabeth Aldrich
Pendleton, Umatilla
Robert Dewolf Amos
Portland, Multnomah
Maxwell Henry Becker
Caldwell, Idaho
John Montgomery Bedford
Klamath Falls, Klamath
Delmar Clark Bogart, Jr.
Portland, Multnomah
Mark Robert Briggs
Corvallis, Benton
Vanita Faye Bryan
Paisley, Lake
*Randal Joseph Burns
Portland, Multnomah
Dorothy Lenore Buzhard
Hillsboro, Washington
Jack Mason Byrne
Portland, Multnomah
Grace Elizabeth Coombe
Ashland, Jackson

SCHOOL OF COMMERCE—*Continued*

EDGAR ROY COUEY, JR.
Portland, Multnomah
DALE RUSSELL COWEN
Portland, Multnomah
FLORENCE MIRIAM DAVIS
Portland, Multnomah
KENNETH WILBER DONELSON
Portland, Multnomah
HOWARD FRANKLIN DOUGHTON
Clovis, New Mexico
FRANCIS HOWARD DOUGLASS
Spokane, Washington State
JACK LOUIS DUFRANE
Corvallis, Benton
ERIC ALVIN ERICKSON
Grants Pass, Josephine
JOHN FENSTERMACHER
Piedmont, California
JOHN ALBERT FICKLIN
Huntington, Baker
*MARJORIE LAVERNE FINCH
Tillamook, Tillamook
EDWARD JAMES FINLEY
Tigard, Washington
LYLE WESTON FOSTER
Portland, Multnomah
JEAN ALICE FREEBORN
Washington, District of Columbia
THEODORE DEFOREST GILBERT
Albany, Linn
HARRY MYRON GLEASON
Corvallis, Benton
WALTER ALLING GOSS, JR.
Portland, Multnomah
RAPHAEL VALENTINE GRENO
Los Angeles, California
MARION ISABEL GROVER
Fruitland, Idaho
THORNE HARRISON HAMMOND
Portland, Multnomah
GEORGE ALLEN HANSELMAN
Portland, Multnomah
LUCY ELIZABETH HART
Kerby, Josephine
GEORGE WELLINGTON HARTLEY
Portland, Multnomah
WESLEY CLAY HEISE
Salem, Marion
LEONARD EDGAR HELD
Corvallis, Benton
EMMETT VENOY HUFFMAN
Ontario, Malheur
WINIFRED LOIS HUMPHRYS
Jennings Lodge, Clackamas
LOIS ANNA IRVING
Wilbur, Douglas
CHARLES MALCOLM ISAACSON, JR.
Santa Ana, California
HELEN MARGARET IVIE
Corvallis, Benton
ELIZABETH ANN JELINEK
Dallas, Polk
KARL JOSEPH JENSEN
Bakersfield, California
BENJAMIN FRANKLIN KEIST
Richland, Baker
GEORGE WALTER KELLEY
Corvallis, Benton
EDWIN CHARLES KING
Elgin, Illinois
*WILLIAM DUANE KIRK
Portland, Multnomah
CAROLINE EMILIE KLAPOTZ
Albany, Linn
*EDWARD LOUIS KREMERS
Portland, Multnomah
JESSIE KREMERS
Portland, Multnomah
KENNETH KIDDER KUTCH
Corvallis, Benton
RAYMOND ELVERDO LABBE
Portland, Multnomah
JAY EARL LAWSHE, JR.
Palo Alto, California
*JAMES NORMAND LEWIS
Corvallis, Benton
HARALD VALDEMAR LIDELL
Portland, Multnomah
GEORGE EDWARD LIGHTOWLER
Oregon City, Clackamas
KEITH LOKEN
Oakland, California
MARGARET CLARA MCADAMS
Marysville, California
MARY SIDONIA MCCARTHY
Marshfield, Coos
*ROBERT WILLIAM MACCLOSKEY
Hollywood, California
GORDON S. MACKENZIE
Portland, Multnomah
MAGDALEN LUCINDA MANN
Portland, Multnomah
ALVIN WILLIAM MEADE, JR.
Salem, Polk
JOHN PHILLIP MEREDITH
Salem, Marion
RICHARD JAMES MICHAEL
Portland, Multnomah
MARTIN WILLIAM MULLIN
Portland, Multnomah
CARL E. MYERS
Condon, Gilliam
MERRITT MILLER NASH
Marshfield, Coos
GLEN BOYD NEWLAND
Medford, Jackson
SELWYN PROCTOR NOCK
Oswego, Clackamas
JEAN MCCONNAUGHY OGLESBY
Corvallis, Benton
HELEN CHRISTINE OLSON
Portland, Multnomah
JOSEPH DEAN OSBORN
Van Wert, Ohio
WILLIAM ROY PERRIN
Oregon City, Clackamas
ROBERT FRED PETERSEN
Portland, Multnomah
ALICE MIRIAM PETERSON
Lakeview, Lake
JOHN PHIPPS
Portland, Multnomah
WALTER THOMAS PICKTHALL
Portland, Multnomah
HELEN AILI PIETARILA
Astoria, Clatsop
*IRA FROST POWERS, JR.
Portland, Multnomah
ROBERT INGERSOL PROEBSTEL
Haines, Baker
KATHERINE MARGARET REDFIELD
Corvallis, Benton
GEORGE WESLEY REESE
Los Angeles, California
GEORGE MELVILLE REID
Yakima, Washington State
FLOYD WESLEY ROSENBERG
Tillamook, Tillamook

School of Commerce—*Continued*

Dorothy Lilia Sauter
Portland, Multnomah
Lloyd Francis Scanlan
Portland, Multnomah
Rose Shiach
Portland, Multnomah
Barbara Florence Sims
Phoenix, Jackson
Lucile Olivia Smith
Portland, Multnomah
Ellis John Stevens
Ashland, Jackson
Waldo Bruce Taylor
Portland, Multnomah
Louis Phillip Tormey
Portland, Multnomah
Ruth B. Vance
Corvallis, Benton
Herbert Waldo VanValin
Newberg, Yamhill
Helen Georgia Whiteis
Prineville, Crook
Stella Gladys Whitlock
Corvallis, Benton
Wilson Sharpless Wiley
Klamath Falls, Klamath
Rachael Williams
Portland, Multnomah
Daisy Elsie Williamson
Hayward, California
Julius Robert Wilson
Salem, Marion
*Merritt Dayton Wilson
Portland, Multnomah
William Darwin Woodcock
Corvallis, Benton
*Hazel Aline Woodworth
Sixes, Curry

School of Education

George Edward Adams
Corvallis, Benton
*Dale Ellis Altman
Gresham, Multnomah
Constance June Ayer
Red Bluff, California
Arthur Backlund
Corvallis, Benton
Ruth Anne Bates
Portland, Multnomah
*James Vila Blake
Oregon City, Clackamas
Eino Alfred Bofto
Portland, Multnomah
Carl Knox Boswell
Central Point, Jackson
Clifford Edwin Boswell
Central Point, Jackson
Philip Adair Bower
Corvallis, Benton
Rebecca Elizabeth Brown
Portland, Multnomah
Nora Bell Coldiron
Halsey, Linn
James Michael Coleman
Portland, Multnomah
Ila Mae Cook
Wells, Benton
Ruth Helen Currin
Lorane, Lane
Irene Ruby Davis
Estacada, Clackamas
Laura Tadlock Davis
Corvallis, Benton
*Lempie Maria Davis
Portland, Multnomah
Dorothy Jean Druschel
Portland, Multnomah
Fern Elizabeth Edwards
Portland, Multnomah
Vernon Eilers
Aurora, Clackamas
*Areta Ingrid Everson
Tillamook, Tillamook
Samuel Alfred Felker
Eagle Creek, Clackamas
Elizabeth Carol Gabler
Portland, Multnomah
Dorothy Fern Gillanders
Woodburn, Marion
Edworth Joseph Gleason
Portland, Multnomah
Maurine Olive Gregory
Newberg, Yamhill
*Lucy Williamson Griffee
Corvallis, Benton
Arthur Walfred Gustafson
Corvallis, Benton
Mabel Dean Hall
Medford, Jackson
*Freda Katherine Hammel
Monmouth, Polk
Ruth Harrison
Portland, Multnomah
Helen Louise Heil
Santa Ana, California
Evelyn Vietta Hesse
Hillsboro, Washington
*Earl LeRoy Hill
Fresno, California
Robert Allyn Hocken
Corvallis, Benton
Louvera Horn
Salem, Marion
Carman Walrad Hunt
Newport, Lincoln
Enelse Dina Janzen
Corvallis, Benton
Eleanor Jenks
Albany, Linn
Adena Harriette Joy
Ashland, Jackson
Elwood John Keema
Elk Grove, California
Ruth Erkel LeMaster
Corvallis, Benton
Herbert Andrew Lewis
Rainier, Columbia

School of Education—*Continued*

*Elnora Randie Lindseth
Corvallis, Benton
Omar Martin Lloyd
Mosier, Wasco
Helen Karen Lund
Corvallis, Benton
*Laura Cornelia McAllester
Corvallis, Benton
Elwood Albert McKnight
Milton, Umatilla
*George Warner Mabee
Corvallis, Benton
Helen Janet Macklin
Pasadena, California
Elizabeth Dillon MacLean
Corvallis, Benton
Ralph Marvin Marley
Portland, Multnomah
Lenore Elizabeth Meade
Salem, Marion
Margaret Anne Merryman
Corvallis, Benton
Ruth Evelyn Metzler
Corvallis, Benton
Nadine Millhollen
Corvallis, Linn
Ruth Evelyn Mispley
Sacramento, California
*Ray T. Moe
Corvallis, Benton
Annie Mary Newberg
Tillamook, Tillamook
Janet Helen Parman
Condon, Gilliam
Frances Helen Patterson
Albany, Linn
*Mary E. Penland
Halsey, Linn
Lillian Evangelyn Peterson
Portland, Multnomah
Robert Morris Prizer
Corvallis, Benton
George Spencer Reeves
Portland, Multnomah
Carlton Ernest Richter
Portland, Multnomah
Clifford Ellis Robinson
Corvallis, Benton
Marguerite Irma Runion
Portland, Multnomah
Earl Sawtell
The Dalles, Wasco
Robert Milton Schneider
San Francisco, California
Margery Carolyn Schwartz
Oswego, Clackamas
Maurice Lloyd Shepard
Salem, Marion
Martin Blair Sheythe
Corvallis, Benton
Chris John Siegenthaler
Linnton, Multnomah
Verda Elizabeth Southern
Portland, Multnomah
Mary Elizabeth Stevenson
Portland, Multnomah
Donald Leonidas Sutton
Los Angeles, California
Phyllis Marie Thorne
Newberg, Yamhill
Richard Royden Turner
Dallas, Polk
Lewis Kenton Wallin
Portland, Multnomah
Ruth Elizabeth Warnke
Boise, Idaho
Norman Richard Wilbur
Salem, Marion
Helen Lucille Williams
Corvallis, Benton
Edythe Woodward
Arago, Coos
Isabel Wright
Portland, Multnomah
Jesse Joseph Yeates
Corvallis, Benton

School of Engineering and Industrial Arts

Chemical Engineering

Timothy Joseph Coleman
Portland, Multnomah
Lester J. Gregory
Molalla, Clackamas
Alfred Andrew Jacquot
Bend, Deschutes
Francis Joseph Limacher
Corvallis, Benton
Kenneth King Macdonald
Multnomah, Multnomah
Matthew Jennings O'Dell
Portland, Multnomah
Newton Henry Olson
Whitefish, Montana
Herbert Walter Paulsen
Lewiston, Idaho
Charles K. Reynolds
North Plains, Washington
Rex Harley Russell
Corvallis, Benton
Marion Weston Shellenbarger
Portland, Multnomah
Richard Collins Stockman
Baker, Baker
Robert Stanton Tabke
Astoria, Clatsop
Edward Rosland Vennewitz
Portland, Multnomah
George French Williams
Portland, Multnomah
Howard Edward Wilson
Beaverton, Washington

Civil Engineering

Daniel Webster Applegate
Drain, Douglas
W. Dwight Baldridge
Parma, Idaho
Victor Paul Barton
San Gabriel, California
Adolph Benscheidt
Tillamook, Tillamook

SCHOOL OF ENGINEERING AND INDUSTRIAL ARTS—*Continued*

CHARLES ALFRED BONNETT
Eugene, Lane
JOSE UMEL BUCCAT
Corvallis, Benton
SCOTT BURKHARDT
St. Helens, Columbia
ELDEN WUEST CARTER
Portland, Multnomah
JOHN DEJONG
Brownsmead, Clatsop
JOHN LAWRENCE GEREN
Scotts Mills, Marion
ALBERT EDWIN JOHNSON
San Bernardino, California
CHARLES JAMES JOHNSON
Portland, Multnomah
ALBERTUS EUGENE LARROWE
Portland, Multnomah
JAMES DONALD MORGAN
Glendale, Douglas
ROBERT HENRY REISNER
Portland, Multnomah
JACK THOMAS STRANIX
Silverton, Marion
JOHN TROLLMAN, JR.
San Francisco, California
JAMES BAKER WILSON
Wahiawa, Hawaii

Electrical Engineering

DELBERT BALL
Portland, Multnomah
ROBERT EARL BLASEN
Portland, Multnomah
LAWRENCE BRADY
Portland, Multnomah
EDWIN LOREN BRAY
Albany, Linn
ELMER ALFRED BUCKHORN
Bend, Deschutes
JOHN ROBERT GODMAN
Portland, Multnomah
FRED ERNEST HELBER
Portland, Multnomah
MELVIN JULIUS KOFOID
Portland, Multnomah
VALDEMAR HOLMES LUND
Portland, Multnomah
GEORGE HARRY MANKE
Medford, Jackson
RICHARD JOHN MATHER, JR.
Portland, Multnomah
CHARLES JOHN QUIRK
Portland, Multnomah
HOWARD IRVING SARGENT
Portland, Multnomah
EARL EDWARD SOUTHWORTH
Canyon City, Grant
DAVID FREDERICK STEEL
Portland, Multnomah
TOM B. WAGNER
Portland, Multnomah
EDGAR ALLAN WEIS
Corvallis, Benton
BRUCE ARRINGTON WELLS
Salem, Marion
PAUL FREDERICK WINKELMAN
Portland, Multnomah
SIMON YERKOVICH
Portland, Multnomah
OSWALD ZIMMERMANN
Portland, Multnomah

Industrial Arts

ETHAN ALFRED ALLEN
Corvallis, Benton
*CLARENCE M. HAAN
Ashland, Jackson
LAWRENCE ALFRED LOVEGREN
Portland, Multnomah

Mechanical Engineering

LOWELL EASTHAM BROWN
Silverton, Marion
CORDINER JEROME HALSETH
Portland, Multnomah
WILLIAM VINCENT HANLEY
Portland, Multnomah
LAWRENCE FREDRIC HEINL
Lebanon, Linn
FRED LEROY HUNT
Keating, Baker
GEORGE HENRY KANN
Fall Creek, Lane
CLARENCE EARL MERSHON
Corvallis, Benton
LESTER MAYNARD MOE
Portland, Multnomah
CHARLES EDGAR PERRY
Lakeview, Lake
JOSE MORALES RAMOS
Corvallis, Benton
ROWLAND S. ROSE
Portland, Multnomah
JAMES LEONARD SMITH
Portland, Multnomah
CHARLES GORDON TUPLING
Portland, Multnomah
BERNHARD WILLIAM A. WEBER
Portland, Multnomah

School of Engineering and Industrial Arts—*Continued*

Mining Engineering

Jack Hans Greves
North Bend, Coos
Arthur Fred Michalicek
Estacada, Clackamas
Henry Edward Shumaker
Portland, Multnomah

School of Forestry

Logging Engineering

Horace Allen Lucas
John Day, Grant

Lumber Manufacture

Robert Sterling Adams, Jr.
Lakeview, Lake
Gerald Leroy Burwell
Corvallis, Benton
Rolf Robert Reierstad
Portland, Multnomah
Herbert Edward Staples
Corvallis, Benton

Technical Forestry

Gail Clinton Baker
Callahan, California
Robert Perry Beal
Los Angeles, California
Carlos Theodore Brown
Portland, Multnomah
Carroll Elbert Brown
Portland, Multnomah
Emmett Richard Calvert
Corvallis, Benton
Robert Evan Courtney
Los Angeles, California
Herman C. Dill
Prineville, Crook
Henry Leo Homolac
Pasadena, California
Merle Snodgrass Moore
Eugene, Lane
Claude Orin Morin
Sumpter, Baker
William Norwood Parke
Eugene, Lane
Harold Albert Rapraeger
Wausau, Wisconsin
Arthur Edward Rettman
Portland, Multnomah
Norman Fred Spangenberg
Lakeview, Lake
Hugh Jefferson Stewart
Corvallis, Benton
Henry Tiedemann
Portland, Multnomah
Conrad Paul Wessela
Scottsburg, Douglas
Wallace Eugene Wheeler
Corvallis, Benton
Herbert Willison
Portland, Multnomah

School of Home Economics

Irma Lucile Babcock
Astoria, Clatsop
Vira Bardwell
Los Angeles, California
Dorothy Beasley
Santa Ana, California
Velma Lulu Benefiel
Corvallis, Benton
Mary Elizabeth Bertram
Corvallis, Benton
*Jean Esther Blake
Marshfield, Coos
Janet Booth
Jennings Lodge, Clackamas
Charlotte Christine Brennan
Portland, Multnomah
Harriett Lucia Brown
Bend, Deschutes
Margie Kate Buck
Eugene, Lane
Helen Busenbark
Roseburg, Douglas
Lucille Barbara Callahan
Los Angeles, California

School of Home Economics—*Continued*

Catherine May Campbell
Tenino, Washington State
Marjorie Marie Canessa
Astoria, Clatsop
Velma Izora Charlton
LaGrande, Union
Mary Louise Cole
Salem, Marion
Opal Kathryn Cole
Scappoose, Columbia
Mary Louise Collins
Ames, Iowa
Ruth Jeannette Davis
Corvallis, Benton
Evalyn Eisenbrey
Pomona, California
Elizabeth May Fletcher
Portland, Multnomah
Estelle Miller Gallaher
Corvallis, Benton
Delpha Mary Gordon
Portland, Multnomah
Marian Virginia Hagar
Roseburg, Douglas
Byra Margaret Hunter
Corvallis, Benton
Hazel Lorraine Hyatt
Pendleton, Umatilla
Sue Hyslop
Corvallis, Benton
Esther Phila Jackson
Corvallis, Benton
*Aleen Jacobs
McMinnville, Yamhill
Edna Karhuvaara
Astoria, Clatsop
Mabel Keizer
North Bend, Coos
Rova Kerley Koehler
Eugene, Lane
Louise Sarah Kolle
Vancouver, British Columbia
Irene Kathleen Leach
Portland, Multnomah
Marie Antoinette Melanson
Cornelius, Washington
*Doris M. Neireiter
Lebanon, Linn
Roberta Orr Nelson
Corvallis, Benton
Irma Mary Nisbet
Portland, Multnomah
Helen Marie Platt
Corvallis, Benton
Maud Conway Purvine
Corvallis, Benton
Esther Eva Raasina
Astoria, Clatsop
Dorothy Eleanor Rea
Hanford, California
Virginia Reed
Portland, Multnomah
Laurel Althea Reimers
Marysville, California
Evangalyn Virginia Ropp
Portland, Multnomah
Leah Emma Runciman
Exeter, California
Estelle Florence Schulze
Albany, Linn
Mildred Alma Sloper
Independence, Polk
Helen May Smyth
Pasadena, California
Emmajean Stephens
Moro, Sherman
Charlotte Stuttaford
Salem, Marion
M. Eleanore Swedenburg
Ashland, Jackson
*Carolyn Isabelle Thompson
Pendleton, Umatilla
Betty Mae Thorne
Gresham, Multnomah
Elva Marie Widlund
Turlock, California
Esther Willis
Vancouver, British Columbia
Julia Esther Wood
Salem, Marion

School of Pharmacy

William Simpson Bush
Portland, Multnomah
William Ziegler Dickson
Portland, Multnomah
Miles Edward Drake
Portland, Multnomah
Robert Irad Gray
Portland, Multnomah
Dean Blanchard McBride
Portland, Multnomah
Russell Wayne Miller
Portland, Multnomah
Ray Leslie Parrish
Newberg, Yamhill
Charles Bruce Roe
Hillsboro, Washington
Leland F. Sarff
Corvallis, Benton
Carroll William Saunders
The Dalles, Wasco
Morris Scheinbaum Shenker
Portland, Multnomah
Gerald Miles Steele
Albany, Linn
Edward Wayne Thoreson
Blackfoot, Idaho

School of Science

Bacteriology

Maurice Paul Kerr
Corvallis, Benton

SCHOOL OF SCIENCE—*Continued*

Botany

SETH BARTON LOCKE
Marshfield, Coos

Chemistry

BETTY BROWN
Corvallis, Benton
CLIFFORD JAMES DERNBACH
Portland, Multnomah
LAWRENCE TAYLOR JOHNSON
Garden Home, Washington
DONALD JESSE RASMUSSEN
Salem, Marion

Entomology

ROBERT DURWARD EICHMANN
Corvallis, Benton
ROBERT LACKEY WEST
Corvallis, Benton

Geology

FRANCIS GILBERT PECK
Corvallis, Benton

Physics

ROBERT WILLIAM KUYKENDALL SMITH
Portland, Multnomah

Zoology

WENDELL LEE BALL
Corvallis, Benton

Pharmaceutical Chemists

SCHOOL OF PHARMACY

PAUL MAXWELL BRUNSKILL
Albany, Linn
HAROLD FREDERICK CRAWFORD
Fontana, California
DOROTHY DEANE HESS
Portland, Multnomah
DONALD KUO-CHIH LEE
Portland, Multnomah
HERBERT HAROLD MACK
Huntington, Baker
JOHN RUPERT MERRITT
Corvallis, Benton
JACK CRABILL NICHOLS
Salem, Marion
BONNIE MINNETTA SCHAEFER
Salem, Marion
GORDON STOCKWELL
Bend, Deschutes
HUGH HENRY TONSFELDT
White Salmon, Washington State
EARL AUSTIN WHITEHOUSE
Lakeview, Lake
BRINLEY WILLIAMS
Corvallis, Benton
OSCAR HAROLD ZARETSKY
Corvallis, Benton

Senior Honor Students

Elections for June, 1933

(See page 55.)

AGRICULTURE

Clarence Ivan Branton
John Oscar Giertz Wieting

COMMERCE

Robert Amos
Marion Isabel Grover
Lucy Elizabeth Hart
Elizabeth Ann Jelinek
George Walter Kelley
Edward Louis Kremers
Waldo Bruce Taylor
Gladys Whitlock

EDUCATION

Maurine Olive Gregory
Louvera Horn
Adena Harriette Joy
Ruth Erkel LeMaster
Elizabeth Dillon MacLean
Nadine Millhollen
Phyllis Marie Thorne

ENGINEERING

Adolph Benscheidt
Timothy Joseph Coleman
John Laurence Geren
Fred Leroy Hunt
Alfred Andrew Jacquot
Melvin J. Kofoid
Marion Weston Shellenbarger

FORESTRY

Henry Tiedemann
Herbert Willison

HOME ECONOMICS

Mary Elizabeth Bertram
Catherine May Campbell
Elizabeth May Fletcher
Charlotte Stuttaford

PHARMACY

Miles Edward Drake

SCIENCE

Seth Barton Locke

Prizes and Awards, 1933

(Announced May 17, 1933)

The Clara H. Waldo Prizes

(See page 56.)

Senior Women

First Honor—

NADINE MILLHOLLEN
(Education)

Honorable Mention—

ELIZABETH MAY FLETCHER
(Home Economics)
DOROTHY JEAN DRUSCHEL
(Education)

Sophomore Women

First Honor—

GEORGENA PETTENGELL SAMSON
(Education)

Honorable Mention—

BESSIE JEAN MACLEOD
(Education)
ALBERTA REAGH HYNES
(Home Economics)

Junior Women

First Honor—

RUTH ELIZABETH DEARMOND
(Home Economics)

Honorable Mention—

ANITA HELENE POST
(Education)
MARGUERITE EUNICE WELCH
(Home Economics)

Freshman Women

First Honor—

HELEN MAARANEN
(Education)

Honorable Mention—

LILLIAN MARIE HOLM
(Business Administration)
DOROTHY CAROLINE BRUNS
(Education)

The Adolphe Wolfe Prizes

(See page 55.)

Women

Senior—

ADENA HARRIETTE JOY
(Education)

Junior—

M. MAXINE PETERSON
(Education)

Sophomore—

MARY NEILL WHITELAW
(Education)

Men

Senior—

WALDO BRUCE TAYLOR
(Business Administration)

Junior—

FRED WILLIAM SALING
(Education)

Sophomore—

HENRY W. BRANDS
(Engineering)
MAURICE DWANE BRANDS
(Engineering)

PRIZES AND AWARDS—*Continued*

The E. D. Ressler Memorial

(See page 56.)

This award, given by the Oregon State Teachers Association, is presented to the junior preparing to enter the teaching profession who in the judgment of the Education faculty, as approved by the Committee on Honors and Awards, has made the best all-around record as an undergraduate.

LLOYD MILLHOLLEN

(Education)

The Chi Omega Prize

(See page 56.)

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 upon her associates.

FERN ELIZABETH EDWARDS

(Education)

The Joseph H. Albert Prize

(See page 56.)

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 in character, service, and wholesome influence.

ADOLPH BENSCHEIDT

(Engineering)

The Drucilla Shepard Smith Prize

(See page 57.)

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) formerly of McCoy, Polk county, Oregon. The income from this gift is awarded annually to the graduate or undergraduate student who during the year has had published the best article or series of articles dealing with 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 this prize are appointed by the President of the College.

MERLE STEPHEN LOWDEN

(Graduate—Forestry)

Military Honors

Honor Graduates, Military Department

Because of the recognized efficiency of the Military Department of the College, the War Department permits the institution to name, as Honor Graduates, five per cent of the students of each unit who complete the Advanced Course each year. Designations are made on the basis of academic grades and demonstrated efficiency in military work. The following are the Honor Graduates this year:

Carl Knox Boswell, Infantry.
Delbert Ball, Field Artillery.
Kenneth Harold Baker, Field Artillery.

Reserve Commissions

Three units of the Reserve Officers' Training Corps are maintained at the College—Infantry, Field Artillery, and Engineers. Oregon State College is among the very best equipped institutions of the country for giving efficient military training. From 1917 until 1927, the R.O.T.C. Units at the College were awarded the highest obtainable War Department rating—"Distinguished"—nine times. The rating "Excellent" (the highest now obtainable) was substituted for "Distinguished" in 1928. The R.O.T.C. units at the College have been rated "Excellent," as a result of numerous inspections, in 1928, 1930, 1931, 1932, and 1933. Students who successfully complete the Advanced Course are commissioned Second Lieutenants, Organized Reserves, from which they would be called to active duty in the event of an emergency, and in which, in times of peace, they are occasionally called to active duty with their consent, for short periods of training. The following students were graduated from the Advanced R.O.T.C. Course this year:

Infantry

Jack Rudolph Bauman
Delmar Clark Bogart, Jr.
Carl Knox Boswell
Wilbert Forbes Campbell
Richard William Dunn
Edward James Finley
Lyle Weston Foster
Harry Myron Gleason
Edgar Boyd Grimes
Arthur Wilfred Gustafson
Wayne Harn
Guy Marvin Harvey
Hervey Verner Ide
Benjamin Franklin Keist
Keith Loken
Arthur Livingstone Lowe
William Fred MacDonald
Ralph Marvin Marley
William Edward McPherson
Russell Wayne Miller
Emmett Raymond Mitchell
Martin William Mullin
Carl E. Myers
John Phipps
Walter Thomas Pickthall
Robert Ingersol Proebstel
Arthur Nathan Ramponi
Carroll William Saunders
Maurice Lloyd Shepard
Hugh Henry Tonsfeldt
Edgar Allan Weis
William Darwin Woodcock
Joe Harris Wright

Field Artillery

Daniel Webster Applegate
Thomas Bolton Armstrong
Kenneth Harold Baker
Wilson Dwight Baldridge
Delbert Ball
Jack Clifford Boggess
Clarence Ivan Branton
James M. Coleman
Timothy Joseph Coleman
Marsh F. Dunkin
Samuel Alfred Felker
Marion Carl Gallaher
John L. Geren
George Allen Hanselman
Joe Dean Osborn
John Stanley Panek
Charles Edgar Perry
Carlton Ernest Richter
Lyman Emerson Rinker
Edward Couch Robertson
Aldo Sante Romiti
Raymond Harold Schwarz
Hugh Miller Sherwood
James Dickson Smillie, Jr.
James Leonard Smith, Jr.
Earl Edward Southworth
John Frederick Stein
Hugh Jefferson Stewart
Richard Collins Stockman
Harold Alexander Thomas
Louis Philip Tormey
Loren William Tuttle
Bernard Wm. Alfred Weber
Ivan Wellar Weikel

RESERVE COMMISSIONS—*Continued*

Engineers

ROBERT EARL BLASEN
CHARLES ALFRED BONNETT
CHARLES WESLEY MEDLEY
DONALD MORGAN
ROBERT HENRY REISNER
JOHN TROLLMAN, JR.
PAUL FREDERICK WINKELMAN
SIMON YERKOVICH

Students, 1932-33

The classification of students by curriculum and rank is indicated by the following abbreviations: A, Agriculture; BAd, Business Administration; C, Commerce; CE, Civil Engineering; Ch, Chemical Engineering; E, Engineering; Ed, Education; EE, Electrical Engineering; F, Forestry; FA, Fine Arts; G, Geology; H, Home Economics; IA, Industrial Arts; J, Journalism; LA, Landscape Architecture; Mth, Mathematics; M, Mines; ME, Mechanical Engineering; P, Pharmacy; PE, Physical Education; S, Special; Sc, Science; SS, Secretarial Science; 1, Freshman; 2, Sophomore; 3, Junior; 4, Senior.

Graduate Students

1932-33

Angus, Beatrice Helen.....Corvallis
Baird, Douglas George.....Portland
Barnett, Howard Glen.....Corvallis
Barr, Charles Henry.....Eugene
Barto, Elizabeth.....Eugene
Beals, Maple Cole.....Corvallis
Berg, Harold William.....Salem
Bertsch, Howard.....Corvallis
Blow, Grace Hayward.....Los Angeles, Calif.
Bolin, Fonsoe Marion.....Corvallis
Bowerman, Harold Read.....West Linn
Bradway, Winnefred Esther.....Jasper
Branstetter, Joseph Clifton.....Fortuna, Calif.
Bridger, Clyde Arthur.....Payette, Idaho
Brockett, Henrietta Wagner.....San Diego, Calif.
Brooke, Ralph Edward.....Corvallis
Brown, James Bennett.....Corvallis
Burkhardt, Scott.....St. Helens
Burnham, Clarence.....Brigham, Utah
Calloway, Edward Cleveland.....Corvallis
Chagla, Hussein Chulamila.....Varachi, India
Chamberlin, Esther Jane.....Corvallis
Chapman, Marjorie Bernice.....Oakland, Calif.
Cobb, Alan Wilfred.....Portland
Colbry, Vera Lyola.....Tangent
Coleman, Howard.....Corvallis
Coleman, Stephen Dunn.....Corvallis
Collett, Arlie Benton.....Gold Hill
Conrad, Ralph Cornelius.....Hammond, Wis.
Coopey, Raymond Waldemar.....Corvallis
Cording, Carl.....Salem
Cramer, Carl A.....Portland
Curry, Edith M.....Yankton, S. Dak.
Denman, Helen Louise.....Corvallis
Deremiah, Joe.....Corvallis
Dery, Robert.....Eugene
DeTemple, Rita Lucille.....Portland
Dickinson, Ernest Milton.....Corvallis
Dunn, Burton William.....Shedd
Edwards, Grant Humbert.....Corvallis
Eldredge, Kenneth Roland.....Portland
Enegren, Edwin Carl.....Marshfield
Fletcher, Elizabeth May.....Portland
Fowells, Harry Ardell.....Corvallis
Fryer, Holly Clare.....Yamhill
Gardinier, Frank Demro.....The Dalles
Gevurtz, William.....Portland
Gonzales, B. Norman.....Tracy, Calif.
Goodwin, Charles Arthur.....Corvallis
Haberly, Anna Henrietta.....Decorah, Iowa
Hall, Walter Knowlton.....Clatskanie
Hamilton, Lawrence Fox.....Albany
Hampton, Claud.....Corvallis
Hanlon, Genevieve Gertrude.....Corvallis
Hansen, Ruth Westcott.....Corvallis
Harris, Quinton P.....Hubart Mills, Calif.
Heil, Helen Louise.....Santa Ana, Calif.
Heisler, Ellen Jean.....Corvallis
Henry, Harold H.....Corvallis
Hoffman, Hans.....Switzerland
Hoh, Pik Wan.....Canton, China
Holaday, Duncan A.....Monmouth
Holmquist, Robert E.....Eugene
Howard, Edgar F.....Corvallis
Howey, Olive Mary.....Corvallis
Huffmann, Eugene Harvey.....Corvallis
Hughes, Harold Gwynne.....Grass Valley
Hunt, Lee Oscar.....Corvallis
Ingram, William Jack.....Albany
Ivie, Helen Margaret.....Corvallis
Jarvi, Simeri Einar.....Astoria
Johnson, Arthur Fayette.....Albany
Johnston, Howard Theodore.....Croswell, Mich.
Jones, Herbert L.....Corvallis
Jones, Margaret Helen.....Corvallis
Kerley, Vernon Emmet.....Eugene
Kienzle, Kenneth Iddo.....Eugene
Kivlahan, Edith Lucille.....Chico, Calif.
Klemm, Karl.....Eugene
Kuykendall, Jr., Delman Vernon.....Klamath Falls
Langdon, Floyd Llewellyn.....Tacoma, Wash.
Langdon, James P.....Corvallis
Larson, Earl Lloyd.....Corvallis
Lee, Donald Kuo Chih.....Portland
Lerch, Louise Marie.....Portland
Levinger, Henry Laurence.....Baker
Lindsay, Donald Edward.....Corvallis
Lochry, Marie A.....Modesto, Calif.
Loehr, Ruby R.....Corvallis
Loretz, Marguerite Louise.....Eugene
Lowden, Merle Stephen.....Crawfordsville
Luebke, James M.....Corvallis
Luther, Merrill K.....Choteau, Mont.
Lyman, Carl Morris.....Corvallis
McBurney, Charles Hamilton.....Wendling
McKinnon, Bain Laughlin.....Corvallis
McKitrick, William Ernest.....Eugene
Mack, Gladys Ethel.....Corvallis
MacLean, Kenneth Ross.....Corvallis
Magallanes, Segundo V.....Corvallis
Majors, Forest H.....Corvallis
Manning, Juanita Chaney.....Corvallis

Marlatte, Charles R.....Eugene
Masson, Donald Leslie.....Monroe
Meisel, Clair C.....Eugene
Merritt, John Rupert.....Corvallis
Mielke, James Leroy.....Portland
Miller, Elmer E.....Portland
Miller, William A.....Corvallis
Millican, Jean Elizabeth.....Leaburg
Moller, Elsie Viola.....Myrtle Point
Moisio, Walfred John.....Astoria
Moore, Harriet Forest.....Corvallis
Morgan, Lowell Brandon.....Shedd
Moser, Helen Agnes.....Corvallis
Moser, Robin Emerson.....Salem
Niederfrank, Evlon Joy.....Corvallis
Oglesby, Loris C.....Corvallis
Olson, Alma Jeannette.....Kanawha, Iowa
Palmrose, George Victor.....Corvallis
Patterson, Joseph Deane.....Corvallis
Peavy, Bradley Adelbert.....Corvallis
Peavy, Norbert Edwin.....Corvallis
Pemberton, Winnifred Ellen.....Salem
Perry Walter LeRoy.....Grants Pass
Peterson, Shailer Alvarey.....Eugene
Pettibone, Marian.....Eugene
Phillips, Harry.....Albany
Prentiss, Robert Watt.....Corvallis
Price, Anna Charlotte.....Corvallis
Prizer, Robert Morris.....Corvallis
Purvine, Lois.....Petaluma, Calif.
Purvine, Maud C.....Corvallis
Rampton, Henry Hardy.....Bountiful, Utah
Randolph, Pauline Aneta.....Vallejo, Calif.
Raymond, Louis Crawford.....Corvallis
Roaf, James Richardson.....Corvallis
Rodman, Millard Douglas.....Culver
Ryan, Paul J.....Nashville
Schreiber, Raemer E.....Eugene
Schwabe, William Henry.....Portland
Scott, Virgil R.....Meloy
Semke, Leon E.....Eugene
Shank, Gladys Laura.....Portland
Shearer, William N.....Estacada
Shipp, Vernon Edwin.....Scottsdale, Ariz.
Soward, Ida Margaret.....Laramie, Wyo.
Spurlin, Sarah Elizabeth.....Corvallis
Stokesbary, Walter Allen.....Corvallis
Stone, Robert William.....Estacada
Sweringen, William Lloyd.....Summerville
Swift, Harvey Marshall.....Corvallis
Taylor, Alfred.....Corvallis
Tedrow, A. Ward.....Portland
TenEyck, Cora Elizabeth.....Eugene
Thacker, Richard Thomas.....Everett, Wash.
Thomas, Harold Alexander.....Roseburg
Trivedi, Jayantilal Manishankar.....Sihoe, (Kathiawad), India
Tyler, William Philip.....Corvallis
van Groos, Dorothy.....Corvallis
Varner, William Roy.....Corvallis
Wagner, Merlin Raymond.....Corvallis
Warren, Rex.....Price, Utah
Washburn, David Malin.....Corvallis
Webb, Robert Billings.....Corvallis
Weis, Edgar Allen.....Corvallis
Wilhelm, Teresa Mary.....Eugene
Wilkes, Francis Lyman.....Corvallis
Wilkes, Thomas Marion.....Corvallis
Williams, Margaret Elaine.....Wallowa
Wilson, Thomas Arden.....Corvallis
Wimmer, Harriett Barnhart.....Chula Vista, Calif.
Wimmer, John D.....Chula Vista, Calif.
Wong, Kwan Lun.....Canton, China
Woodward, Glenn Jones.....Milton
Wursten, John Luther.....Logan, Utah

Undergraduate Students

1932-33

Abraham, Elaine Mae, Ed, 1.....Halsey
Abramson, Ruth Christine, SSc, 1..Lakeview
Acarrequi, Floyd, BAd, 4.....Jordan Valley
Acheson, John Russell, Ed, 3.....Portland
Acheson, Margaret Irene, P, 2.....Brownsville
Ackles, Kenneth McPherson, Ed, 3..Portland
Adams, George Edward, Ed, 4.....Corvallis
Adams, Jack, LD, 2.....Warrenton
Adams, Jewell M., Ed, 2.....Myrtle Creek
Adams, Robert Sterling, F, 4.....Lakeview
Adams, Romeyn Elbert, Ed, 2.....Corvallis
Akers, Ernest Alfred, ME, 2.....Corvallis
Albert, Gordon Henry, F, 1.....Portland
Aldrich, Amy Elizabeth, BAd, 4....Pendleton
Aldrich, Edward E., LD, 1.....Portland
Alldredge, Sumner, E, 1.....Portland
Allen, Audra Louise, H, 2.....Rickreall
Allen, Eleanor Brown, H, 4.....Corvallis
Allen, Harold Elmer, Ed, 3....Cottage Grove
Allen, Hugh M., ME, 3....Bakersfield, Calif.
Allen, Leona Grace, Ed, 3.....Corvallis
Allen, Mary Maxine, H, 1.....Adams
Allison, Jean, H, 2.....Cottage Grove
Allison, Mary Elizabeth, H, 3.....Albany
Allyn, Stanley Richard, C, 2.....Portland
Alnutt, Evelyn Anna, H, 2.....Corvallis
Alskog, John Elmer, BAd, 1.....Boring
Alvord, Ward Orien, BAd, 1.....Boring
Ames, Beatrice Elsie, H, 2.....Portland
Amos, Robert, BAd, 4.....Portland
Amrine, Richard Mahlon, E, 1..Oregon City
Anderegg, Tracey Alex, A, 1.....Portland
Anderson, Alice Eaton, Ed, 2.....Corvallis
Anderson, Colver Farlow, Sc, 3.....Ashland
Anderson, Don, Ed, 2.....Portland
Anderson, Edwina Virginia, H, 2....Portland
Anderson, Frank Norman, LD, 2....Portland
Anderson, Fred A., Ed, 3.....Sherwood
Anderson, Harold Coulston, E, 1.....Salem
Anderson, Harry Kenneth, E, 1....Hammond
Anderson, Janet Alden, Ed, 2.....Corvallis
Anderson, Mary Catherine, Ed, 3....Portland
Anderson, Melvin Walter, P, 1.....Medford
Anderson, Olaf S., A, 2.....Grants Pass
Anderson, Robert Charles, IA, 2....Corvallis
Anderson, William Orin, LD, 1.....Albany
Andrews, Lawrence Keith, EE, 3....Corvallis
Angle, Martha Cornelia, Ed, 3.....Corvallis
Angle, Marvin Giger, F, 2.....Corvallis
Apperson, Donald Clark, P, 1.....Portland
Applebe, Mary Whately, H, 4....Grants Pass
Applegate, Dan W., CE, 4.....Drain
Applewhite, Gordon Miles, P, 3.....Roseburg
Arant, Donald M., Ed, 3.....Forest Grove

Armitage, Elizabeth Clark, Ed, 1....Portland
Armstrong, Byron Andrew, Ed, 2....Corvallis
Armstrong, Thomas Bolton, F, 2..Pasadena, Calif.
Arpke, Lillian Esther D., H, 3.....Corvallis
Asbahr, Burton, A, 1.....Corvallis
Asper, Pauline Amalia, H, 2.....Telocaset
Aston, Fred George, BAd, S.....Portland
Atkinson, Ruby Arline, Ed, 3.....Portland
Atterbury, Cal, BAd, 2.....Portland
Atwood, Dorothy McKenzie, H, 2..Corvallis
Atwood, Stanford William, Ed, 2....San Bernardino, Calif.
Aufderheide, Robert, F, 3.....Salem
Aungst, Leslie H., Ch, 3.....Baker
Aupperle, Elizabeth, BAd, 2.....Jefferson
Ausland, Warren Winton, E, 1..Grants Pass
Ausland, Willis Myron, CE, 3....Grants Pass
Avery, Doris Effie, H, 1.....Corvallis
Avery, Punderson, A, 2.....Corvallis
Avrit, J. Virgil, IA, 1.....Corvallis
Ayer, Constance June, Ed, 4.....Red Bluff, Calif.
Ayres, Wallace E., A, 2.....Corvallis
Babb, W. Raymond M., FA, 1.....Corvallis
Babcock, Irma Lucille, H, 4.....Astoria
Backlund, Arthur, Ed, 4.....Corvallis
Baechtel, Richard Samuel, F, 4.....Corvallis
Bagley, William R., ME, 2.....Talent
Bailey, Frances Harriet, Ed, 3.....Portland
Bailey, Harrison Earl, ME, 2.....Portland
Bailey, Laura Alice, H, 3.....Corvallis
Bailey, Lois Elaine, H, 2.....Eugene
Bailey, Warren Hutchinson, LD, 1.....Corvallis
Baird, Billy Edward, F, 1.....Halfway
Baird, Jean Rachel, Ed, 2.....Portland
Baker, Gail Clinton, F, 4.....Callahan, Calif.
Baker, Jessie May, H, 2.....Corvallis
Baker, Kenneth Harold, A, 4.....Corvallis
Baker, Tannis Montana, H, 1.....Lakeview
Baker, Walter Clifford, LD, 2.....Toledo
Balch, Anthony Cuthbert, Ed, 4.....Portland
Baldridge, W. Dwight, CE, 4..Parma, Idaho
Baldwin, Alberta Beatrice, PE, 2....Portland
Baldwin, George Melvin, Ed, 4.....Portland
Bales, Margaret Leah, H, 2.....Corvallis
Ball, Delbert, EE, 4.....Portland
Ball, Eldon E., A, 4.....Crockett, Calif.
Ball, Wendell Lee, Sc, 4.....Corvallis
Ballweg, Kenneth Ellwood, Ch, 1.....Taft
Balzer, Lois Ethel, Ed, 3.....Portland
Barbano, Edward Fulton, C, 1.....Blalock
Barde, Gordan Edward, Ed, 1.....Portland
Bardwell, Vira, H, 4.....Pico, Calif.
Barker, William A., CE, 2.....Eugene
Barlow, Frank Stephen, Jr., Ed, 2....Portland
Barnard, Howard Wilson, IA, 1..Marshfield
Barnes, Mary Jane, H, 2....Porterville, Calif.
Barnett, Margaret Lillian, FA, 1....Portland
Barnett, Rex, LD, 1.....Portland
Barrell, Colburn Harry, P, 1.....Bend
Barrett, Leander Rockwell, ME, 2.....Forest Grove
Barss, Roger, LD, 1.....Corvallis
Barss, Richard Hawks, Ed, 2.....Corvallis
Barry, Marian Margaret, Ed, 2.....Oregon City
Bartell, Donna May, Ed, 1.....Corvallis
Barth, Victor Warren, F, 1.....Salem
Barton, Victor P., CE, 2..San Gabriel, Calif.
Bartos, Charles James, A, 2.....Woodburn
Batcheller, Campbell Robinson, Ed, 3....Corvallis
Batcheller, Oliver A., A, 1.....Corvallis
Bateman, Harold W., Ed, 2.....Milton
Bateman, Ross L., EE, 3.....Toledo
Bates, Clarence Cass, Ed, 2.....Corvallis
Bates, Leon E., P, 2.....Warm Springs
Bates, Mercedes Allison, H, 1.....Portland
Bates, Ruth Anne, Ed, 4.....Portland
Bateson, Marian Caroline, H, 1.....Portland
Bauer, Jeanne Margaret, Ed, 2.....Portland
Baum, Arthur Waller, E, 1.....Roseburg
Bauman, Jack Rudolph, ME, 4.....Nampa, Idaho
Bayles, Charles Clifford, CE, 2.....Corvallis
Beach, Gene Fay, H, 2.....Bend
Beal, Robert Perry, F, 4.....Los Angeles, Calif.
Beals, Grace Elizabeth, H, 2.....Corvallis
Bear, Edith, Ed, 1.....Albany
Bear, Henrietta Naomi, H, 2.....Albany
Beard, Jean, Ed, 1.....Klamath Falls
Beardsley, Bruce M., Ed, 3.....Corvallis
Beardsley, Cassius Marvin, A, 4....Corvallis
Beardsley, Marion C., E, 1.....Corvallis
Bearss, Ernest Herbert, Ed, 2....Grants Pass
Beasley, Dorothy, H, 4.....Santa Ana, Calif.
Beasley, Tom Robert, ME, 2.....Santa Ana, Calif.
Beat, Robert Rae, LD, 2.....Portland
Beaver, Jay Willis, Ch, 2.....Portland
Beck, Marion Gertrude, Ed, 2.....Portland
Beckendorf, Howard Paul, EE, 4....Portland
Becker, Maxwell Henry, BAd, 4....Caldwell, Idaho
Bedford, Jack Montgomery, BAd, 4.....Klamath Falls
Bedford, Jr., Alexander Wilson, E, 1....Portland
Beechler, George Curtis, P, 1.....Salem
Beery, Wilma Alice, H, 1....Placerville, Calif.
Beeson, Stanley Weaver, E, 1....McMinnville
Beezley, Marian Elizabeth, FA, 2.....Astoria
Beidler, Mary Kathleen, H, 1..Cottage Grove
Bell, Clark Kenaston, Ed, 2..Pasadena, Calif.
Bell, Howard Jefferson, Ed, 2.....Portland
Benefiel, Velma Lulu, H, 2.....Corvallis
Benham, Henry L., IA, 3.....Williams, Ariz.
Bennett, Donald K., LD, 1.....Corvallis
Bennett, Eunice, H, 2.....Philomath
Bennett, Jean Katheryn, BAd, 1.....Portland
Bennett, Maxine Margaret, Ed, 3.....Grants Pass
Beno, Maxwell Frederick, EE, 2....Sherwood
Benscheidt, Adolph, CE, 4.....Tillamook
Benson, Bjorn Frost, Ch, 1.....Corvallis
Benson, Guy Walter, A, 1.....Portland
Berg, Albert Gordon, A, 1....Pasadena, Calif.
Berg, Glynn Lorraine, BAd, 2.....Portland
Bergano, Fabian C., P, 2.....Corvallis
Bergdahl, Astrid Ermine, Ed, 3.....Portland
Bergen, John Howard, Ch, 1.....Marshfield
Bergstrom, Robert William, LD, 1....Astoria
Berkeley, Mary Randolph, BAd, 2.....Yonkers, N. Y.
Berkey, Henry W., ME, 3.....Tillamook
Bertram, Mary E., H, 4.....Corvallis
Biancone, John, Ed, 3.....Portland
Bickner, Ava Althea, PE, 2.....Oswego
Bieler, John Robert, A, 2.....Bonanza
Bier, Blanche Louise, H, 1.....Corvallis
Biersdorf, Delbert, ME, 3.....Cornelius
Bigelow, Betty Jeanne, Ed, 1.....Belknap Springs
Billings, John Stannard, A, 4.....Ashland
Billingsley, Donald B., ME, 2.....Portland
Bilow, John A., Ed, 1.....Portland
Binnicker, Jack Noble, CE, 2.....Portland
Binns, Barbara, Ed, 3.....Danville, Calif.
Binshadler, William Gale, Ch, 1.....Lebanon
Bird, Virginia Mona, SSc, 1.....Salem
Bishop, James Franklin, A, 3.....Tigard
Bishop, Marguerite Eleanor, Ed, 3..Portland
Bishoprick, Stanley, F, 3.....Portland

Black, Donald Harry, Ed, 3.....Portland
Black, Kenneth Henry, E, 1....Independence
Blacker, Roderick, A, 1.....Corvallis
Blair, Thomas Raymond, Ch, 1.....Sheridan
Blake, David G., ME, 2.....Ashland
Blake, Lillie Arvilla, H, 2.....Portland
Blakely, Eugene Oswald, Ed, 1.....Baker
Blanchfield, Emmett Underwood, FA, 2..Los Angeles, Calif.
Blason, Robert Earl, EE, 4.....Portland
Blatch, Dorothy B., H, 1.....Carlton
Bleamaster, Miriam Dubois, Ed, 3.....Corvallis
Blohm, Robert Fredrick, A, 1.....Pasadena, Calif.
Boden, Ralph Oscar, Ed, 2.....Nyssa
Bodner, William Stephen, Ed, 3.....Corvallis
Boehm, Viola Irene, SSc, 1.....Lakeview
Bogardus, George William, IA, 1....Cascade Locks
Bogart, Clark, BA, 4.....Portland
Boggess, Jack C., IA, 4.....Mabel
Boley, Anita Louise, Ed, 4.....Salem
Bolton, Valerie C., P, 2.....Corvallis
Bolz, Mildred Lillian, Ed, 3.....Medford
Bondeson, Harold Peter, EE, 3.....Portland
Bonge, Mildred May, Ed, 2.....Corvallis
Bonnett, Charles A., CE, 4.....Eugene
Boon, Catherine Virginia, Ed, 2.....Portland
Booth, Janet, H, 4.....Jennings Lodge
Booth, Richard Hammond, E, 1.....Jennings Lodge
Booth, Willard, BAd, 1.....Portland
Boswell, Carl Knox, Ed, 4.....Central Point
Bosworth, Enid Brunetta, BAd, 1..Corvallis
Bosworth, Virginia Marian, LD, 1..Corvallis
Bothern, Francis Rose, H, 3.....Albany
Bottcher, Richard Paul, F, 2.....Portland
Botts, Cyril H., ME, 4.....Corvallis
Bower, Philip Adair, Ed, 4..Sulphur Springs
Bowman, Blanche, H, 1.....Portland
Bowman, Edith, H, 1.....Scio
Bowman, Pierre James, BAd, 2.....Portland
Boyle, Kenneth L., EE, 2.....Portland
Bradley, Leah Mae, Ed, 2.....Silver Lake
Bradley, Lora Rosalie, H, 3.....Silver Lake
Bradway, Anna Sophia, PE, 1.....Jasper
Brady, Lawrence, EE, 4.....Portland
Brainerd, Philip F., BAd, 2.....Grants Pass
Bramwell, Donald Marion, P, 1.....Halsey
Branch, Luther, P, 1.....Tigard
Brande, Jack, Ed, 1.....Corvallis
Brandis, Richard William, P, 2....Hoquiam, Wash.
Brands, Henry W., CE, 2.....Portland
Brands, Maurice Dwane, CE, 2.....Portland
Brandt, Harriett Anne, Ed, 2.....Corvallis
Brandt, Philip Martin, LD, 1.....Corvallis
Branson, Charlcia Mae, H, 1.....Corvallis
Branton, Clarence Ivan, A, 4.....Dixonville
Bray, E. Loren, EE, 4.....Albany
Bray, Richard Harold, E, 1.....Albany
Breck, Laura Jane, SSc, 1.....Corvallis
Breedlove, Paris B., F, 1.....Cottage Grove
Breese, Melvin Wilson, P, 1....Cottage Grove
Brewitt, Edward Herbert, BAd, 2.....Los Angeles, Calif.
Brennan, Charlotte Christine, H, 4.....Portland
Bricher, Joseph Edward, LD, 2.....Cottage Grove
Brier, Dorris Jacqueline, H, 4.....Turlock, Calif.
Briggs, Ernest Leonard, E, 1.....LaGrande
Briggs, Mark Robert, BAd, 4.....Corvallis
Brigham, Harriet Edna, Ed, 2.....Eugene
Britton, James Day, Ed, 3.....Marysville, Calif.
Britton, Thomas George, Ed, 2.....Portland
Brommer, Louise Alma, H, 2.....Medford
Bronson, Dave Grayson, BAd, 2.....Portland
Bronson, Robert Kumler, BAd, 2....Portland
Brough, Lloyd Herbert, P, 2.....Rainier
Brown, Betty, Sc, 4.....Corvallis
Brown, Carlos T., F, 4.....Portland
Brown, Carroll E., F, 4.....Portland
Brown, George Houston, LD, 1.....Corvallis
Brown, Grace Marjory, Ed, 1.....Corvallis
Brown, Harold Weldon, Ed, 2.....Corvallis
Brown, Harriett L., H, 4.....Bend
Brown, Laura May, P, 1.....Bend
Brown, Lowell Eastham, ME, 2.....Corvallis
Brown, Mary Elizabeth, H, 1.....Portland
Brown, Neal Chester, A, 2.....Camas Valley
Brown, Rebecca Elizabeth, Ed, 4....Portland
Brown, Richard Myers, Ed, 3.....Portland
Brown, Robert L., A, 3.....Corvallis
Brown, Sterling, E, 1.....Baker
Browning, Jr., Andrew Johnson, E, 1....Portland
Brownson, Mary Jean, H, 1.....Hermiston
Brownson, Shirlie Ruth, Ed, 3.....Hermiston
Bruhl, Althea Lucile, Ed, 2.....Portland
Bruns, Dorothy Caroline, Ed, 1.....Sandy
Bruns, George Edward, Ch, 1.....Sandy
Brunskill, Paul M., P, 2.....Albany
Bryan, Vanita Faye, BAd, 4.....Paisley
Bryant, Lloyd Harvey, Ed, 1.....Portland
Bryant, Robert Edell, BAd, 2..Myrtle Point
Buccat, Jose U., CE, 4.....Corvallis
Buchanan, Helen Ila, PE, 1.....Portland
Buchanan, James Robert, Ed, 4.....Corvallis
Buck, Doris Adelaide, Ed, 4.....Portland
Buck, Florence Louise, Ed, 3.....Portland
Buck, Margie Kate, H, 4.....Eugene
Buckhorn, Elmer Alfred, EE, 4.....Bend
Buckley, Clarkson I., Ed, 3.....Corvallis
Bucknum, Earl Lee, Ed, 1.....Portland
Buford, Howard Wellington, A, 4.....Long Beach, Calif.
Bullard, Howard Warren, F, 3.....Bullards
Burchell, Edward, LD, 1.....Lexington
Burk, Dorothy Ann, H, 2.....Corvallis
Burke, William James, BAd, 1.....Baker
Burnett, George Lewis, F, 3.....Portland
Burns, Margaret M., H, 2.....Newberg
Burns, William Nelson, LD, 1.....Corvallis
Burwell, Gerald Leroy, F, 4.....Corvallis
Busenbark, Helen Fae, H, 4.....Roseburg
Burton, James Oliver, Ed, 1.....Redmond
Bush, William Simpson, P, 4.....Portland
Buslach, Mignon, Alice, Ed, 1.....Corvallis
Butler, Charles Henry, E, 1.....Bull Run
Butler, Helen E., H, 2.....Dallas
Butterfield, Neal Allan, A, 4.....Woodburn
Buxton, Charles Robert, Ed, 3.....Corvallis
Buzhard, Dorothy Lenore, BAd, 4..Hillsboro
Byram, Harold Mark, Ed, 3.....Canyon City
Byrd, Dorothy Maurine, Ed, 2.....Corvallis
Byrne, Jack M., BAd, 4.....Portland
Cail, Howard, F, 1.....Manteca, Calif.
Calderwood, Neva Louise, BAd, 1....Warrenton
Caldwell, Walter Robert, Ed, 2.....Portland
Callahan, Lucille B., H, 4.....Los Angeles, Calif.
Callan, Sarah, Ed, 2.....Portland
Callan, William, Ed, 3.....Portland
Callaway, James Ralph, A, 2....Long Beach, Calif.
Callaway, Margaret Louise, PE, 1..Corvallis
Calvert, Emmett Richard, F, 4.....Corvallis
Cammack, Forrest William, A, 1.....Salem
Camp, Charles S., BAd, 2.....Long Beach, Calif.
Camp, Robert H., CE, 2.....The Dalles

Campbell, Catherine Jane, H, 2.....Portland
Campbell, Catherine May, H, 4.....Tenino, Wash.
Campbell, Milton Lora, BAd, 2.....Portland
Campbell, Thelma Fay, H, 1.....Shedd
Campbell, Wilbert Forbes, BAd, 4..Portland
Canessa, Marjorie Marie, H, 4.....Astoria
Cannon, Floye Bernice, BAd, 2.....Paisley
Canova, Joe Ralph, LD, 2.....Portland
Cantine, Sigrid Elizabeth, Sc, 3.....Corvallis
Carico, Hugh V., A, 2.....Payette, Idaho
Carico, Jim M., F, 1.....Payette, Idaho
Carl, Kenneth E., A, 3.....Arago
Carleton, Edmund Ackermann, Ed, 3....Portland
Carlson, Albert Steen, Ed, 2..North Powder
Carlson, John Spencer, Sc, 3.....Eugene
Carlson, Milton V., Ed, 3.....Portland
Carpenter, Robert H., LD, 1.....Pasadena, Calif.
Carrico, Angela Elizabeth, FA, 2.....Burns
Carson, Jesse Eugene, EE, 3.....Portland
Carson, Wallace E., EE, 3.....Portland
Carter, Elden Wuest, CE, 4.....Portland
Carter, Homer Richard, A, 1.....Newberg
Carter, Ila Alberta, BAd, 1.....Corvallis
Case, Carmen Georgene, SSc, 1.....Molalla
Cass, Lucy, C, 2.....Grants Pass
Caster, Marion Bertram, CE, 2.....Central Point
Cattrall, John William, CE, 2.....Astoria
Cawlfield, Paul A., EE, 2.....Corvallis
Cernik, Beatrice Estell, SSc, 1.....Salem
Chamberlain, Keith Marion, A, 2.....Mosier
Chamberlin, Fred Sterling, ME, 2....Corvallis
Chandler, George Marshall, EE, 3....Eugene
Chaney, Wayne Philip, LD, 1.....Marshfield
Chapman, Frederick Milton, P, 2..Roseburg
Chapman, Genevieve Mable, H, 1....Portland
Chapman, Lawrence Edwin, F, 3....Portland
Chapman, Lincoln, F, 2....Middletown, Calif.
Charlton, Velma Izora, H, 4.....LaGrande
Chattin, Jr., Charles W., Sc, 3.....Ashland
Chester, Charles Eric, F, 4.....Astoria
Chiswell, Stanley Walter, LD, 2....Portland
Christian, Stanley Charles, A, 4....Hanamaulo, Kouai, T. H.
Christianson, Laurence E., E, 1.....Portland
Churchill, Beatrice Mary T., H, 3....Corvallis
Churchill, George W., F, 2.....Corvallis
Clarke, James Edward, Ed, 2.....Portland
Clarke, Norma Desmore, J, 1.....Stayton
Clayton, Marjorie Helen, Ed, 4....Enterprise
Cleghorn, Catherine, H, 1.....Klamath Falls
Clemens, Kathryn D., LD, 2.....Portland
Clement, Jerome, LD, 2.....Astoria
Clement, Sanford, LD, 1.....Astoria
Clements, Edwin Francis, A, 2..Eagle Point
Cliff, Barbara Helen, BAd, 2.....Silver Lake
Clinton, Harry Forest, Ed, 3.....Corvallis
Clodfelter, Alice Marline, H, 2.....Portland
Clodfelter, Harland Russell, Ch, 3..Corvallis
Coates, Catherine Miller, H, 2.....Albany
Coates, Marion, H, 3.....Tillamook
Cochran, Jack Brown, EE, 2.....Brownsville
Cochran, John Robert, LD, 1....Oregon City
Cockrell, Barbara Jane, H, 1.....Portland
Cockrell, Geraldine Lois, H, 2.....Portland
Coffield, Charles Barnes, LD, 1..Eagle Creek
Coffin, Dorothy Anna, H, 2.....Corvallis
Colasuonno, Jr., Thomas, P, 2.....Portland
Coldiron, Nora Bell, Ed, 4.....Halsey
Coldwell, Frances, BA, 2.....Portland
Coldwell, William L., Ed, 2.....Portland
Cole, Mary Louise, H, 4.....Salem
Cole, Opal Kathryn, H, 4.....Scappoose
Coleman, James M., Ed, 4.....Corvallis
Coleman, Ralph Post, Ed, 3.....Eugene
Coleman, Timothy J., Ch, 4.....Portland
Coleman, Warren Richard, P, 3.....Bend
Coleman, William Henry, A, 4.....Dundee
Collie, Janet, H, 2.....Hood River
Collin, Henry A., A, 2.....Orosi, Calif.
Collins, Evelyn June, SSc, 1.....Portland
Collins, John Griffin, CE, 2....Crescent Lake
Collins, Mary Louise, H, 4.....Ames, Iowa
Comfort, John Edward, E, 1....Elma, Wash.
Compton, Leo Miles, F, 3.....Corvallis
Comstock, Max O., CE, 2.....Sutherlin
Congdon, Levi Y., Ch, 2.....Horton
Conger, Doris Marie, SSc, 1.....Monmouth
Conger, Homer A., A, 1.....Medford
Connor, Helen Elizabeth, H, 1.....Stanfield
Conner, Karl, Ed, 3.....Corvallis
Conrad, Clifford DeVere, A, 1.....Imbler
Conrad, Julius Stephen, CE, 3.....Marshfield
Conway, Jefferson D., Ed, 3.....Portland
Cook, Albert Boardman, A, 1.....Portland
Cook, Ila Mae, Ed, 4.....Wells
Cook, J. William, Sc, 3.....Myrtle Creek
Cook, Louise Winfield, Ed, 3.....Salem
Cook, Owen Martin, LD, 2.....Corvallis
Cooke, Faith Beamer, H, 3.....Corvallis
Cooke, James Philip, Ch, 4.....Corvallis
Cookman, Jr., Frederick William, EE, 3.....Portland
Coombe, Grace Elizabeth, BAd, 4....Ashland
Cooney, Wilbur T., A, 1.....Corvallis
Cooper, Irvin Aaron, CE, 2.....Portland
Cooper, James Marion, Ed, 1.....Corvallis
Cooper, Kenneth, Ed, 2.....Corvallis
Cooper, Robert L., F, 2.....Corvallis
Cooper, Virginia, BAd, 2.....Portland
Coopey, Martin Portman, CE, 2.....Corvallis
Copeland, John, Ed, 2.....Klamath Agency
Corbett, Phyllis, Ed, 3.....Oregon City
Corbin, Uriel Lee, F, 2.....Corvallis
Corlew, Cecil L., EE, 3.....Forest Grove
Corpuz, Macario Tangalin, A, 2.....Portland
Correa, Rita Marie, H, 2.....Echo
Corum, Sam Milton, F, 2.....Silver Lake
Cottrell, George William, P, 2.....Portland
Couey, Edgar Roy, BAd, 4.....Portland
Coulter, Betty Lee, BAd, 2.....Hood River
Courtney, Eugene Patrick, Ed, 2..Woodburn
Courtney, Robert Evan, F, 4....Los Angeles, Calif.
Courtney, William Boyd, F, 2.....Portland
Cowen, Dale Russell, BAd, 4.....Portland
Cox, Roberta Anne, Ed, S.....Corvallis
Cox, Walter Allen, E, 1.....Corvallis
Craig, Allan Russell, P, 3.....Corvallis
Crail, Nita Belle, Ed, 2.....Portland
Crane, Walter Jackson, ME, 3.....Eureka, Calif.
Cravat, Carol Jean, H, 1.....Milwaukie
Crawford, Harold Frederick, P, 2....Fontana
Crawford, Josephine Pauline, H, 2....Powers
Crawford, Randall Vern, BAd, 2.....Oregon City
Crawford, Thomas, A, 1.....Roseburg
Creider, Edwin A., Ed, 1..Long Beach, Calif.
Crews, Grayden Talmadge, Ed, 3.....Days Creek
Crillo, Louise, H, 3.....Portland
Crissell, William M., SSc, 1.....Aurora
Crook, Alma M., H, 2.....Harlem, Mont.
Crossett, Lucy Miriam, Ed, 3.....Portland
Crossley, Charles Brown, EE, 2.....Eureka, Calif.
Crouter, Robert Warren, BAd, 2.....Union
Crover, Nell Fremont, Ed, 3.....Lebanon
Crowell, Hamblin Howes, LD, 2....Portland
Crum, Ivan Watson, F, 2.....Medford
Crump, Viola Ruth, Ed, 2.....Lakeview
Cullen, Frank Benjamin, P, 2.....Corvallis

Cummings, Lyle Amos, IA, 1.....Dyerville, Calif.
Currier, Kitty Bernadean, H, 1.....Paisley
Currin, Ruth Helen, Ed, 4.....Lorane
Curtin, Victor, BAd, 2.....Portland
Curtis, A. Ralph, A, 4.....Corvallis
Curtis, Jack, Ed, 3.....Corvallis
Cuthbert, Henry, E, 1.....Portland
D'Spain, Grace Elizabeth, Ed, 3....Milwaukie
Dahlman, Virginia, H, 2..Castle Rock, Wash.
Dalrymple, Peggy Dunreath, H, 2....Beverly Hills, Calif.
Dalton, Charles D'Orr, LD, 1.....Corvallis
Dalton, Sara, SSc, S.....Corvallis
Daly, Josie Kathryn, Ed, 2.....Lakeview
Dammasch, Eleanore Cascaden, H, 2....Portland
Danforth, George, CE, 3.....Portland
Danforth, Willis, Ed, 2.....Bend
Daue, Louis James, CE, 2.....Portland
Daugherty, Raye Evelyn, H, 2.....Yoncalla
Davenport, Lloyd Clifton, A, 2.....Myrtle Point
Davidson, Douglas Mason, A, 1.....Waimea, Kauai, T. H.
Davidson, Marvin William, A, 4.....Haines
Davidson, Mary Jane, H, 2.....Coaldale, Alberta, Canada
Davies, Arthur Cornell, F, 1.....Jacksonville
Davies, Hazel Mae, Ed, 3.....Jacksonville
Davies, Mary Louise, Ed, 3.....Jacksonville
Davis, Bernard Wilfred, ME, 2....Willamette
Davis, Catherine, LD, 2.....Portland
Davis, Clifford Earl, BAd, 1.....Albany
Davis, Donald Dunbar, P, 1.....Brownsville
Davis, Doris, H, 1.....Corvallis
Davis, Edwin Blundell, Ed, 2.....Whiteson
Davis, Everett Henry, A, 3.....Corvallis
Davis, Florence Miriam, BAd, 4.....Portland
Davis, Irene Ruby, Ed, 4.....Estacada
Davis, Keith Edwin, A, 2.....Corvallis
Davis, Lenard H., LD, 2.....Estacada
Davis, Owen Davies, CE, 3..Honolulu, T. H.
Davis, Owen Leroy, A, 4.....Ontario
Davis, Platt A., BAd, 2.....Albany
Davis, Ralph M., E, 1.....Estacada
Davis, Ruth Jeanette, H, 4.....Corvallis
Davis, Trist Franklin, Ed, 2.....Corvallis
DaVolt, Claudine Virginia, Ed, 2....Corvallis
Dawson, Harold Wilbur, EE, 2.....Corvallis
Dawson, Muriel Harper, Ed, 2.....Corvallis
Day, Wilma Lucille, Ed, 2.....Hubbard
Dearborn, Isabelle, BAd, 2.....Corvallis
Deardorff, Eldon R., ME, 4.....Corvallis
DeArmond, Ardis Carolyn, Ed, 1.....Ashland
DeArmond, Ruth Elizabeth, H, 3.....Sitka, Alaska
Deaver, Robert Leander, CE, 2.....Portland
DeBernardis, Amo, IA, 1.....Portland
Dehlinger, Karl Frederick, A, 2.....Klamath Falls
Dehne, Venita D. V., H, 1.....Fort Rock
deJong, John, CE, 4.....Brownsmead
deLancey, Raymond W., CE, 2.....Corvallis
Delateur, Conrad Alphonse, LD, 1....Hoquiam, Wash.
Delzell, Sheila N., H, 2.....Turner
Deming, Don Emery, A, 1.....Oregon City
Demme, William Robert, F, 1.....Portland
Denison, Jr., John, A, 1.....Troutdale
Derbyshire, John William, P, 1..North Bend
DeReamer, Charles Frederick, ME, 2..Portland
Dernbach, Clifford James, Sc, 4.....Portland
Devine, Clyde Frederick, Ed, 2.....Corvallis
Dew, Marie M., Ed, 2.....Corvallis
Deyoe, Priscilla Anne, H, 1.....Myrtle Point
DeYoung, Catherine, SSc, 1.....Portland
DeYoung, Jacob, BAd, 2.....Portland
Dick, Elinor Bernice, H, 3.....Portland
Dickson, William Zeigler, P, 4.....Portland
Dill, Herman C., F, 4.....Prineville
Dirksen, Virgil Charles, E, 1.....Hubbard
Dixon, C. H. Gordon, F, 3....Victoria, B.C.
Dizney, Clarence Luther, IA, 2....The Dalles
Dobrinen, John, E, 1.....Halsey
Dockery, Wilson Carl, BA, 2.....North Portland
Dolan, Mary Jane, H, 2.....Corvallis
Dole, Hollis Mathews, Ch, 2.....Portland
Donelson, Kenneth Wilber, BA, 4....Portland
Donaldson, Vernon Verl, Ch, 1.....Portland
Donley, Gordon Richard, Ed, 2.....Corvallis
Donnelly, Francis Klosterman, ME, 2..Portland
Donnelly, William Mathews, F, 2....Portland
Doty, Darwin Horneff, Ed, 2.....Corvallis
Doody, Harvey Glenn, CE, 2.....Portland
Dooley, William A., BAd, 2.....Portland
Dougherty, John Wilson, CE, 3.....Portland
Doughton, Howard Franklin, BAd, 4....Corvallis
Doughty, John Paul, Ed, 3.....Monmouth
Douglass, Charles T., ME, 3....San Francisco, Calif.
Douglass, Francis Howard, BAd, 4....Spokane, Wash.
Downing, Catherine Phyliss, Ed, 3.....Portland
Downing, Frances Evlynne, LD, 1.....Hood River
Drake, Miles Edward, P, 4.....Portland
Dreisbach, Marjory, H, 2.....Baker
Driggs, Marion Ione, Ed, 3.....Salem
Druschel, Dorothy Jean, Ed, 4.....Portland
Drushel, Cathryn Anne, H, 2.....Tacoma, Wash.
Dryer, Donald A., LD, 1.....Portland
Duerr, Mary Elizabeth, BAd, 2.....Portland
DuFrane, Jack Louis, C, 4....Oakland, Calif.
Duhrkoop, Russell, E, 1.....Portland
Dully, Howard Franklin, E, 1.....Portland
Dumble, Charles Skiles, CE, 2....Bakersfield, Calif.
Dunagan, Averitt C., ME, 3.....Scotts Mills
Dunford, LeVon Perry, F, 2.....Medford
Dunham, A. Margaret, H, 1.....Corvallis
Dunham, Marion, H, 3.....Corvallis
Dunkin, Marshall Fielding, Ed, 3.....Salem
Dunn, Hazel Evelyn, LD, S.....Boring
Dunn, Richard William, Ed, 4.....Portland
Dunne, Marian, P, 1.....Portland
Durland, Arthur Charles, E, 1.....Corvallis
Dutton, Isabel May, SSc, 1.....Portland
Dutton, Jean, H, 1.....Portland
Dykstra, Erma Fay, BAd, 1.....Corvallis
Eade, Howard Robert, ME, 3....Warrendale
Easly John J., P, 2.....Portland
Easton, Montague William, F, 3.....Seattle, Wash.
Ebbert, Gordon Mason, ME, 1....Monmouth
Ebert, Arnold C., A, 2.....Echo
Eccleston, Iris Mildred, H, 1.....Lakeview
Eckman, Don Parke, BAd, 1.....Corvallis
Edelson, Zanly Charles, LD, 2.....Portland
Edson, Robert Harold, E, 1.....Portland
Edwards, Edna Martha, Ed, 3.....San Francisco, Calif.
Edwards, Fern Elizabeth, Ed, 4.....Portland
Edwards, Howard A., Ch, 1.....Freewater
Egan, Bryan Edward, ME, 4.....Corvallis
Egorov, Jack M., IA, 1....Los Angeles, Calif.
Eichmann, Robert Durward, Sc, 4.....Corvallis
Eilers, Vernon, Ed, 4.....Aurora
Eisenbrey, Evalyn, H, 4.....Pomona, Calif.
Eisenbrey, Morris M., LD, 2.....Pomona, Calif.

Eisenschmidt, Herbert, Ed, 3.....Portland
Ekstrand, Clarence Charles, Ed, 2..Portland
Elder, Albert, E, 1.....Corvallis
Eldredge, George Gilbert, Ch, 2.....Vale
Eldridge, Robert, Ed, 3.....Medford
Elgin, Helen Louise, LD, 2.....Corvallis
Elliott, Dorothy May, H, 1.....Dallas
Elliott, Mary, Ed, 2.....Portland
Ellis, David H., ME, 2.....Portland
Elting, Paul Welbourne, A, 1.....Billings, Mont.
Emery, Clifford Kenneth, EE, 3.....Portland
Emery, Maxine Marie, Ed, 3.....Ashland
Emmett, James Lowell, Ed, 3.....Salem
Empey, Wilson Bruce, A, 2.....Junction City
Endicott, Charles W., E, 1.....Marshfield
Endicott, Gilma Ellen, H, 2.....Redmond
Endicott, Marian Baynes, Ed, 1.....Corvallis
Engel, Margaret Joan, LD, 2.....Salem
Engelson, Sylvia Rosemary, H, 1....Corvallis
Enke, Robert Arnold, Ch, 2.....Portland
Ennes, John Wilford, LD, 1.....Portland
Enzie, J. Vincent, A, 4....Long Beach, Calif.
Erard, Edward Louis, A, 2.....Mexico City, Mexico
Erickson, Edwin A., F, 2.....Clatskanie
Erickson, Eric Alvin, BAd, 4....Grants Pass
Erickson, Walter M., A, 1.....Warren
Erne, Harold Alfred, Ed, 2.....San Rafael, Calif.
Ernest, Thurley Bertha, Ed, 2.....Portland
Erwin, Warde H., BAd, 2.....Portland
Esson, Evanelle, LD, 1.....Gervais
Etchegaray, Herbert, F, 1.....Los Angeles, Calif.
Evans, Donald Edward, ME, 2.....Portland
Evenden, William, Sc, 4.....Warrenton
Ewalt, Harold P., A, 4.....Corvallis
Ewing, Helen Gertrude, H, 2.....Oswego
Failing, William L., Sc, 3.....Portland
Fallen, Walter James, Ed, 3.....Post
Faris, Therone Ivan, F, 3.....Corvallis
Farmer, William Henry, BAd, 1.....Shedd
Farra, Richard Emerson, BAd, 2.....Hood River
Farrow, Stanley L., EE, 2.....Corvallis
Faust, Robert George, EE, 2.....Portland
Feigenson, Betty, H, 1.....Portland
Feigenson, Tina Esther, H, 2.....Portland
Feikert, Helen, H, 1.....Corvallis
Felker, Samuel Alfred, Ed, 4....Eagle Creek
Felts, Wayne Moore, Sc, 3.....Portland
Fendall, Virginia Lee, Ed, 2....Forest Grove
Fenner, Keith Peck, LD, 2.....Corvallis
Fenstermacher, John B., BA, 4....Piedmont, Calif.
Ferguson, Robert Orren, IA, 1.....Albany
Ficklin, John Albert, BAd, 4.....Huntington
Field, Harry Montague, BAd, 2....Honolulu, T. H.
Filipoff, John William, IA, 2....Los Angeles, Calif.
Filippini, Alvin Bloom, F, 1....San Anselmo, Calif.
Finch, Robert Walter, A, 4..Fullerton, Calif.
Finegan, Harold Joseph, A, 4.....Cornelius
Fink, William J., A, 4.....Porterville, Calif.
Finlay, Donald William, ME, 3.....Portland
Finlay, Gilbert C., P, 1.....Roseburg
Finlay, Gordon Alvin, Ed, 2.....Portland
Finley, Edward James, BAd, 4.....Tigard
Finley, Francellia Sue, H, 2....McMinnville
Finnell, Harold E., A, 2.....Portland
Fisher, Donnell George, E, 1..Seattle, Wash.
Fisher, Eugene H., A, 4.....Oakland
Fisher, Frieda Harriett, H, 1.....Haines
Fisher, Helen Elizabeth, H, 2.....Shaniko
Fiske, Barbara Wentworth, LD, 2..Portland
Fitzpatrick, Marian Elise, H, 2.....Albany
Fletcher, Ellsworth Richmond, EE, 2..Salem
Fletcher, George A., A, 4.....Hood River
Flock, Orlo Alva, A, 2.....Corvallis
Flood, Einar Johan, IA, 2.....Westport
Flood, Frida, Ed, 2.....Westport
Flory, Jane Elizabeth, Ed, 2.....Portland
Flower, Winifred Alice, H, 2.....Portland
Floyd, Bertha Mildred, Ed, 1.....Corvallis
Fluke, William Jerome, A, 1.....Portland
Fogler, Loren Irving, CE, 4.....Mitchell
Folen, Clifford G., LD, S.....Portland
Foote, John Tryon, F, 1....Hollywood, Calif.
Forden, Harold J., Ed, 4.....Hood River
Forrester, Jess Wayne, Ed, 2.....Marshfield
Forrester, Ruth Marie, H, 2.....Marshfield
Forse, Harry Bernarr, F, 4.....Courtenay, B.C.
Fosburg, Henry Cranson, F, 2.....Marshfield
Foster, Lyle W., BAd, 4.....Portland
Foster, Marjorie Hunter, H, 2.....Toledo
Foulke, Katherine May, H, 2....Yreka, Calif.
Fox, Henry G., A, 2.....Lakeview
Franklin, Norman Clifford, Ed, 2..Corvallis
Frederick, Gertrude Jane, LD, 1.....Yachats
Freeborn, Jean Alice, BAd, 4....Washington, D.C.
Freeman, Robert L., LD, 1.....Portland
Frewing, Darrell K., A, 4.....Tigard
Frizzell, Burt Jacob, Ed, 1.....Wallowa
Freyer, Cecil Carl, Ch, 1.....Portland
Friend, Elbert Leland, Ed, 1.....Corvallis
Fulkerson, Carmen Sylva, Ed, 1.....Seaside
Fulkerson, Doris Elizabeth, Ed, 2....Corvallis
Fulkerson, Frank Benton, LD, 1....Corvallis
Fulkerson, Jack Fisher, LD, 1.....Corvallis
Fulkerson, Viola Roberta, Ed, 1.....Corvallis
Fuller, Charles Robert, Ed, 2.....San Bernardino, Calif.
Fuller, George Alvin, IA, 1.....Corvallis
Fuller, Leonard F., EE, 2....Palo Alto, Calif.
Funk, Alvin Leonard, EE, 3.....Aberdeen, Idaho
Fyock, Charles William, BAd, 1.....Corvallis
Gable, Lucille Eleanor, Ed, 3.....Portland
Gabler, Elizabeth C., Ed, 4.....Portland
Gaddis, Jean Elizabeth, H, 2.....Portland
Gallagher, Raymond Winfield, EE, 3..Woodburn
Gallaher, Estelle Miller, H, 4.....Corvallis
Gallaher, M. Carl, Ed, 2.....Corvallis
Galloway, Ezra, A, 1.....Sandlake
Galloway, Torrence, LD, 2.....Culver
Gamer, Robert Lick, Sc, 4.....Salem
Ganong, Joanne St. Clair, Ed, 3.....Portland
Gardiner, William Walter, ME, 2....Portland
Garlinghouse, Acel, A, 2.....Halfway
Garlinghouse, Lester Edwin, EE, 2..Halfway
Garrett, Orion D., E, 1.....Grants Pass
Gary, Marian Caroline, Ed, 3.....Portland
Gates, Albert Gwyn, E, 1.....Lyons
Gault, Effie Jean, H, 3.....Gladstone
Gawley, Alfred, BAd, 2.....Portland
Gearhart, Hazel, Ed, 3.....Myrtle Point
Gearhart, John Chase, EE, 2.....Portland
Geisler, Eleanor Anna, Ed, 1.....Portland
Gentry, Thelma Frances, BAd, 2.....Medford
George, Eldred, F, 1.....Modoc Point
George, J. Spencer, A, 3.....Corvallis
Gerber, Joseph Albert, EE, 2.....Portland
Geren, John Lawrence, CE, 4....Scotts Mills
Gerlach, Claude T., P, 2.....Coquille
Gibbon, Clarence Irwin, Ch, 1.....Hines
Gibbs, Jack Alban, ME, 2.....Roseburg
Gibson, Helen Marie, FA, 1.....Pendleton
Gibson, Howard. A, 3.....Corvallis
Gibson, Loene, Ed, 1.....Portland
Gibson, Warren Oliver, ME, 2.....Corvallis

Gilbert, Frank H., EE, 3.....Portland
Gilbert, Inez, P, 3.....Corvallis
Gilbert, Theodore D., BAd, 4.....Albany
Gilbert, William Ball, CE, 2.....Portland
Gillanders, Dorothy Ferne, Ed, 4..Woodburn
Gilman, Raymond Eldon, P, 1.....Portland
Gilmore, Stanley John, P, 1.....Portland
Gilmore, William James, Ed, 3.....Corvallis
Gleason, Edworth Joseph, Ed, 4.....Portland
Gleason, Harry Myron, BAd, 4.....Corvallis
Godlove, Harry G., F, S.....Scotts Mills
Godman, John Robert, EE, 4.....Corvallis
Goldsberry, Archie Alvin, IA, 2.....Auburn, Calif.
Goodale, Jane Louise, Ed, 1.....Monmouth
Goode, Mabel Irene, H, 2.....Portland
Goodman, Gladys, H, 3.....Portland
Goodwin, Ruth Gaylord, Ed, 4.....Portland
Goodyear, Catharine Louise, LD, 1..Portland
Gordon, Delpha Mary, H, 4.....Portland
Goss, Mary Catherine, Ed, 2.....Portland
Goss, Walter Alling, BAd, 4.....Portland
Gove, Mahlon Gilbert, Ch, 2.....Corvallis
Gove, Wilma Chapman, Ed, 2.....Corvallis
Graham, Barbara Fenwick, H, 2.....Eureka, Calif.
Graham, Crawford H., EE, 2....Castle Rock, Wash.
Graham, Jack, E, 1.....Portland
Graham, Wylie James, Ed, 3.....Monmouth
Gramms, Dorothy Morton, BAd, 1....Astoria
Grasier, Frederick Arden, CE, 2....Gladstone
Gravley, Roberta Katherine, FA, 1.....Corvallis
Gray, Charles Marshall, Ed, 3.....Gold Hill
Gray, Evelyn Isabell, SSc, S.....Portland
Gray, Robert Irad, P, 4.....Portland
Green, Bernice Harriet, Ed, 2.....Portland
Green, Stanley A., A, 1.....Echo
Greenlaw, Arnold Ziegler, CE, 3....San Francisco, Calif.
Gregory, Arthur Stanley, Ch, 1.....Albany
Gregory, Edward Mortimer, ME, 3....Albany
Gregory, Lester J., Ch, 4.....Molalla
Gregory, Maurine Olive, Ed, 4.....Newberg
Gregory, Thelma Aileen, Ed, 3.....Newberg
Grenfell, William Stuart, EE, 2....McMinnville
Greves, Jack Hans, M, 4.....North Bend
Griffin, Alice Rhees, H, 2.....Portland
Griffiths, Milton Emlyn, F, 1.....Oakland, Calif.
Grim, Willard Allen, F, 2.....Medford
Grimm, Hazel Esther, PE, 1.....Portland
Grimes, Edgar B., A, 4.....Harrisburg
Grimes, Parker Russell, F, 2.....Corvallis
Grimes, Randall E., A, 1.....Harrisburg
Grimmett, Evelyn Gay, BAd, 2.....Medford
Grimmett, Mabel Marian, H, 1.....Medford
Griswold, William Predmore, Ed, 1.....Corvallis
Gross, Hal Ramon, Ed, 2.....Corvallis
Gross, William Ellis, F, 1.....Halfway
Groth, Francis L., A, 2.....Portland
Grover, Marion L., BAd, 4..Fruitland, Idaho
Groves, Francis William, A, 2.....Amity
Guerin, Jean Louise, H, 2.....Myrtle Point
Guggisberg, Ernest, A, 1.....Cottage Grove
Gunter, Ida Cora, Ed, 3.....Grants Pass
Gunther, Phyllis Muriel, SSc, 2.....Portland
Gustafson, Arthur Walfred, Ed, 4..Berkeley, Calif.
Gustafson, Charles Hugh, LD, 1....Portland
Gustafson, Harold Wayne, F, 2....Woodburn
Hackett, Ruth Caroline, H, 3....Grants Pass
Hagar, Edward William, A, 2.....Roseburg
Hagar, Marian Virginia, H, 4.....Roseburg
Haight, Gwendolyn Isabelle, H, 1....Cottage Grove
Haglund, Elmira LaVae, SSc, 1.....Albany
Hakkerup, John Harold, LD, 1.....Prospect
Hale, Edward Everett, Sc, S.....Portland
Haley, Thomas Irving, CE, 2.....Portland
Hall, David Martin, LD, 1.....Manila, P. I.
Hall, Laura Jane, SSc, 2.....Pendleton
Hall, Marian Gertrude, H, 2.....Portland
Hallinan, Cecil Walter, Ed, 2....Oregon City
Hallmark, Ruth Estelle, J, 1.....Waldport
Halonen, Harvey Willard, BAd, 2....Astoria
Halseth, Cordiner J., ME, 4.....Portland
Haly, Phillip S., EE, 2.....Corvallis
Hamilton, John Sargent, BAd, 2..Ketchikan, Alaska
Hammond, Richard Watt, Ch, 1.....Portland
Hammond, Thorne Harrison, BAd, 4..Portland
Hamner, Leonard Allan, P, 2.....Albany
Hanberg, Byron William, EE, 2.....Boring
Hand, E. Ramona, H, 2.....Corvallis
Hand, Katherine Elaine, Ed, 1.....Corvallis
Hanks, Eldon Dee, P, 1.....La Grande
Hanley, Edward Dennis, Ch, 2.....Portland
Hanley, William Vincent, ME, 4....Portland
Hanselman, George Allen, BAd, 4..Portland
Hansen, Elmer, A, 3.....Freewater
Hansen, Elsie Christina, H, 2.....Portland
Hansen, Howard Benjamin, A, 4.....Terrebonne
Hansen, Lyla Karen, H, 1.....Silverton
Hanshew, Corla, H, 1.....Corvallis
Hanson, Ellen, PE, 1.....Lakeview
Hanson, Jennie Frances, PE, 1.....Portland
Hanson, Louis Philip, LD, 1.....Paisley
Hanthorn, Walter, ME, 3.....Portland
Harber, William Glover, CE, 3.....Albany
Hardy, DeaJean, Ed, 1.....Corvallis
Harer, W. Sherman, EE, 2.....La Grande
Harn, Wayne, Ed, 4.....Corvallis
Harnisch, Clarabell, H, 1.....Albany
Harper, Robert Sylvester, A, 3....Adin, Calif.
Harrang, Norman Orville, A, 4.....Foster
Harrington, Everett Jay, EE, 3....Marshfield
Harris, Carl Sidney, E, 1..Ketchikan, Alaska
Harrison, Inez Ruth, Ed, 4.....Portland
Harrison, Virginia, H, 1.....Portland
Harshberger, Dean L., E, 1.....Carlton
Hart, Frank Phipps, P, 1.....Lakeview
Hart, Gifford Thompson, ME, 3.....Kerby
Hart, Lucy Elizabeth, BAd, 4.....Kerby
Hart, Robert Walker, F, 1.....Portland
Hartley, George Wellington, BAd, 4....Portland
Hartley, Mary Ellen, BAd, 1.....Broadbent
Harvey, Guy Marvin, Ed, 3.....Santa Ana, Calif.
Harvey, Roy C., Ed, 1.....Santa Ana, Calif.
Harwood, Henry Martyn, LD, 2.....Paisley
Hastorf, Ellen Ann, H, 1.....Milwaukie
Hathorn, Jesse, F, 2.....Hood River
Haygood, Myrl Arland, F, 2.....Corvallis
Haynes, Helen Dorothy, H, 4.....Gladstone
Heacock, Woodrow Arthur, ME, 2..Portland
Head, James Albert, E, 1.....Portland
Heath, Virgil Taylor, Ed, 3.....Gates
Hedgpeth, Joel, A, 3.....Fresno, Calif.
Heikenen, Arnold, BAd, 2.....Portland
Heinl, Lawrence Fredric, ME, 4.....Lebanon
Heinrich, Fred J., IA, 2.....Halsey
Heise, Wesley Clay, BAd, 4.....Salem
Heisler, Glenn Dale, P, 2.....Portland
Heisler, Leonard C., F, 1.....Corvallis
Helber, Fred E., EE, 4.....Portland
Held, Leonard Edgar, BAd, 2.....Corvallis
Heldfond, Bob C., P, 1.....Portland
Helmick, Paul Franklin, ME, 3.....Corvallis
Henderson, Milton Fillmore, LD, 1.....Portland
Henderson, Ruth Addie, Ed, 1.....Portland

Henkle, Clarke Williston, A, 2.....Corvallis
Henry, Barbara Mary, SSc, 1.....Portland
Herbert, John Mitchell, A, 2.....Haines
Hermann, Theodore Thomas, Ed, 2.....Long Beach, Calif.
Herrick, Donald R., EE, 2.....Portland
Herrington, Doris Florence, Sc, 3....Portland
Herron, Raymond Virgil, Ed, 2.....Junction City
Hertz, DeMaris, H, 3.....Corvallis
Hertz, Howard Davis, ME, 2.....Corvallis
Heryford, George Henry, A, 3....Butte Falls
Hess, Dorothy Deane, P, 4.....Portland
Hesse, Evelyn Vietta, Ed, 4.....Hillsboro
Hesseldin, Geraldine Louise, BAd, 2....Portland
Hessler, LaVerne Dorothy, H, 3.....Dayton
Hetland, George Forest, FA, 1.....Corvallis
Hewett, George Glen, F, 1....Cottage Grove
Hibbard, George Harry, Ed, 2.....Molalla
Hickox, Harlow Henry, IA, 2.....Gaston
Hill, Carl Milton, IA, 2.....Days Creek
Hill, Fred Wayland, Ed, 2.....Pendleton
Hill, Harold Sidney, BAd, 2.....Eugene
Hill, Robert Eugene, CE, 4.....Corvallis
Hill, Robert Vernon, LD, 1.....Days Creek
Hill, Ruth Eleanore, Ed, 2.....Baker
Hillstrom, Alphonse Matthews, BAd, 4.....Marshfield
Hitchcock, Dick Charles, Ed, 1.....Ashland
Hjertager, Harold Eugene, F, 3....Hilt, Calif.
Hocken, Robert Allyn, Ed, 4.....Corvallis
Hodson, Irene Lillian, Ed, 4.....Marshfield
Hoff, William Sherrett, Ed, 2.....Portland
Hoffman, John George, Ch, 2.....Portland
Hodder, Georganne French, FA, 1..Portland
Hofmann, Eleanore Bertha, J, 1.....Portland
Holland, Alta Louise, Ed, 2.....Portland
Hollenbeck, Charles Robert, P, 2....Corvallis
Hollenbeck, Ervilla May, Ed, 1.....Corvallis
Holley, Robert Aubrey, A, 1.....Portland
Holm, Lillian Marie, SSc, 1.....Portland
Holmes, Eldon Fredrick, F, 2.....Albany
Holmes, Joseph Arnold, EE, 2.....Portland
Holt, Virginia Maurine, Ed, 2.....Salem
Holthouse, Mary Margaret, H, 1....Mill City
Homolac, Henry Leo, F, 4..Pasadena, Calif.
Hopkins, Gilbert W., BAd, 1.....Portland
Horn, Louvera, Ed, 4.....Salem
Horn, Myron Josiah, F, 3.....Corvallis
Hornbeck, Maxine, Ed, 1.....Seattle, Wash.
Horrocks, Richard E., BAd, 2.....Portland
Hoskins, Charles, Ed, 1.....Portland
Hoskins, Odelpha Hilda, Ed, 3.....Stanfield
Houghton, Edward Whitney, E, 1....Irrigon
Hout, Lois Kathryn, H, 1.....Klamath Falls
Howard, Wilma Lorene, H, 3.....Corvallis
Howells, Mansfield Allan, J, 1.....Corvallis
Hoy, Myra Alice, H, 1.....Corvallis
Huber, John Hildebrand, Ed, 2.....Portland
Huffman, Clyde Raymond, Ed, 1.....Ontario
Huffman, Emmett Venoy, BAd, 4....Ontario
Hughes, Gerald Howard, A, 2.....Corvallis
Hughson, B. Emmett, BAd, 1.....Portland
Hulery, Jessie Genevieve, PE, 1.....Corvallis
Hull, Gordon Eugene, BAd, 1.....Salem
Hunt, Carmen Walrad, Ed, 4.....Newport
Hunt, Fred Leroy, ME, 4.....Keating
Hunt, R. Alan, A, 2.....Keating
Hunter, Byra Margaret, H, 4.....Corvallis
Hunter, Marjorie, Ed, 1.....Corvallis
Hurt, J. Lyle, Sc, 3.....Portland
Huston, Doran A., E, 1.....Prineville
Hutchins, John Ryal, F, 1.....Shedd
Hutchinson, Davis, Ch, 1.....Portland
Hutchinson, Robert J., ME, 3....Multnomah
Huyer, Winifred Cathrine, Ed, 2....Portland
Hyatt, Hazel Lorraine, H, 4.....Pendleton
Hylton, Herald Carl, A, 2.....Portland
Hynes, Alberta Reagh, H, 2.....Portland
Hyslop, Judy, H, 2.....Corvallis
Hyslop, Mary Ann, H, 1.....Corvallis
Hyslop, Sue, H, 4.....Corvallis
Ide, Hervey Verner, Ed, 2.....Portland
Ingle, Jeannette, BAd, 2.....Albany
Ireland, Frederick Peter, IA, 2.....Brownsville
Ireland, Jessie Bell, Ed, 4.....Hillsboro
Irvine, John W., ME, 2.....Corvallis
Irvine, Lloyd M., P, 3.....Myrtle Creek
Irving, Lois Anna, BAd, 4.....Wilbur
Isaacs, Emily Louise, LD, 2.....Rockaway
Isaacson, C. Malcolm, BAd, 4....Santa Ana, Calif.
Isted, Ruth Phyllis, H, 1.....Bend
Iverson, Herbert Kuno, IA, 2.....Corvallis
Jackman, Richard Elwin, Ed, 1.....Malin
Jackson, Esther Phila, H, 4.....Corvallis
Jackson, Jack Emmette, EE, 2....Springfield
Jackson, Ramona Edith, H, 2.....Corvallis
Jackson, Violet Evelyn, H, 1.....Monument
Jackson, William C., P, 1.....Corvallis
Jacobs, Alice Barbara, PE, 2.....Mt. Vernon, Wash.
Jacoby, Harry David, E, 1.....Corvallis
Jacquot, Alfred Andrew, Ch, 4.....Bend
Jacquot, Howard Elliott, EE, 2.....Sisters
Jaeger, Walter, A, S.....Sherwood
James, Clarence Edwin, F, 2.....Dallas
Jamieson, William MacLeod, ME, 2....Portland
Jansen, Albert, CE, 2.....Tillamook
Janz, Raymond Wesley, Ch, 2.....Portland
Janzen, Enelse Dina, Ed, 4.....Corvallis
Janzen, Linley Jacob, FA, 2.....Corvallis
Jarvis, Joseph Willard, Ed, 2.....Hood River
Jefferson, John Laurence, F, 3.....Upland, Calif.
Jelinek, Elizabeth Ann, BAd, 4.....Dallas
Jenks, Adelaide Gale, H, 2.....Clatskanie
Jenks, Eleanor, Ed, 4.....Albany
Jenks, William H., ME, 2.....Clatskanie
Jenkins, Clifford C., A, 3.....Glendale, Calif.
Jenkins, Lawrence C., A, 2....Glendale, Calif.
Jennings, John William, ME, 2.....Corvallis
Jensen, Harold G., LD, 1.....Rainier
Jensen, Karl Joseph, C, 4..Bakersfield, Calif.
Jensen, Vivianne Dorothy, H, 1....Marshland
Jepson, Francis, F, 3.....Elmira
Jessup, William, Ed, 1.....Lindsay, Calif.
Jewell, James R., BAd, 2.....Eugene
Jobes, Henrietta Elizabeth, H, 1....Falls City
Joehnk, Charles LeRoy, BAd, 2....Marshfield
Johnson, Albert E., CE, 4....San Bernardino, Calif.
Johnson, Charles James, CE, 4.....Portland
Johnson, Charles Wynn, BAd, 2.....Fossil
Johnson, Don E., LD, 1.....Corvallis
Johnson, Ellen Margaret, H, 2.....Corvallis
Johnson, Emil, F, 1.....Goble
Johnson, Gladys Mae, LD, 2.....Corvallis
Johnson, Hamilton Kendel, F, 1....Jennings Lodge
Johnson, Harold Marx, EE, 4.....Gresham
Johnson, Harvey George, FA, 2.....Corvallis
Johnson, Hilbert Stanley, E, 1.....Portland
Johnson, Howard Earl, A, 2.....Seaside
Johnson, Janet E., LD, 2.....Portland
Johnson, Lawrence Taylor, Sc, 4.....Garden Home
Johnson, Leslie, EE, 2.....Corvallis
Johnson, Mary Katherine, Ed, 2.....Corvallis
Johnson, Robert Allen, E, 1.....Salem
Johnson, Spencer Herbert, A, 2.....Corvallis
Johnson, Vernon Chris, P, 2.....Lapine
Johnson, Wallace West, A, 2.....Seaside

Johnson, Walter Leonard, EE, 3....Portland
Johnston, Ethel Leona, H, 1.....Birkenfeld
Johnston, Florence Viola, Ed, 1.....Tigard
Johnston, Frederick, Walter, Ch, 1.....Milwaukie
Johnston, Leila Marjorie, H, 2..McMinnville
Johnston, Myrtle Lois, H, 1.....Tigard
Jones, Barbara Helen, H, 1.....Corvallis
Jones, Clarence Raymond, F, 1.....Oakridge
Jones, Creighton Benton, A, 3.....Gervais
Jones, Emerson Elton, E, 1.....Portland
Jones, Forrest Woodrow, F, 1.....Baker
Jones, John P., BAd, 2.....Richland
Jones, Keith, ME, 2.....Corvallis
Jones, Lepha Bernyece, H, 1.....Portland
Jones, Peggy, H, 1.....Portland
Joslin, Harold W., Ed, 2.....Corvallis
Joslin, Woodrow Charles, Ed, 1.....Corvallis
Jowdy, William John, Ed, 1.....Rainier
Joy, Adena Harriette, Ed, 4.....Ashland
Joy, Clifford Whitney, Ed, 3.....Corvallis
Judd, Dorothy Alice, H, 2.....Salem
Judd, James Elwood, E, 1.....Roseburg
Kachelhoffer, Helen Margaret, H, 3....Ackley, Iowa
Kahl, John Howard, IA, 1.....Oregon City
Kall, Walter I., EE, 3.....Portland
Kammerer, Helen Pauline, H, 3....Corvallis
Kann, George H., ME, 4.....Fall Creek
Kanzler, Reinhold, P, 3.....Portland
Kappenmann, Joseph Phillip, Ed, 2.....San Rafael, Calif.
Karhuvaara, Edna Elmae, H, 4.....Astoria
Katsoulis, Takis, A, 4.....Corvallis
Kauffman, Clara Virginia, H, 4.....Corvallis
Kaufman, Vern Forest, Ch, 2.....The Dalles
Kaufman, Walter Hill, IA, 3.....Monroe
Kearney, Ellen, Ed, 1.....Portland
Kebbe, Stanley Ernest, CE, 3.....Mohler
Keema, Elwood J., Ed, 2....Elk Grove, Calif.
Keen, Sylvia C., H, 3.....Shaw
Keep, Dorothy Rose, Ed, 1.....Corvallis
Kehrli, John Casper, ME, 2.....Portland
Keist, Benjamin Franklin, BAd, 4..Richland
Keizer, John Phil, Sc, 3.....North Bend
Keizer, Mabel Sylvia, H, 4.....North Bend
Keklen, Bernard, Ed, 3.....Astoria
Keller, Balfour, A, 2.....Los Angeles, Calif.
Kelley, Clinton Monroe, Sc, 4.....Corvallis
Kelley, George Walter, BAd, 4.....Corvallis
Kelly, James Vernon, CE, 2.....Portland
Kelly, Max Lyle, E, 1.....Albany
Kendall, Dorothy Ava, H, 1.....Troutdale
Kenna, Wilfred Patrick, Ed, 2.....Portland
Kennedy, Marian Louise, H, 1.....Portland
Kerr, Maurice Paul, Sc, 4.....Corvallis
Kerr, Raymond J., P, 3.....Corvallis
Kerslake, Margaret B., H, 1.....Troutdale
Kerwin, Hugh Andrew, P, 3.....Corvallis
Kessler, J. Raymond, ME, 2....Boise, Idaho
Keudell, Robert Henry, EE, 2.....Rainier
Keyes, John Robert, BAd, 2.....Bend
Kidd, Josephine Miriam, H, 3.....Corvallis
Kidder, Wilbur Lamont, Ed, 1.....Pendleton
Kielblock, Lauretta Idella, C, 1.....Albany
King, Berton Edwin, F, S.....Merrill
King, Edwin Charles, BAd, 4.....Elgin, Ill.
King, Ercel Luthy, BAd, 1.....Mitchell
King, John W., A, 2.....Cottage Grove
King, Nathan Andrew, BAd, 1.....Fishers, Wash.
Kirk, Willis John, A, 1.....Corvallis
Kirkpatrick, D. Maxine, P, 2.....Astoria
Kirkpatrick, Herbert L., BAd, 4....Corvallis
Kissling, Randolph O., A, 2.....Portland
Klahn, Geraldine Mabel, A, 4.....Portland
Klahn, Gloria Madeline, H, 2.....Portland
Klahn, Richard Hazen, EE, 3.....Portland
Klapotz, Caroline, BAd, 4.....Albany
Klee, Paul H., P, 2.....Hood River
Klein, Don, Ed, 3.....Corvallis
Klein, Kenneth Miller, EE, 3.....Salem
Kletzer, William, A, 3.....Portland
Klink, Joanne, Ed, 1.....Canyon City
Kloepping, Dorothy Lucile, H, 2.....Salem
Knagenhelm, Mildred Irene, LD, 2..Los Angeles, Calif.
Kodani, Arthur Takeyoshi, BAd, 2.....South Pasadena, Calif.
Koehler, Rova Kerley, H, 3.....Eugene
Koelblen, Rene August, Ed, 3.....Portland
Kofoid, Melvin J., EE, 4.....Portland
Kohler, Clara Shaw, J, 1.....Lebanon
Kohlhagen, Elza Frances, Ed, 1....Roseburg
Kolle, Louise Sarah, H, 4..Vancouver, B. C.
Koonst, Vades Juanita, H, 3.....Portland
Koontz, Clyde Herman, BAd, 1.....Halsey
Korf, Juanita, Ed, 2.....Corvallis
Kraus, Elizabeth Louise, H, 3.....Aurora
Krause, Gustav Joseph, F, 1....Los Angeles, Calif.
Kremers, Jessie, C, 4.....Portland
Krenke, Irwin, A, 2.....Napa, Calif.
Kriesien, Richard E., CE, 2....Los Angeles, Calif.
Krueger, Amelia Marie, Ed, 2....Oregon City
Kruse, Eugene, Ed, 3.....Portland
Kruse, Vernon Judson, Ed, 3.....Eugene
Kuhl, Donovan, IA, 4.....Prairie City
Kuhn, Jack Kemp, P, 3.....Salem
Kuhn, Violet A., H, 1.....Dayville
Kyle, Frances Grace, H, 1.....Salem
L'Strange, Mildred Holmes, FA, S.....Corvallis
Labbe, Raymond E., BAd, 4.....Portland
Lachmund, Dorothy Elsie, Ed, 3....Portland
Lage, Charles X., E, 1.....Hood River
Lage, George H., P, 3.....Hood River
Lakin, Laura, P, 1.....Bend
Lamar, Jean Jessie, BAd, 2.....Corvallis
Lamb, C. Richard, Ch, 1.....Portland
Lamb, Georgia Claire, FA, 3.....Silverton
Lambourne, Robert McArthur, BAd, 1..Portland
Lammi, Joe Oscar, F, 3.....Portland
Lamphere, Arthur Ray, A, 1.....Corvallis
Lamphere, Doris May, H, 1.....Corvallis
Lane, Mabel Ardis, H, 3.....Silver Lake
Langdon, Miles Orrin, F, 2.....Ukiah
Lange, Robert A., A, 4.....Eau Claire, Wis.
Langlois, Walter James, Ed, 2.....Bandon
Larrowe, Albertus Eugene, CE, 4....Portland
Larsen, Norman M., F, 1.....Noti
Larsen, Rosemary, Ed, 1.....Alsea
Larson, Andrew Warren, Sc, 3.....Corvallis
Larson, Chloe, SSc, 1.....Corvallis
Larson, Douglas Arnold, Ed, 1.....Bend
Larson, Frona, H, 3.....Corvallis
Larson, Julia A., Ed, 1.....Boring
Larson, Noal P., Sc, 3.....Corvallis
Larson, Richard John, A, 1.....Marshfield
Larson, Roland Edward, CE, 2.....Astoria
Larson, Thalia Aileen, H, 3.....Marshfield
Larson, Velma Switzer, H, 1.....Corvallis
Latham, Leola Ellen, SSc, 1.....La Grande
Lathrop, Sidney P., CE, 3.....Portland
Laughlin, Lyle Lee, A, 1.....Astoria
Lawrence, William James, Ed, 2....Corvallis
Lawshe, Jay Earl, BAd, 4....Palo Alto, Calif.
Lazarus, Willard Wright, ME, 3....Corvallis
Leach, Irene Kathleen, H, 4.....Portland
Leaf, Herman, Ed, 3.....Portland
Leary, Elizabeth Gray, LD, 1.....Portland
Ledgerwood, Edgar, Ed, 4.....Stayton
Lee, Margaret Norton, H, 1.....Portland
Lehmann, Ernest W., P, 2.....Portland

Lehrbach, Inez Margaret, Ed, 2....Roseburg
Leidig, Glenn Frederick, Ed, 2.....Carmel, Calif.
Leidig, Martin Robert, CE, 2..Carmel, Calif.
Leinau, Robert Keim, A, 2..Riverside, Calif.
Leitz, Helen Katherine, H, 2.....Portland
LeMaster, Ruth Anna, Ed, 4.....Corvallis
Lemery, Frederick Omer, F, 2.....Brooks
Lemke, Bernhard Fredrick, LD, 1.....Portland
Lemmon, Owen Keith, A, 4.....Albany
Lenchitsky, Julius Carl, Ed, 2.....Nehalem
Lenon, Waivo Loudene, H, 3.....Monitor
Leonard, Jesse Edward, LD, 1..Junction City
Leonard, U. Faith, H, 2..Los Angeles, Calif.
Lester, Phyllis Claudine, H, 2.....Corvallis
LeVee, William Monroe, A, 2.....Corvallis
Lewis, Adria Ernestine, H, 1.....Corvallis
Lewis, Edward Collins, Ed, 2.....Portland
Lewis, Floyd Samuel, A, 2.....Corvallis
Lewis, Gayle, LD, 1.....Portland
Lewis, Herbert, Ed, 4.....Rainier
Lewis, Jacqueline, LD, 1.....Corvallis
Lewis, Mortimer Reed, Ch, 3.....Corvallis
Lewis, Robert Stanley, F, 3.....Jacksonville
Liddle, Adelaide, Ed, 1.....Corvallis
Lidell, Harald, BAd, 4.....Portland
Lightowler, George Edward, BAd, 4.....Oregon City
Lillie, Lloyd Osbourne, ME, 4.....Portland
Lillis, Maurice Charles, A, 1.....Portland
Limacher, Francis Joseph, Ch, 4....Corvallis
Lindbeck, Kathleen Mae, H, 1.....Salem
Lindros, Ernest Edward, ME, 2....Corvallis
Lindsay, Forrest S., Ed, 3....Hayward, Calif.
Lindsay, Helen K., Ed, 2....Hayward, Calif.
Lindwall, Victor, F, 4.....Portland
Lingaas, John M., F, 1.....Portland
Lingelbach, Cecilia, BAd, 4.....Estacada
Linstedt, Kermit W., F, 3.....Eugene
Little, Frank A., Ed, 2.....Corvallis
Little, Hollis R., ME, 3.....Portland
Livingston, Thomas O., EE, 2.....Bend
Lloyd, Omar M., Ed, 4.....Mosier
Locatell, Orval E., Ed, 3.....Medford
Locke, Frances W., LD, 1.....Corvallis
Locke, Seth B., Sc, 4.....Marshfield
Loe, Chester Amos, A, 3.....Corvallis
Loesch, Robert J., ME, 2.....Medford
Lofquist, Edwin, P, 1.....Portland
Lohr, Paul H., Ed, 3.....Portland
Loken, Keith, BAd, 4.....Oakland, Calif.
Long, Florence, P, 3.....Cloverdale
Long, Merle G., Ed, 2.....Corvallis
Longtin, David E., Ed, 2.....Portland
Looney, Marion E., Ed, 2.....Jefferson
Lorenz, Wilfred G., EE, 2.....Portland
Losse, Betty Louise, H, 3.....Santa Clara, Calif.
Lovegren, Lawrence A., IA, 4.....Corvallis
Lovegren, Mary A., PE, S.....Corvallis
Lowden, Earle S., ME, 2.....Crawfordsville
Lowe, Arthur L., BAd, 4.....Corvallis
Lowe, Howard D., BAd, 2.....Corvallis
Lowry, Robert W., Ch, 2.....Corvallis
Lubersky, Albert R., IA, 3.....Portland
Lucas, Horace A., F, 4.....John Day
Lucas, Patrick H., P, 2.....Corvallis
Lucas, Robert W., BAd, 2.....Portland
Lucas, Velvo Mayre, H, 1.....Pendleton
Luedtke, Karl Daniel, Ch, 1.....Portland
Luehrs, Herbert A., P, 2.....Ontario
Lumm, Marjorie Louise, H, 2.....Portland
Lund, Helen, Ed, 4.....Corvallis
Lund, Valdemar H., EE, 4.....Portland
Lundgren, Ruth E., Ed, 3.....Beaverton
Lunn, Ellen V., LD, 1.....Corvallis
Lunn, John H., A, 2.....Corvallis
Lyman, Louise H., H, 3.....Corvallis
Lyons, Bernard P., IA, 2.....Corvallis
Lyons, Jack, Ed, 2.....Portland
McAdams, Margaret C., BAd, 4.....Marysville, Calif.
McAllister, James, CE, 2.....Gresham
McBride, Dean B., P, 4.....Portland
McBride, William V., F, 1.....Corvallis
McCabe, Francis Robert, F, 3.....Portland
McCallister, Doris M., H, 1.....Salem
McCann, Francis Lynn, A, 3.....Portland
McCarthy, Mary S., BAd, 4.....Marshfield
McCarty, Wilma L., H, 2.....Echo
McClelland, Ruth, H, 1.....Portland
McClew, Helen G., H, 1.....Eugene
McClung, Tom H., ME, 3.....Portland
McClurg, Stanley D., A, 1.....Portland
McComber, Gordon, A, 4..Buena Park, Calif.
McConnell, Melva M., H, 2.....Corvallis
McCormick, Paul, IA, 3.....Portland
McCormick, Robert, A, 1.....Portland
McCornack, Andrew A., A, 1.....Eugene
McCrea, William G., BAd, 2....Los Angeles, Calif.
McCully, Frank David, Ed, 1.....Joseph
McCurdy, Winslow I., CE, 4.....Port Townsend, Wash.
McDonald, Floyd, A, 2.....Pendleton
McEachern, Jack Feas, LD, 2.....Seattle Wash.
McElroy Ned A., Ch, 3.....The Dalles
McGilvra, Ralph D., E, 1.....Portland
McGinnis, Ivan L., Ch, 1.....Corvallis
McGovern, Phillip C., IA, 2.....Monroe
McGrew, Jr., Finley O., CE, 2.....Portland
McIntosh, Edwin H., P, 2.....Montesano, Wash.
McIntyre, Mary Katherine, Sc, 3....Portland
McKay, Thomas P., E, 1.....Seaside
McKnight, Elwood A., Ed, 4.....Milton
McKune, Laura I., BAd, 1.....Paisley
McLaughlin, Edward J., ME, 2.....Garden Home
McLaughlin, Robert, BAd, 1.....Corvallis
McLennan, John Douglas, EE, 3....Portland
McMahon, Norman J., Ed, S.....Corvallis
McMath, Flora, H, 2.....Medford
McNaught, Robert R., BAd, 2.....Portland
McNealy, Ruth A., H, 1.....Klamath Falls
McPherson, Berton F., A, 4.....Anaconda, Mont.
McPherson, Wilma, Ed, 2.....Portland
McPherson, William E., A, 4.....Portland
McVay, Margaret A., H, 2.....Oswego
Maaranen, Helen, Ed, 1.....Corvallis
Macdonald, Kenneth King, Ch, 4.....Multnomah
MacDonald, William Fred, Ed, 2....Medford
Mack, Herbert Harold, P, 4.....Huntington
Mack, John Connie, P, S.....Huntington
Mack, Joseph Henry, Ed, 3.....Corvallis
MacKay, Harry, E, 2.....Portland
MacKenzie, Gordon S., BAd, 4.....Portland
Mackenzie, Wilma M., Ed, 1.....Portland
Macklin, Helen Janet, Ed, 4.....Pasadena, Calif.
MacLean, Elizabeth Dillon, Ed, 4....Tacoma, Wash.
MacLeod, Bessie Jean, Ed, 2.....Grants Pass
MacMillan, Ernest Finley, Ed, 1.....Forest Grove
Macpherson, David, LD, 1.....Albany
Maguire, Elizabeth Harlan, LD, 2....Oswego
Mahan, Claude, CE, 2.....Tillamook
Makela, Edward William, LD, 1.....Astoria
Maley, George Blain, IA, 2.....Condon
Mannano, Samuel J., F, 1....Rochester, N. Y.
Mangels, Helen Jean, H, 2....Cordelia, Calif.

Manke, George H., EE, 4.....Medford
Mann, Alice Leona. H, 2.....Portland
Mann, Magdalene Lucinda, BAd, 4..Portland
Mariano, Juan A., A, 3.....Corvallis
Markham, Floyd Alonzo, ME, 2....Freewater
Marley, Ralph Marvin, Ed, 4.....Portland
Marquardt, Virgil Ernest, E, 1.....Portland
Marquis, Hugh M., ME, 3.....Portland
Marsden, Wallace Franklin, BAd, 2..Marshfield
Marsh, Mrs. Alice Butler, H, 4.....Corvallis
Marsh, Thomas Parker, Ch, 2.....Portland
Marshall, Edward Henry, F, 1.....Portland
Marshall, George H., A, 3.....Corvallis
Martin, Bruce, Ed, 3.....Corvallis
Martin, Ernest E., A, 1.....Oregon City
Martin, William E., A, 4.....Corvallis
Mason, Donald Lyman, IA, 2.....Eugene
Mason, Draper Coolidge, CE, 3.....Portland
Mason, Miladi, LD, 1.....Seaside
Mason, Wayne, ME, 3.....Talent
Masterson, Melvin I., BAd, 2....Long Beach, Calif.
Mather, Richard John, EE, 4.....Portland
Mathieson, Walter Jesse, Ed, 3.....Banks
Matson, Mildred Anne, BAd, 1.....Astoria
Mattoon, Hubert Maxon, Sc, 3.....Portland
Mattoon, Waldo Wendell, IA, 2....Portland
Maw, Florence Helen, Ed, 4.....Chitwood
Maxwell, Vernon, E, 1.....Marcola
May, Eldon Morris, ME, 3.....Forest Grove
Maybach, Leland Field, IA, 4.....Portland
Mayer, Kenneth Marion, BAd, 2....Lebanon
Meade, Alvin William, BAd, 4.....Corvallis
Meade, Lenore Elizabeth, Ed, 4.....Corvallis
Maeny, William M., ME, 2.....Portland
Medlar, Jack Logan, Ed, 1.....Portland
Medley, Charles W., BAd, 2.....Oakland
Meeker, Cecil Hamilton, IA, 3.....Toledo
Melanson, Marie Antionette, H, 4..Cornelius
Mellin, Carolyn Frances, Ed, 1.....Corvallis
Melvin, James Albert, ME, 3.....Portland
Menzies, Jane, SSc, 2.....Portland
Meola, Edmund Anthony, A, 4.....Corvallis
Meredith, John Philip, BAd, 4.....Salem
Merrill, Churchill Mansfield, LD, 2.....Portland
Merrill, Frank Irving, BAd, 4.....Corvallis
Merriss, Virginia, Ed, 2.....Portland
Merritt, Alice Gertrude, H, 2.....Juneau, Alaska
Merryman, Carl Dittmar, Sc, 4.....Corvallis
Merryman, Harold Woodrow, CE, 2.....Corvallis
Merryman, Margaret Anne, Ed, 4....Corvallis
Mershon, Clarence Earl, ME, 4.....Corvallis
Mershon, James Lyle, ME, 2.....Corvallis
Metzler, Ruth Evelyn, Ed, 4.....Corvallis
Meyer, Ruth Angeline, H, 2.....Corvallis
Meyers, Carol, Sc, 3.....Portland
Meyers, John C., IA, 2.....Redmond
Michael, Richard James, BAd, 4.....Portland
Michalicek, Arthur Fred, M, 4.....Estacada
Michels, Leonard Chris, BAd, 1.....Oregon City
Mickalson, Gwendolyn, J, 1.....Corvallis
Miho, Hideso, IA, 2.....Portland
Mikesell, Oscar Edwin, A, 3.....Hermiston
Miles, Gordon, Ed, 2.....Portland
Miles, Thomas Boyd, Ed, 2.....Corvallis
Millar, Jean Valentine, SSc, 1.....Freewater
Millard, Janet, H, 1.....Portland
Miller, Arthur George, Ed, 2.....The Dalles
Miller, Byron Lee, Ch, 2.....Hood River
Miller, Fred Earl, EE, 2.....Portland
Miller, Horace Emanuel, F, 2.....Halsey
Miller, Jack Malcolm, E, 1.....Portland
Miller, Jack Manley, F, 2.....Elgin, Ill.
Miller, Maryanna, LD, 1.....Portland
Miller, Merwin, Ch, 2.....Tillamook
Miller, Oliver William, IA, 3.....Eagle Point
Miller, Richard, Ed, 2.....Portland
Miller, Robert B., CE, 2.....Portland
Miller, Russell Wayne, P, 4.....Portland
Miller, Susan Helen, H, 3.....Portland
Miller, Thomas James, EE, 2.....Portland
Miller, Victor B., P, 2.....Enterprise
Miller, William McKinlay, ME, 2..La Grande
Millhollen, Jr., Lloyd, Ed, 3.....Corvallis
Millhollen, Nadine, Ed, 4.....Corvallis
Milligan, Genevieve, LD, 1.....Corvallis
Million, Harold Jim, E, 1.....Portland
Mills, Allen J., A, 1.....Cove
Mills, Jane Annette, H, 1.....Sitka, Alaska
Miner, Kenneth David, Ed, 1.....Metzger
Minton, James Lewis, F, 2.....Paisley
Mishler, Gertrude Grace, H, 1.....Albany
Misner, Lyle Ronald, P, 2.....Albany
Mispley, Ruth Evelyn, Ed, 4.....Sacramento, Calif.
Mitchell, Emmett Raymond, A, 4.....Amity
Mitchell, Kathryn Mary, FA, 1.....Echo
Mitchell, Watslow John, Ed, 1..Oregon City
Mitchell, William Milton, BAd, 1....Lebanon
Mitola, Dan Joe, Ed, 2.....Portland
Mizulo, John, EE, 2.....Scotia, Calif.
Moe, Harold William, Ed, 2.....Corvallis
Moe, Jim O., LD, 1.....Corvallis
Moe, Lester M., ME, 4.....Portland
Moeller, Therald, Ch, 3.....Toledo
Molesworth, Frank, P, 1.....Portland
Montgomery, Marie Loreen, H, 2..Pasadena, Calif.
Moody, George, F, 1.....Santa Cruz, Calif.
Moore, Charles A., LD, 1.....Portland
Moore, Charles Balcom, P, 2.....Portland
Moore, Dorothy Evelyn, H, 3.....Salem
Moore, James Kelly, EE, 2.....Salem
Moore, Margaret Evelyn, H, 2.....Portland
Moore, Merle S., F, 4.....Eugene
Moore, Orie Stephen, A, 4.....Medford
Moore, Spencer Thomas, F, 2.....Maryville, Tenn.
Moran, William Spear, ME, 2.....Portland
Morency, Eileen Loraine, Ed, 3.....Portland
Morgan, Donald, CE, 4.....Glendale
Morgan, Robert Munroe, A, 1.....Portland
Morgan, Willard Edward, FA, 3....Roseburg
Morgenroth, Francis Byron, A, 2....Portland
Morin, Claude Oren, F, 4.....Sumpter
Morris, Albert William, LD, 1..Oregon City
Morris, Annie-Aria, Ed, 1.....Waldport
Morris, Gordon Edward, BAd, 1.....Portland
Morris, Mark Munro, A, 4....Berkeley, Calif.
Morris, M. Ruth, H, 2.....West Side
Morris, William Lester, CE, 2.....Pendleton
Morris, Willis H., ME, 2.....Portland
Morris, Woodrow Wilson, A, 2.....Lakeview
Morrison, Walter Bruce, ME, 3.....Portland
Morse, William S., Ch, 1.....Prineville
Moser, Albert James, A, 4.....Portland
Mountain, Robert Theodore, ME, 3....Aumsville
Mueller, Roy Morgan, Ed, 2.....Portland
Muenzer, Herbert Edward, ME, 2..Portland
Mulkey, Wendell T., CE, 3.....Vale
Mullin, Florence, BAd, 4.....Corvallis
Mullin, Martin William, BAd, 4.....Portland
Mullin, William Alfred, E, 1.....Corvallis
Munch, Melvin Francis, Ch, 3.....Portland
Munford, James Kenneth, Ed, 3.....Banks
Munro, Donald Ranney, ME, 2.....Portland
Munro, George Alexander, BAd, 2..Portland
Murdock, Victor Tate, A, 2.....Corvallis
Murray, Bruce W., A, 1.....Amity
Murry, Roy Gilbert, A, 3.....Cottage Grove

Musgrave, Thaye, Ed, 2.....Portland
Musgrove, Rose Ellen, Ed, 1.....Portland
Mushen, Robert Linton, CE, 3.....Lakeview
Myall, Ned, F, 1.....Oakland, Calif.
Myers, Bruce Kendig, BAd, 2.....Corvallis
Myers, Carl E., BAd, 4.....Condon
Myers, Fred J., CE, 2.....Corvallis
Nachand, Horace Charles, IA, 2.....Portland
Nash, Merritt Miller, BAd, 4.....Marshfield
Nasset, Lila Otelia, LD, 2.....Corvallis
Naylor, Jack Thomas, EE, 3.....Wolf Creek
Neal, Helen Margaret, PE, 2.....Eugene
Neale, William Owen, Ed, 2.....Saugus, Calif.
Nelson, Charles Henry, CE, 3.....Cascade Locks
Nelson, Lawrence Tracy, Ed, 2.....Portland
Nelson, Miles Alford, A, 1.....Warren
Nelson, Virginia, Ed, 2.....Oswego
Ness, S. Peter, F, 1.....Portland
Newberry, James Raymond, Ch, 3.....Forest Grove
Newhouse, Wallace George, BAd, 2.....Portland
Newland, Glen Boyd, BAd, 4.....Medford
Newman, Harold, Ch, 1.....Corvallis
Nicholas, Jack Louis, IA, 1.....Lakeview
Nichols, John Randolph, Ed, 2.....Portland
Nichols, Robert Ashcraft, A, 2.....Corvallis
Nichols, Waldo Emerson, FA, 2.....Portland
Nicholson, Hugh Barry, F, 3.....Corvallis
Nickels, Walter, ME, 3.....Portland
Nielson, Thora Elizabeth, Ed, 3.....Tigard
Niemi, L. Sylvia, BAd, 2.....Astoria
Nilson, Laura Sofia, LD, 1.....Portland
Nisbet, Irma Mary, H, 4.....Portland
Nixon, Gordon Blair, F, 2.....Corvallis
Noack, Walter, E, 1.....Portland
Nock, Selwyn P., BAd, 4.....Oswego
Nolte, Jr., Howard Milton, A, 2.....Klamath Falls
Noltner, Harriet Isabelle, H, 2.....Portland
Nordquist, Albin T., A, 1.....Astoria
Norelius, Lenore Ann, H, 1.....Corvallis
Norton, Charles Edward, A, 4.....Roseburg
Nyman, Cecil C., Ed, 3.....Kings Valley
O'Blisk, Gene V., IA, 3.....Corvallis
O'Brien, William Michael, EE, 2.....Portland
O'Connell, Forrest Lester, Ed, 2.....Portland
O'Connor, John Raymond, E, 1.....Medford
O'Dell, Matthew Jennings, Ch, 4.....Portland
O'Donnell, Bert Edward, A, 2.....Portland
O'Donnell, Robert James, BAd, 1.....Portland
O'Flaherty, Nadine, Ed, 2.....Klamath Falls
O'Neill, Hugh Collins, Ed, 3.....Portland
Oatman, Alfred Shelley, A, S.....Shedd
Oatfield, Inez Anne, H, 3.....Milwaukie
Odekirk, Bernadette Louise, H, 1.....Portland
Oglesby, Jean McConnaughy, BAd, 4.....Corvallis
Oglesby, Rebecca, BAd, 2.....Corvallis
Oldham, Dorothy, Ed, 2.....Glendale, Calif.
Olds, Clarence Russell, A, 2.....Corvallis
Oliver, Frank Wesley, Ed, 2.....Eugene
Olson, Earl Bernhard, BAd, 2.....Portland
Olson, Helen Christine, BAd, 4.....Portland
Olson, Newton Henry, Ch, 4.....Whitefish, Mont.
Olson, Ralph Willard, A, 1.....Roseburg
Onishi, Raymond Kazuye, EE, 2.....Corvallis
Oorthuys, Hendrick Jacob, ME, 3.....Corvallis
Opdenweyer, Albert Edwin, EE, 2.....Portland
Osborn, Joseph D., BAd, 4.....Van Wert, Ohio
Osenbrugge, Louise Alberta, H, 2.....Medford
Osburn, John Burr, A, 2.....Astoria
Ott, Mary Elizabeth, H, 3.....Portland
Ott, Walther Henry, A, 3.....Hermiston
Overstreet, Isabelle Anne, H, 1.....Portland
Painter, Hazel Ruth, BAd, 1.....Corvallis
Painter, Roy Phillip, A, 2.....Corvallis
Palm, Milton Harley, E, 1.....Roseburg
Palmberg, Walter Henry, Ed, 1.....Astoria
Palmer, George Reiser, P, 3.....Hood River
Palmer, Neva Lois, LD, 1.....Klamath Falls
Palmrose, Edwin Gustoff, Ch, 3.....Seaside
Palmrose, William Emil, BAd, 1.....Seaside
Panek, John Standley, Ed, 2.....Amity
Pangle, Harold James, Ed, 2.....Corvallis
Pantle, Melvin Arthur, BAd, 1.....Portland
Park, Bessie, H, 1.....Concrete, Wash.
Parke, Alice May, H, 1.....Portland
Parke, William Norwood, F, 4.....Eugene
Parker, Edward Thornburg, Ch, 3.....Portland
Parker, Eugene Edwin, CE, 2.....Corvallis
Parker, Malveson Josephine, PE, 2.....Portland
Parks, Clifford Oliver, E, 1.....Milwaukie
Parman, Janet Helen, Ed, 4.....Condon
Parrish, Ray L., P, 4.....Newberg
Parrott, Marjorie Lucille, Ed, 3.....Portland
Pasion, Tiburcio Vea, A, 1.....Brooks
Patrick, Robert John, Ed, 1.....Portland
Patrick, William Donald, Ed, 1.....Portland
Patten, Virginia Fairfield, Ed, 1.....Eugene
Patterson, Evelyn Marie, SSc, 1.....Bend
Patterson. Frances Helen, Ed, 4.....Albany
Patton, William R., LD, 2.....Portland
Paul, Pauline Constance, H, 2.....Portland
Paulsen, Herbert Walter, Ch, 4.....Lewiston, Idaho
Paulsen, Maxine Mary, Ed, 3.....The Dalles
Pearce, Jack B., Ed, 3.....Portland
Pearl, Delman ValJene, F, 1.....Brownsville
Pearson. Samuel John, EE, 2.....Portland
Peavy, Eleanor Wood, H, 2.....Corvallis
Peck, Francis Gilbert, Sc, 4.....Corvallis
Pentzer, Donald J., A, 4.....Grants Pass
Perkins, Dave McCoy, BAd, 1.....Portland
Perkins, Oliver Raymond, EE, 2.....Gardiner
Perrin, William Roy, BAd, 4.....Oregon City
Perry, Charles Edgar, ME, 4.....Lakeview
Perry, Grant Wellington, P, 2.....Portland
Perry, Leon Clarence, P, 2.....Salem
Peterson, Andrew Theodore, A, 1.....Buellton, Calif.
Peterson, Alice Miriam, BAd, 4.....Lakeview
Peterson, Earl Norman, E, 1.....Knappa
Peterson, Lillian Evangelyn, Ed, 4.....Portland
Peterson, Marie Anna, H, 2.....Lakeview
Peterson, M. Maxine, Ed, 3.....Corvallis
Peterson, Sharoo, H, 1.....Corvallis
Peterson, Jr., Sigurd Harlan, LD, 1.....Corvallis
Petrasek, Edwin, EE, 2.....Malin
Petterson, Elm N., A, 2.....Colton
Petterson, Waldo I., F, 3.....Colton
Peyree, Bernice Hester, H, 2.....Independence
Philbrick, John Rae, F, 4.....Portland
Phillips, Huber, Ed, 3.....Portland
Philpott, David R., A, 2.....Leneve
Phipps, John, BAd, 4.....Portland
Pickens, Lola Dale, H, 1.....Salem
Pickthall, Walter Thomas, BAd, 4.....Portland
Pietarila, Helen, BAd, 4.....Astoria
Pimentel, Anacleto, A, 2.....Corvallis
Pittman, Harry Douglas, Ed, 1.....Corvallis
Pittman, Merry Elizabeth, Ed, 2.....Corvallis
Pitts, John Prescott, F, 2.....Corvallis
Plant, Gordon, P, 1.....Independence
Platt, Helen Marie, H, 4.....Corvallis
Plummer, Gladys M., Ed, 3.....Dallas
Poland, Edward Willard, F, 2.....Shedd
Pollak, Robert Allen, P, 2.....Albany
Pollock, Wellington Wilkes, P, 3.....Tillamook
Pomeroy, George Edward, FA, 1.....Portland
Pomeroy, Tom Dole, E, 1.....Independence
Poorman, Walter Burch, E, 1.....Forest Grove

Pope, Jane Weare, LD, 2...Hollywood, Calif.
Porter, Lyle, PE, 1...Corvallis
Porterfield, Lois Evelyn, H, 1...Myrtle Point
Post, Anita, Ed, 3...Portland
Post, Wilma Josephine, LD, 2...Portland
Potter, Donald Milton, Ed, 2...Portland
Powell, Gordon Hoyte, BA, 2...Newman, Calif.
Powell, Lloyd, E, 1...Tyee
Powers, Robert Gleason, P, 2...Albany
Prahl, Charles George, CE, 2...Ontario
Pratt, Perry Walter, E, 1...Corvallis
Pratt, Wilson Adams, ME, S...Corvallis
Prentiss, Donald C., Sc, 3...Corvallis
Price, Kenneth Charles, A, 4...Santa Anna, Calif.
Price, Margaret Jean, H, 2...Eugene
Price, Mary Catherine, BAd, 2...Portland
Price, Ruth, Ed, 1...Portland
Prindle, Harold Franklin, Ed, 1...Corvallis
Prizer, Irene, Ed, 2...Corvallis
Proebstel, McArthur, EE, 2...Portland
Proebstel, Robert Ingersol, BAd, 4...Haines
Propstra, Helen Annette, H, 2...Forest Grove
Pugsley, Harold K., P, 2...Corvallis
Purvis, Alice Edith, BAd, 4...Vale
Pyle, Fred G., IA, 2...Eugene
Quigley, Alice Elizabeth, H, 2...San Francisco, Calif.
Quimby, Burnaze Mary, H, 2...Bend
Quirk, Charles John, EE, 4...Portland
Raabe, Howard William, Ed, 2...Portland
Raasina, Esther E., H, 4...Astoria
Raasina, Mildred Martha, PE, 1...Astoria
Radke, Roy Daniel, BAd, 2...Portland
Raisig, Theodore John, Ed, 3...Portland
Ramos, Jose M., ME, 3...Corvallis
Ramponi, Arthur Nathan, Ed, 3...Salinas, Calif.
Ramsby, Frances, Ed, 2...Portland
Ramsey, Robert Wade, CE, 2...LaGrande
Rapraeger, Harold Albert, F, 4...Corvallis
Rasmussen, Boyd L., F, 2...Ontario
Rasmussen, Donald Jesse, Sc, 4...Salem
Rasmussen, Gladys Anna, H, 2...Junction City
Ray, Carl H., E, 1...Hood River
Ray, Maxine LeBaron, LD, 1...Portland
Ray, Russell Dean, P, 2...Molalla
Raymond, Helen Margery, H, 1...Corvallis
Rea, Dorothy Eleanor, H, 4...Hanford, Calif.
Reberger, George Arthur, E, 1...Nyssa
Redfield, Charlotte Ann, H, 1...Corvallis
Redfield, Katherine Margaret, BAd, 4...Corvallis
Reed, Dent B., E, 3...Walnut, Calif.
Reed, Ethel Pauline, LD, 2...Corvallis
Reed, Ruth, H, 1...Medford
Reed, Virginia Mae, H, 4...Portland
Reed, Waller Hardy, F, 2...Stockton, Calif.
Reedy, Taylor, Ed, 3...Los Angeles, Calif.
Reekman, Evelyn Alice, H, 3...Harbor
Rees, John Robert, ME, 3...Shaniko
Reeves, George Spencer, Ed, 4...Portland
Reeves, Harold Hurd, J, 1...Echo
Reeves, Lois Heywood, H, 2...Portland
Reeves, Wanda Mae, BAd, 2...Lebanon
Reichmuth, Edward Griffith, ME, 2...Palo Alto, Calif.
Reid, George Melville, BAd, 4...Yakima, Wash.
Reid, Warren Alaska, Ed, 3...Corvallis
Reierstad, Rolf Herbert, F, 4...Portland
Reimers, Laurel Althea, H, 4...Marysville, Calif.
Reinhart, Aileen Ernestine, LD, 2...Portland
Reisner, Robert H., CE, 4...Portland
Reitz, Emory Elbert, E, 1...Salem
Renninger, Rita M., H, 4...Albany
Renoud, George James, BAd, 1...Portland
Rettman, Arthur Edward, F, 4...Portland
Reynolds, Charles K., Ch, 4...North Plains
Reynolds, Harvey Blair, F, 2...Mt. Vernon
Reynolds, James Nathaniel, A, 4...Portland
Reynolds, Norman Gradon, BAd, 1...Corvallis
Reynolds, William Reginald, Sc, 3...Hillsboro
Rhiger, Hans Andre, F, 1...Portland
Rice, Emery L., Ed, 4...Eagle, Idaho
Rice, Neil Byron, F, 2...Port Oxford
Rice, William Richard, BAd, 1...Portland
Richards, Leslie Charles, LD, 2...Portland
Richards, Mildred Arline, H, 2...San Diego, Calif.
Richen, Clarence Wilfred, F, 2...Portland
Richter, Carlton Ernest, Ed, 4...Portland
Ricks, Estora Velma, H, 3...Portland
Ridder, Gilbert Henry, A, 2...Sherwood
Riechers, Lewis, BAd, 2...Portland
Riggs, Robert Ward, BAd, 3...Portland
Riley, Ione, LD, 2...Portland
Rinker, Lyman E., EE, 2...Portland
Riordan, James Joseph, BAd, 1...Ontario
Rittenhouse, James Dalton, F, 2...Wilmington, Calif.
Ritterspacher, Wesley George, BAd, 1...Portland
Roberts, Ruth Anne, SSc, 1...Redmond
Roberts, William Ross, ME, 2...Portland
Robertson, Edward Couch, BAd, 4...Corvallis
Robertson, George H., BAd, 2...Portland
Robertson, Joan Margaret, Ed, 2...Portland
Robertson, Lawrence De Witt, P, 3...Freewater
Robertson, Lela Ruth H., P, 3...Freewater
Robertson, William David, E, 1...Portland
Robins, Thomas Matthews, ME, 2...San Francisco, Calif.
Robinson, Clifford, Ed, 4...Corvallis
Robinson, Clyde Thomas, EE, 4...Portland
Robinson, Donald Franklin, A, 2...Corvallis
Robinson, Thomas Harvey, EE, 3...Corvallis
Rockhold, Leone, H, 3...Glendale, Calif.
Rodabaugh, Beatrice Eleanor, Ed, 1...Portland
Roe, Charles Bruce, P, 4...Hillsboro
Rogers, Brady, A, 2...Corvallis
Rohrbaugh, Max Hawley, P, 2...Albany
Rohrman, Charles Albert, Ch, 3...Pendleton
Rohrman, Ewald, Sc, 3...Pendleton
Rolfsness, Stanley Cornelius, Ch, 2...Portland
Romiti, Aldo Sante, Ed, 2...St. Helens
Ronald, Ray Morris, ME, 2...Portland
Roner, Adeline Marie, H, 1...Albany
Roner, Fred Arnold, IA, 3...Albany
Ropp, Evangelyn Virginia, H, 4...Portland
Rose, Ann Verone, Ed, 3...Oregon City
Rosé, Mary Josephine, BAd, 1...Portland
Rosé, Rowland S., ME, 4...Portland
Rosenberg, Donald Wayne, BAd, 1...Tillamook
Rosenberg, Floyd W., BAd, 4...Tillamook
Rosenberg, Orin W., BAd, 1...Tillamook
Rosenberg, Vera Ardess, H, 4...Tillamook
Ross, Jean Clark, H, 1...Portland
Ross, John A., Sc, 3...Salem
Rothenberger, Julian Ralph, BAd, 1...Sherwood
Rounds, Mrs. Mamie Harper, Ed, 4...Corvallis
Rowe, Dorothy Helen, H, 3...Stayton
Rowland, Eniz Eaton, A, 4...Silverton
Rowland, Vivian Bertha, Ed, 2...Portland
Rudd, Norman N., Ch, 4...Corvallis
Rumbaugh, Candace Alvira, H, 3...Parkdale

Runciman, Leah, H, 4.....Exeter, Calif.
Runion, Marguerite Irma, Ed, 4.....Portland
Runkle, A'leen E., Ed, 3.....Corvallis
Ruppe, Donald Eldon, E, 1.....Portland
Rushing, Robert Harbin, F, 1.....Oakland, Calif.
Russell, Rex H., Ch, 4.....Corvallis
Russell, Wynne Wakefield, BAd, 1..Portland
Rutherford, Elizabeth, H, 1.....Maupin
Rycraft, Carroll Squire, A, 2.....Corvallis
Ryerson, Lucille, H, 1.....Portland
Rutherford, Harry Wellington, A, 1..Maupin
Ryland, Max Sheldon, IA, 2.....Albany
Saager, John D., P, 3.....Freewater
Saarinen, John A., IA, 2.....Sherwood
Sadler, Ralph Stanley, CE, 3.....Portland
Saling, Fred William, Ed, 3.....Corvallis
Samsel, Scott P., EE, 2.....Hillsboro
Samson, Georgena P., Ed, 2.....Corvallis
Sandberg, Clifford A., E, 1.....Corvallis
Sanders, Mark Edward, P, 2.....Tillamook
Sandoz, Mabel Dorothy, H, 2.....Trail
Sandoz, Paul Ernest, CE, 4.....Trail
Sandquist, Harry R., A, 2.....Roseburg
Sandry, Doris Wray, BA, 2.....Rogue River
Sandstrom, Ethel, H, 2.....Hoquiam, Wash.
Sandwick, Hazen A., A, 3.....Corvallis
Sandwick, Raymond G., EE, 3.....Corvallis
Santee, Harold Trevor, Ed, 2.....Monmouth
Sarff, Leland F., P, 4.....Corvallis
Sargent, Howard Irving, EE, 4.....Portland
Sasser, Lester EE, 2.....Fossil
Saubert, Bernice S., H, 1.....Cushman
Saubert, Jack, F, 2.....Florence
Saueressig, Cleo, BAd, 1.....Scotts Mills
Saunders, Carroll William, P, 4.....Big Eddy
Sauter, Dorothy Lilia, BAd, 4.....Portland
Sawtell, Earl, Ed, 4.....The Dalles
Sayrs, Lamer H., CE, 2.....Moro
Scanlan, Lloyd F., BAd, 4.....Portland
Schaad, Harold S., A, 1.....Newberg
Schaefer, Charles Allen, BAd, 2.....Portland
Schanno, Delaney P., LD, 2.....The Dalles
Scheel, Louise R., H, 1.....Corvallis
Scheel, Margaret Maxine, PE, 1.....Tacoma, Wash.
Schell, Roger E., EE, 2.....Corvallis
Schloth, John W., Ed, 4.....Portland
Schmidt, Jr., Adolph Daniel, BAd, 2....Olympia, Wash.
Schmidt, Andrew Henry, A, 1.....Redmond
Schmidt, Janice Gay, P, 1.....Albany
Schmidt, Truman L., E, 1....Olympia, Wash.
Schmidt, Waldemar A., Ch, 3.....Portland
Schneider, Carl A., A, 2.....Roseburg
Schneider, Robert M., Ed, 2.....Pendleton
Schoeler, Gertrude Rose, Ed, 2.....Corvallis
Scholl, Dorothy V., H, 1.....Hubbard
Schrader, Helen Brayton, H, 2.....Oakland, Calif.
Schroeder, George H., F, 3.....Portland
Schuele, Winifred J., H, 3.....Portland
Schulte, Virginia L., H, 1....Monterey, Calif.
Schultz, Maynard C., LD, 1.....Portland
Schulze, Estelle F., H, 4.....Albany
Schwammel, Adolph John, Ed, 2....Oakland, Calif.
Schwartz, Margery Carolyn, Ed, 4....Oswego
Schwarz, Raymond H., ME, 2..Myrtle Point
Schwerin, William Howard, LD, 2..Portland
Scott, Jr., Bert R., EE, 2.....Avalon, Calif.
Scott, Dorris Mary, H, 3.....Corvallis
Scott, Evelyn, H, 4.....Corvallis
Scott, Henry W., A, 2.....Roseburg
Scott, Katherine B., H, 1.....Philomath
Scott, Mary A., Ed, 3.....Bonanza
Scoville, Francis M., BAd, 2.....Elk City
Scruggs, Helen Catherine, PE, 2..Tillamook
Scudder, Elise A., H, 3.....Monterey Park, Calif.
Seal, Sam Howard, LD, 1.....Corvallis
Seeberger, Helen Louise, H, 2.....Portland
Seeberger, Kathryn, H, 1.....Portland
Selberg, Marion Louise, Ed, 2.....Portland
Senders, Alison Frances, BAd, 4.....Albany
Senders, Bruce Morris, BAd, 2.....Albany
Severance, Florence May, H, 2..Jacksonville
Seydel, Lee Harris, Ed, 2.....Corvallis
Shanahan, Emmett J., E, 1.....Portland
Sharp, Beulah Elizabeth, Ed, 2.....Philomath
Shatokin, Ralph S., ME, 2.....Milwaukie
Shattuck, Frank Gordon, ME, 2....Portland
Shattuck, Veva Jane, Ed, 1.....Corvallis
Shaver, Doris, H, 2.....Portland
Sheely, Milton C., ME, 4.....Seaside
Shellabarger, John Nicholas, A, 3....Portland
Shellenbarger, Marion, Ch, 4.....Portland
Shellenberger, Floyd, LD, 1.....Aumsville
Shellenberger, Paul L., EE, 2.....Beaverton
Sheller, Lee Roland, E, 1.....Portland
Shelley, Donald James, A, 1.....North Bend
Shelley, Laurence, E, 1.....Corvallis
Shenker, Morris S., P, 4.....Portland
Shepard, Maurice L., Ed, 4.....Salem
Shepherd, Jr., Burchard P., ME, 2..Portland
Shepherd, Dorothe J., H, 2.....Salem
Sheppard, George H., BAd, 1....Hood River
Sherman, Lauran S., BAd, 1....Kelso, Wash.
Sherwood, Donald H., A, 4.....Nyssa
Sherwood, Hugh M., Ed, 3.....Corvallis
Sherwood, Marguerite F., H, 3.....Corvallis
Sheythe, Martin B., Ed, 4.....Corvallis
Shiach, Rose, BAd, 4.....Portland
Shirley, Norman, BAd, 1.....The Dalles
Shoesmith, Lloyd, A, 3.....Salem
Shreve, G. Elmer, IA, 2.....Albany
Shull, Florence E., Ed, 1.....Portland
Shumaker, Henry, M, 4.....Portland
Sibbald, Jean E., LD, 1.....Kelso, Wash.
Sibley, Lucille Marie, BAd, 1.....Portland
Sidler, Dorothy Ann, H, 3.....Portland
Siegenthaler, Chris J., Ed, 2.....Linnton
Sielicky, Sigmond, BAd, 4.....Portland
Simbeni, Peter, EE, 2.....Portland
Simkins, Glenn Wood, Ch, 2.....Medford
Simpson, Margaret A., H, 2.....Gem, Idaho
Simpson, Oliver T., EE, 2....Vancouver Barracks, Wash.
Sims, Barbara F., BAd, 4.....Phoenix
Sims, Jessie L., H, 2.....Woodburn
Shultis, Rodney N., Ed, 1.....Corvallis
Silcher, Bruce Edward, Ed, 3.....Portland
Skaale, Mary, Ed, 2.....Knappa
Slade, Margaret Isobel, H, 2.....Vancouver, B.C.
Slayton, Forbes B., P, 1.....Corvallis
Slayton, Hale Todd, F, 3.....Corvallis
Sloat, James Walter, CE, 2.....Portland
Sloper, Mildred A., H, 4.....Independence
Sloper, Willard D., EE, 3.....Independence
Slusher, William S., Ch, 1.....Dufur
Small, Arthur R., IA, 2.....Portland
Small, Hiram F., Ed, 2.....Corvallis
Small, Robert T., Ch, 2.....Corvallis
Smillie, James Dickson, A, 4..San Fernando, Calif.
Smith, Albert M., A, 3....Long Beach, Wash.
Smith, Burton Merle, BAd, 2.....The Dalles
Smith, Clarence Z., Ed, 2.....Corvallis
Smith, David R., BAd, 2.....Coquille
Smith, Donald R., Ed, 3.....Marshfield
Smith, Dorsey V., Ch, 2.....Portland
Smith, Floyd O., ME, 2.....Portland
Smith, James Leonard, ME, 4.....Portland
Smith, Jessie May, Ed, 4.....Roseburg
Smith, Jim Russell, BAd, 1.....Corvallis

Smith, Katherine J., BAd, 2.....Dallas
Smith, Leo Ray, ME, 2.....Corvallis
Smith, Lorraine C., Ch, 2.....Portland
Smith, Lucile O., BAd, 4.....Portland
Smith, Morris Harry, Ed, 3.....Portland
Smith, Nelson Frank, Ed, 2.....Silver Lake
Smith, Robert W. K., Sc, 4.....Portland
Smith, Rodney E., Ed, 1.....Corvallis
Smith, Ruth G., H, 3.....Portland
Smith, Victor H., Ed, 2.....Portland
Smith, Viva G., H, 4.....Albany
Smullin, Joseph Dale, A, 4.....Parkdale
Smyth, Helen May, H, 4.....Pasadena, Calif.
Snapp, Parker W., EE, 2.....Corvallis
Snell, Virgil Fred, P, 1.....Portland
Snyder, James E., F, 2.....Brownsville
Snyder, Robert F., EE, 3.....Los Angeles, Calif.
Snyder, Robert M., F, 2.....Portland
Somppi, Edith Mae, LD, 1.....Pendleton
Somppi, Helen Areta, LD, 1.....Pendleton
Soring, Margaret Louise, Sc, 3....Woodburn
South, Marion J., E, 1.....Bend
Southern, Verda Elizabeth, Ed, 4....Portland
Southworth, Earl Edward, EE, 4.....Seneca
Spangenberg, Norman, F, 4.....Lakeview
Sparr, Lillian L., Ed, 3.....Ashland
Spees, Violet S., BAd, 2.....Philomath
Spongberg, Jay Allen, LD, 1.....Portland
Spring, Helen Margaret, Ed, 3.....Corvallis
Spulnik, Joseph B., Sc, 3.....Portland
Stanard, James H., IA, 1.....Brownsville
Stanfield, Hugh L., A, 3.....Echo
Stangel, Alice F., H, 3.....Wilsonville
Staples, Herbert E., F, 4.....Corvallis
Stafford, James Lee, Ed, 2.....Portland
Stahl, Esther E., Ed, 3.....Corvallis
Stain, Bernard E., LD, 1.....Rainier
Staley, David A., Ed, 2.....Portland
Stanard, Wayne Boyce, BAd, 2.....Brownsville
Stark, Gerald Edward, Sc, 4.....Portland
Starr, Mary C., H, 1.....Junction City
Starr, Virgil Evans, Sc, 3.....Powell Butte
Statelar, Betty Jane, H, 2.....Corvallis
Staton, Maurice G., EE, 2.....Portland
Stearman, Margaret R., SSc, 1....Vancouver, B.C.
Steel, Elizabeth E., Ed, 2.....Portland
Steel, David F., EE, 4.....Portland
Steel, Gertrude F., LD, 1.....Portland
Steele, Gerald M., P, 4.....Albany
Steele, Hubert J., LD, 1.....Lakeview
Steen, Cecil M., E, 1.....Eugene
Stein, John F., IA, 3.....Lakeview
Stein, Romar, ME, 3.....Sherwood
Steinmacher, John, EE, 2.....Corvallis
Stenberg, Raymond H., ME, 3.....Portland
Stephens, Clifford A., LD, 1.....Dayton
Stephens, Emmajean, H, 4.....Moro
Stephenson, Floyd C., A, 1.....Corvallis
Sterba, George Robert, F, 1.....Warren
Sterling, Ruth E., Ed, 2.....Corvallis
Sterling, Robert H., A, 2.....Corvallis
Stevens, Ellis, BAd, 4.....Ashland
Stevenson, Lloyd E., Ch, 4.....Corvallis
Stevenson, Mary Elizabeth, (1) Ed, 3..Glendale
Stevenson, Mary Elizabeth, (2) Ed, 4..Portland
Stevenson, Robert Henry, LD, 1....Portland
Stewart, Hugh J., F, 4.....Corvallis
Stewart, Ray Lawrence, F, 2.....Corvallis
Stinson, Ben, E, 1.....Medford
Stockman, Richard, Ch, 4.....Baker
Stockwell, Gordon, P, 2.....Bend
Stone, Barbara Lee, H, 1.....Portland
Stone, Geraldine Mae, H, 2.....Portland
Stone, Ruth B., Ed, 2.....Portland
Stone, Theresa C., P, 2.....Corvallis
Stoop, James Howard, F, 2.....La Grande
Storli, Lydia-Anne, H, 2.....Portland
Stout, Donald C., LD, 1.....Portland
Stout. Roy E., A, 1.....Corvallis
Stovall, Estel L., P, 2.....Maupin
Stover, Betty, H, 2.....Corvallis
Stover, Warren H., E, 1.....Corvallis
Stranix, Jack T., CE, 3.....Silverton
Stratton, Helen L., BAd, 2.....Portland
Strawn, Marv V., H, 2.....Roseburg
Street, Donald J., Ed, 3.....Sutherlin
Streichert, Gretchen C., H, 1.....Astoria
Streit, Edwin R., A, 1.....Tracy, Calif.
Stringer, Velma Lavada, H, 1....Grants Pass
Strom, John E., EE, 3.....Tigard
Stromberg, Albert, E, 1.....Portland
Strong, Albert E., BAd, 2.....Portland
Stuart, Shirley V., Ed. 2.....Corvallis
Stucker, Lester E., LD, 1.....Long Beach, Calif.
Sturm. Bruce E.. Ed, 2.....Portland
Stuttaford, Charlotte, H, 4.....Salem
Sumerwell, Kermit John. F, 2.....Tillamook
Summers. Herbert E.. Ed. 3.....Corvallis
Sundby, Wilfred C.. EE, 2.....Portland
Sutton, Donald L., Ed, 4..Los Angeles, Calif.
Svendsen, George P., Ed, 2.....Portland
Swanson, Arthur E., F. 2.....Tigard
Swarner, Gladys M., Ed, 2.....Hermiston
Swedenburg, M. Eleanore, H, 4.....Ashland
Swenson. Herbert A., Ch, 2.....Portland
Tabke, Robert S., Ch. 4.....Astoria
Tabtab, Fedelino C., Ed, 2.....Corvallis
Taggart, Charles A., A, 4.....Portland
Tanner, Ben Fred, LD, 2.....Portland
Tatro, Faye E., BAd, 2.....Lakeview
Taylor. Jack William, BAd, 2....Los Angeles, Calif.
Taylor, John Beeson, BAd, 2.....Corvallis
Taylor, John Ross. CE, 2....Dunsmuir, Calif.
Taylor, Joseph William, ME, 2.....Portland
Taylor, Lela O., H, 1.....Corvallis
Taylor Merle F., BAd, 2.....Corvallis
Taylor, Robena V., Ed. 1.....Corvallis
Taylor, Thomas E., ME, 3.....Portland
Taylor, Waldo Bruce, BAd, 4.....Portland
Teel, Jack L., A, 2.....Toledo
Tees, Marianna. H, 2.....San Mateo, Calif.
Tegnell, Russell M., Ch, 2.....Portland
Telford, Donald H., E, 1.....Corvallis
Telford, Thomas D., EE, 2.....Boring
Temple, Donald M., A, 1.....Pendleton
Templeton, Billie, P, 1.....Albany
Thatcher, Joan, LD, 1.....Multnomah
Thayer, Mary Ellen, Ed, 1.....Toledo
Thielmann, Rudolf H., EE, 3.....Portland
Thomas, Barney M., A, 1.....Richmond
Thomas, Elwood E., Ed, 1.....Corvallis
Thomas, Harold Albert, EE, 2.....Newport
Thomas, LeRoy Hamilton, Sc, 3....Portland
Thomas, Ordie O., Ed, 2.....Weston
Thomas, Ruth Genevieve, H, 2....Marshfield
Thomas, Starleigh D., IA, 1.....Corvallis
Thompson, Eva Mae, H, 3.....Corvallis
Thompson, Harold M., P, 2.....Pendleton
Thompson, James W., F, 2.....Bend
Thompson, John Alden, P, 4.....Medford
Thompson, Konow W., EE, 2.....Hillsboro
Thompson, Richard R., P, 2.....Corvallis
Thompson, Robert S., A, 4.....Heppner
Thompson, Ruth Marie, H, 3.....Corvallis
Thompson, Stanley A., Ed, 1.....Blodgett
Thompson, Thomas T., Ch, 1.....Oakland, Calif.
Thompson, Vaunee F., BAd, 2.....Corvallis
Thomson, Clark, A, 4.....Clackamas

Thorall, Verna A., LD, 2.....Corvallis
Thoreson, Edward W., P, 4..Blackfoot, Idaho
Thorne, Betty Mae, H, 4.....Gresham
Thorne, Phyllis Marie, Ed, 4.....Newberg
Tidball, Robert L., CE, 3.....Portland
Tiedemann, Henry, F, 4.....Portland
Tihila, Howard, LD, 1.....Astoria
Tilander, Helen E., H, 1.....Astoria
Tockstein, George, F, 1.....Fresno, Calif.
Todd, George F., Ch. 2.....Portland
Todd, Kenneth C., BAd, 2.....Portland
Toedtemeier, Harold W., E, 1.....Monmouth
Toll, Harriet A., H, 2.....Junction City
Tomlin, John Francis, Ed, 3.....Corvallis
Tomlinson, Donald E., Ed, 2.....Albany
Tomsheck, William H., A, 2.....Portland
Tonsfeldt, Hugh H., P, 2.....White Salmon, Wash.
Tormey, Louis P., BAd, 4.....Portland
Tower, Forrest H., EE, 2.....Portland
Towle, George Edward, ME, 2.....Shaw
Townsend, Graham E., EE, 3.....Portland
Townsend, Verna E., H, 2.....Corvallis
Tracy, Edna P., H, 3.....Claremont, Calif.
Trapp, Elwood B., BAd, 2.....Albany
Traver, Harmon R., EE, 2.....Albany
Travis, Wilbur, A, 2.....Roseburg
Trimble, Gwendolyn F., H, 1.....Brookings
Triplett, Cecil L., Ch, 2.....Corvallis
Tripp, Miriam, Ed, 3.....Albany
Tripp, Virginia L., Ed, 2.....Albany
Troedson, J. Francis, BAd, 1.....Ione
Troeh, Neal A., LD, 1.....Portland
Troest, Lillian J., H, 1.....Grants Pass
Trollman, John, CE, 4..San Francisco, Calif.
Trommershausen, William E., EE, 2....Newberg
Truax, Merritt W., Ed, 3.....Corvallis
Truitt, Glenn, E, 1.....Oakland
Trust, Jack S., F, 2.....Portland
Tucker, Ethel M., FA, 1.....Prineville
Tucker, Wilbur L., F, 2.....Trail
Tupling, Charles Gordon, ME, 4....Portland
Turnbull, Jr., William, ME, 4.....Portland
Turner, George J., BAd, 2.....Portland
Turner, Harold D., F, 2.....Hillsboro
Turner, Martha M., PE, 2.....Corvallis
Tuttle, Loren William, Ed, 2.....Grants Pass
Tyler, Berta May, H, 2.....San Bernardino, Calif.
Tyler, Thurlow Walter, BAd, 1.....Portland
Tyrell, Wayne Floyd, BAd, 2.....Portland
Ufford, Marvin R., EE, 2.....Albany
Underwood, Leon F., BAd, 2.....Corvallis
Ungerman, Barbara L., BAd, 2.....Portland
Upham, Andrew C., F, 2.....Hermiston
Uridge, Thomas F., A, 1.....Fresno, Calif.
Valberg, Kenneth O., F, 1.....Boring
Van Arsdale, Lois Mary, H, 2.....Redmond
Van Blaricom, Lloyd, Ch, 2.....Hood River
Vance, Ruth, BAd, 4.....Corvallis
Van Fossen, Clara, H, 2.....McMinnville
Van Gilse, Albert, Ed, 2.....Nyssa
VanLeuven, Raymond, A, 1.....Bandon
Van Valin, Herbert, BAd, 4.....Newberg
Van Waning, Isabel C., Ed, 2.....Corvallis
Veal, Percy F., BAd, 4.....Albany
Veale, Robert W., F, 2.....Alameda, Calif.
Veatch, Sibyl A., Ed, 3.....Cottage Grove
Vennewitz, Edward, Ch, 4.....Portland
Vennewitz, Morris, CE, 3.....Portland
Vernon, Alice E., Ed, 2.....Lakeview
Verry, Dana H., LD, 1.....Portland
Vincent, F. Helen, H, 3.....Corvallis
Visetti, Dina, H, 2.....Portland
Vissers, Cornelis, A, 3.....Portland
Vold, Winifred Mary, H, 1.....Portland
Volkmar, Beneva, Ed, 3.....Myrtle Point
Von Lehe, Esther W., FA, 2.....Corvallis
Voorhees, Edna E., H, 3....San Marino, Calif.
Votaw, Floyd, A, 2.....Whittier, Calif.
Wade, Jack Robert, F, 1.....Portland
Waggener, Dorris A., H, 2.....Portland
Wagner, Charles M., IA, S.....Corvallis
Wagner, Dick F., ME, 2.....Portland
Wagner, Don, A, 2.....Corvallis
Wagner, Kermit R., P, 2.....Portland
Wagner, Lila R., LD, 1.....Portland
Wagner, Raymond L., Ed, 1.....Corvallis
Wagner, Robert R., Ch, 1.....Portland
Wagner, Tom B., EE, 4.....Portland
Walbeck, Lovick C., P, 1.....Peoria
Walker, Denton O., BAd, 2.....Freewater
Walker, Donald E., A, 1.....Oakridge
Walker, Donald James, E, 1.....Tillamook
Walker, Edythe Mary, H, 3.....Portland
Walker, Fletcher, Sc, 3.....Salem
Walker, Laurel E., Ed, 3.....Corvallis
Wallin, Lewis K., Ed, 4.....Portland
Walling, Claude, F, 1.....Salem
Waln, Alonzo K., A, 2.....Salem
Walsh, Irvin, BAd, 2.....Portland
Walsh, W. James, E, 1....Fort Lewis, Wash.
Walter, Esther D., Ed, 3.....Milton
Ward, Frederick H., Ed, 1.....Albany
Ward, Marguerite B., H, 2.....Albany
Ward, Thomas Henry, Ed, 2.....The Dalles
Waring, Wilson, F, 1.....Creswell
Warner, Vernon Denton, LD, 1..Lexington
Warner, Winifred, BAd, 2.....Medford
Warnke, Ruth E., Ed, 4.....Boise, Idaho
Warren, Elizabeth, H, 1.....Corvallis
Warren, Vernon J., E, 1.....Corvallis
Warrington, William Rich, LD, 2.....Corvallis
Washburn, Wallace W., BAd, 1..San Mateo, Calif.
Weaver, Kenneth Earl, EE, 2.....Corvallis
Webb, Delmar O., ME, 2.....The Dalles
Weber, Bernhard William A., ME, 4....Portland
Weber, Clarence R., Ed, 2.....Corvallis
Weber, John Martin, Ed, 1.....Corvallis
Weber, Naomi Edith, PE, 1.....Portland
Weber, Vera H., H, 3.....Portland
Wedin, Vernon E., Ed, 2.....Gresham
Weikel, Ivan W., A, 3.....Roseburg
Weiks, Arthur J., A, 1.....Littlerock, Wash.
Weiks, William L., A, 1....Littlerock, Wash.
Weisgerber, John Edwin, F, 2.....Portland
Welbes, John Howard, A, 1.....Portland
Welch, John J., LD, 1.....Corvallis
Welch, Homer J., BAd, 1.....Portland
Welch, Marguerite E., H, 4.....Corvallis
Welder, William A., F, 1.....Westwood, Calif.
Wells, Bruce A., EE, 4 .....Salem
Wells, Harry Bentley, Ed, 2.....Heppner
Wells, Shirley Rae, SSc, 1.....Portland
Welsh, Charles Edward, Ch, 1.....Portland
Welton, Charles A., P, 1.....Hoevet
Wenderoth, Henry John, Ch, 2..North Bend
Werner, Victor, Ed, 1.....Corvallis
Wessela, Conrad P., F, 4.....Scottsburg
West, Helen L., Ed, 1.....Seaside
West, Jane B., Ed, 1.....Seaside
West, Robert L., Sc, 4.....Corvallis
West, William A., A, 2.....Camas, Wash.
Westcott, Clair J., A, 1....Twin Falls, Idaho
Westersund, Harriet L., BAd, 2.....Astoria
Wheeler, Dooley P., LD, 1....Merced, Calif.
Wheeler, Frank C., LD, 1.....Corvallis
Wheeler, Wallace E., F, 4.....Corvallis
Whepley, Ruth H., H, 4.....Lemon Cove, Calif.
Whitcomb, Morrow W., CE, 2.....Portland

Whitcomb, Richard L., ME, 2.....Portland
White, Elizabeth, H, 1.....Portland
White, Hudson D., A, 1.....McMinnville
White, Willard S., BAd, 2.....Portland
Whitehouse, Earl A., P, 4.....Lakeview
Whitehouse, Eugene W., A, S.....Lakeview
Whitehouse, Hayden B., F, 2.....Astoria
Whiteis, Helen G., BAd, 4.....Prineville
Whitelaw, Mary N., Ed, 2.....Corvallis
Whiteside, Harold S., BAd, 2.....Corvallis
Whitfield, Norman C., F, 3.....Portland
Whitlock, Gladys, BAd, 4.....Corvallis
Whitlock, Velma L., Ed, 3.....Corvallis
Whitney, Harold W., Ed, 1.....Albany
Wicklund, Clyde A., BAd, 2.....Portland
Widdows, Lyle E., F, 2.....Portland
Widlund, Elva M., H, 4.....Denair, Calif.
Wiebe, Eleanor F., H, 1.....Aberdeen, Idaho
Wiese, Doris Mae, Ed, 2.....Corvallis
Wiese, Frederick C., Ed, 2.....Corvallis
Wiggett, H. Frederick, BAd, 1....Red Bluff, Calif.
Wight, James B., A, 1.....Kamuela, Hawaii
Wilbur, Marvin C., BAd, 1.....Salem
Wilbur, Norman R., Ed, 4.....Salem
Wilcox, Charles B., F, 1.....Lexington
Wilde, Frances B., Ed, 1..Vancouver, Wash.
Wiley, David R., P, 3.....Portland
Wiley, Wilson S., BAd, 4.....Klamath Falls
Wilkins, John, E, 1.....Portland
Willett, Maxine E., Ed, 1.....Shedd
Williams, Brinley, P, 3.....Corvallis
Williams, George F., Ch, 4.....Portland
Williams, Gordon C., A, 1.....Portland
Williams, Helen L., Ed, 4.....Corvallis
Williams, Karl B., Ed, 1.....Halsey
Williams, Rachael, BAd, 4.....Corvallis
Williams, Robert J., Ed, 2.....Portland
Williamson, Daisy E., BAd, 4.....Hayward, Calif.
Williamson, Lloyd R., A, 1.....Portland
Williamson, Russell W., IA, 2.....Albany
Willison, Herbert, F, 4.....Portland
Willock, Eva E., PE, 2.....Portland
Wilmot, Mary E., H, 3.....Eugene
Wilson, Anne K., Ed, 3.....Linnton
Wilson, Glen W., P, 2.....Woodburn
Wilson, Howard E., Ch, 4.....Beaverton
Wilson, James B., CE, 4....Wahiawa, Oahu, T.H.
Wilson, Joseph T., BAd, 1.....Newberg
Wilson, Julius Robert, BAd, 4.....Salem
Wilson, Virginia May, SSc, 1.....Bell, Calif.
Wiltshire, Lyman L., LD, 2.....Portland
Winkelman, Paul F., EE, 4.....Portland
Winkler, Frank, ME, 2.....Portland
Wirch, Arthur W., F, 2.....Portland
Witherell, Fred W., BAd, 2.....Pendleton
Withers, Jr., Charles H., Ed, 3.....Portland
Withers, Jr., Harry A., E, 1.....Burns
Withers, Louis A., A, 2.....Paisley
Wohlgemuth, Harold M., A, 4.....Newberg
Wolf, Charlotte C., BAd, 1.....Portland
Wolfe, Harvey L., A, 2.....Antelope
Wolfe, Luella Mary, H, 2.....Turlock, Calif.
Wood, Harold William, Sc, 3.....Nyssa
Wood, John Milton, LD, 1.....Corvallis
Wood, Julia E., H, 4.....Salem
Wood, Kenneth Scott, Ed, 2.....Portland
Wood, Kenneth Stannard, BAd, 2....Rainier
Wood, Russell Vincent, A, 4.....Portland
Woodard, John C., Ed, 2.....Portland
Woodard, Walter A., Ed, 4.....Portland
Woodcock, Mary L., BAd, 2.....Corvallis
Woodcock, Maxine E., Ed, 1.....Corvallis
Woodcock, W. Darwin, BAd, 4.....Corvallis
Woodford, William H., Ed, 2.....Medford
Woodle, Charles L., A, 3.....Eagle Creek
Woodruff, Virginia, Ed, 3.....Corvallis
Woods, Ethan, A, 3.....Moro
Woods, Olive Patricia, LD, 1.....Corvallis
Woodward, Edythe, Ed, 4.....Arago
Woolley, Lucille E., Ed, 4.....Portland
Wooster, Harry A., LD, 1.....Estacada
Workman, Grace Irene, H, 2.....Corvallis
Wright, Eleanor F., H, 3.....Salem
Wright, Isabel, Ed, 4.....Portland
Wright, Joe H., A, 4.....Klamath Falls
Wright, Kenneth S., ME, 4.....Portland
Wright, Tom, A, 2.....Creswell
Wright, Willard D., F, 2.....Prineville
Wygant, Thomas, F, 2....Santa Paula, Calif.
Wyllie, Carroll G., P, 2.....Oakland
Wyman, Daphne Ada, Ed, 3.....Albany
Wymore, Herbert, Ed, 1.....Oregon City
Yeates, Jesse J., Ed, 4.....Corvallis
Yerkovich, Simon, EE, 4.....Portland
Yocum, Thurston L., Ch, 3.....Corvallis
Yoder, Emerson, A, 1.....Hubbard
York, Albert L., E, 1.....Nehalem
York, James Lewis, F, 1.....Baker
Young, Blanche E., BAd, 2.....Silverton
Young, Clair F., BAd, 4.....Ione
Young, George W., Ed, 1.....Corvallis
Young, Helen A., H, 2.....Tacoma, Wash.
Young, Margaret M., Ed, 1.....Sherwood
Young, Viva V., H, 2.....Portland
Yundt, Betty, Ed, 1.....Corvallis
Zachman, Anthony J., P, 2.....Tillamook
Zanello, Jack C., BAd, 1.....Portland
Zankich, Vincent M., LD, 1.....Astoria
Zaretsky, Oscar, H., P, 2.....Corvallis
Zellers, Thomas R., ME, 2.....Portland
Zimmerman, Margaret F., H, 3.....Portland
Zimmerman, Oswald, EE, 4.....Portland
Zorn, Raymond H., Ed, 1....Claremont, Calif.
Zwick, John W., ME, 2.....Portland

Summer Session Students

GRADUATE AND UNDERGRADUATE

1932

Aamoth. Ole A. ....Great Falls. Mont.
Ackerman. Lilah A. ....Corvallis
Adams. George E. ....Corvallis
Adams. Harold W. ....Corvallis
Adams. Phyllis ....Provo. Utah
Aitken. William D. ....Portland
Albert. A. H. ....Portland
Aldrich. Amy E. ....Pendleton
Allen. Alfred T. ....Monmouth
Allen. Ethan A. ....Corvallis
Allen. Franklin E. ....Pendleton
Allen. John M. ....Portland
Alvin. Betty M. ....Lebanon
Andersen. Neva H. ....Albany
Anderson. Louise C. ....Spokane. Wash.
Anderton, Edwin C. ....Richland
Arnold. Albert N. ....Amity
Arnold. Bessie T. ....Tillamook
Arnold. Byron D. ....Corvallis
Atwood. Margaret K. ....Corvallis
Bailey. Crystal E. ....Wendel. Calif.
Barnes. M. Jane ....Porterville. Calif.
Barnes. Elma Patricia ....Porterville. Calif.
Bateson. Cornelius ....Corvallis
Battaglia. Frank E. ....Portland
Beach. Kenneth ....Roseburg
Beatie. Alfred William ....Oregon City
Beck. Patricia ....Gaston
Bell. C. Kenaston ....Pasadena. Calif.
Bennett. Elizabeth N. ....Myrtle Point
Bergholz. Mabel C. ....Corvallis
Bertram. Mary E. ....Corvallis
Beven. Francis M. ....Escondido. Calif.
Blake. James Vila ....Corvallis
Blake. Jean Esther ....Marshfield
Blow. Grace H. ....Los Angeles. Calif.
Bond. Gladys Irene ....Corvallis
Boswell. Clifford E. ....Central Point
Bousquet. Yvonne ....Condon
Bowersox. John M. ....Fortuna. Calif.
Bowman. Robert C. ....Oakland. Calif.
Boyer. Alexander Raymond ....Petersburg. Alaska
Brannock. Shirley T. ....Corvallis
Branstetter. Joseph C. ....Fortuna. Calif.
Brewer. Lanta Elizabeth ....Corvallis
Britt. Lewis C. ....Corvallis
Brommer. Fredericka E. ....Medford
Brommer. Louise ....Medford
Brown. Eleanor H. ....Wilbur
Brown. Howard F. ....Maxwell. Calif.
Bryant. Claude H. ....Corvallis
Burk. L. Helen ....Corvallis
Burke. Edna L. ....Dallas
Burke. Frances E. ....Corvallis
Burke. Kendall E. ....Dallas
Burmaster. Clyde H....Sedro-Wooley. Wash.
Burns. Randal J. ....Portland
Burris. Bruce H. ....Corvallis
Butterfield. Neal A. ....Woodburn
Butzien. Oscar C. ....Nampa. Idaho
Cahill. Robert C. ....Clatskanie
Calder. Vera ....Vernol. Utah
Calhoun. Gertrude ....Colfax. Wash.
Cameron. Jr.. Harry W. ....Fairview
Carlsen. Clifford N. ....Jordan Valley
Carlson. A. Steen ....North Powder
Carrico. Angela E. ....Burns
Chandler. William H. ....Richland
Chaney. Dorothy E. ....Corvallis
Chapman. Marjorie B. ....Oakland. Calif.
Charlton. Velma ....La Grande
Cockerham. Elizabeth C. ....Corvallis
Coleman, Howard ....Corvallis
Coleman. Sadie W. ....Phoenix. Ariz.
Connell. L. Ora ....Santa Ana. Calif.
Conner. Ava G. ....Corvallis
Cook. Louise W. ....Salem
Coopey. Raymond W. ....Corvallis
Copenhaver. Roxie ....Missoula. Mont.
Coulter. Clifton A. ....Eugene
Cowen. James L. ....Modesto. Calif.
Cox. George B. ....Corvallis
Cradler. Paul M. ....Pacific Grove. Calif.
Creech. Eula S. ....Salem
Crouk. Lena M. ....Melba, Idaho
Cuddy. Katherine L. ....Boise. Idaho
Cummins. Mildred L. ....Yaquina
Curry. Vincent W. ....Hillsboro
Dalton. Bertha ....Corvallis
Dalton. Charles ....Corvallis
Daniels. Thaxter N. ....San Jose. Calif.
Davidson. Mary Jane ....Alberta. Canada
Davis. Charles E. ....St. Maries. Idaho
Davis. Edna H. ....Corvallis
Davis. Irene R. ....Corvallis
Davis. Laura T. ....Corvallis
Davis. Lempie Maria ....Portland
Davis. Marvin Raymond ....Rainier
Davis. Merle Bonney ....Corvallis
Davis. Ruth J. ....Corvallis
Deakins. Sylvia L. ....Clackamas
DeArmond. Ruth E. ....Sitka. Alaska
DeLane. Lorenzo R. ....Grants Pass
Dennett. Florence A. ....Billings. Mont.
Didtel. Kathryn M. ....Riddle
Dolan. Mary J. ....Corvallis
Donsted. Lorena G. ....Fresno. Calif.
Dooley. William A. ....Portland
Dotson. Ruth ....Flagstaff. Ariz.
Doughton. Andys L. ....Lebanon
Doughton. Howard F. ....Lebanon
Doughton. Preston F. ....Dallas
Dunn. Burton W. ....Shedd
Dunn. Richard W. ....Portland
Eckelman. Margaret C. ....Portland
Eckern. Romona K. ....Portland
Edwards. Grant H. ....Corvallis
Edwards. Louis ....Chico. Calif.
Eisenbrey. Evalyn ....Pomona. Calif.
Elder. Edith D. ....Corvallis
Eldridge. Lucille V. ....Corvallis
Elliott. Irving C. ....Alturas. Calif.
Elliott. Lois E. ....Oregon City
Emmerton, Stanley W..Coeur d'Alene. Idaho
Emmons. Oma Belle ....Independence
Erickson. John W. ....Cascade Locks
Everson. Areta I. ....Tillamook
Ewen. Herbert W. ....Metzger
Faber. Donald E. ....Central Point
Fait. E. P. ....Everett. Wash.
Finch. Marjorie L. ....Tillamook
Fiske. Henry J. ....Cornelius
Flegel. Dorothy ....Portland
Fleming. Robert E. ....Eugene
Flood. Anna H. ....Westport
Fontaine. Marjorie E. ....Jefferson
Forest. Ruth M. ....Corvallis

Forse, Harry B. ..... Courtenay, B. C.
France, Frank L. ..... Corvallis
Frederickson, E. Harriet ..... Portland
Frey, Anna F. ..... Reno, Nev.
Frey, F. Elizabeth ..... Reno, Nev.
Friet, Edwin L. ..... Klamath Falls
Gambee, Hosmer C. ..... Phoenix, Ariz.
Gambero, Vivia B. ..... McMinnville
Garman, Elma ..... Moorcroft, Wyo.
Garman, Ruth ..... Moorcraft, Wyo.
Gaskins, C. Carolyn ..... Corvallis
Gibson, Charles ..... Astoria
Giddings, Paul C. ..... Albany
Gillanders, Dorothy F. ..... Woodburn
Gillespie, Pauline R. ..... Ashland
Gillis, Laura-Lu ..... Bend
Glasscock, Ethel F. ..... Yakima, Wash.
Godfrey, Mary R. ..... Jerome, Idaho
Goetz, Helen E. ..... Albuquerque, N.M.
Goff, Roby D. ..... Oakland
Goodwin, Fred M. ..... Corvallis
Goodwin, Ruth G. ..... Portland
Gordon, Mrs. Eva V. ..... Philomath
Gordon, James ..... Philomath
Gordon, Delpha ..... Portland
Gregory, Eunice Jean ..... Albany
Gregory, Maurine O. ..... Newberg
Gregory, Thelma A. ..... Newberg
Griffee, Leroy D. ..... Corvallis
Griffee, Lucy W. ..... Corvallis
Griffith, James R. ..... Corvallis
Guderian, Clarence A. ..... Salem
Guiss, Helen M. ..... Woodburn
Haan, Clarence M. ..... Ashland
Haberly, Anne H. ..... Cresso, Iowa
Hairgrove, Helen Jane ..... Glendale, Calif.
Hall, Mabel D. ..... Medford
Hall, W. Knowlton ..... Clatskanie
Hammersley, Ward ..... Tillamook
Hampton, Lynn O. ..... Tigard
Hanley, Charlotte J. ..... Tacoma, Wash.
Harmon, Ella M. ..... Portland
Harris, Velma ..... Wenatchee, Wash.
Harvey, Guy M. ..... Portland
Hedborg, Ida M. ..... Alder, Wash.
Heidenreich, Heinrich ..... Phoenix, Ariz.
Heidenreich, Philip ..... La Grande
Heise, Wesley C. ..... Salem
Henningsen, Dorathea K. ..... Portland
Henry, Donna Belle ..... Corvallis
Hepler, Alta S. ..... Manhattan, Kans.
Hepler, Christie C. ..... Lawrence, Kans.
Herron, Verneita ..... Junction City
Hess, Dorothy D. ..... Portland
Hickox, Averitt C. ..... Ontario
Higgs, Mildred C. ..... Portland
Hill, Earl L. ..... Corvallis
Hill, Robert E. ..... Corvallis
Hoagland, Mary A. ..... Durango, Colo.
Hoh, Pik Wan ..... Canton, China
Holcomb, Glenn W. ..... Corvallis
Hollenberg, Alvin H. ..... Watsonville, Calif.
Horn, Louvera ..... Salem
Horner, Phil A. ..... Medford
Horner, Vera D. ..... Corvallis
Howard, Mabel F. ..... Albany
Hulet, E. Evelyn ..... Albany
Humphrys, Winifred L. ..... Jennings Lodge
Hunt, Eva F. ..... Tacoma, Wash.
Hupfer, Josephine ..... Lovelock, Nev.
Imbler, L. Ione ..... Dallas
Ingalls, Alice L. ..... Corvallis
Ingham, Frank C. ..... Portland
Ingraham, Harry L. ..... Rainier
Ireland, Thomas H. ..... Myrtle Creek
Isaacson, Malcolm ..... Santa Ana, Calif.
Ivie, Helen M. ..... Corvallis
Jack, Lorena N. ..... Corvallis
Jackson, Esther P. ..... Corvallis
Jackson, Grace C. ..... Berkeley, Calif.
Jacobs, Aleen ..... McMinnville
Jacobson, Winifred C. ..... Portland
Jelinek, Betty Ann ..... Dallas
John, Dave M. ..... Stayton
Johnson, Bernice E. ..... Carson City, Nev.
Johnson, J. F. M. ..... Burns, Tenn.
Johnson, Lawrence T. ..... Garden Home
Johnson, Martin F. ..... Eugene
Johnson, Nina A. ..... Newberg
Johnson, Raymond H. ..... Newberg
Johnston, Laura E. ..... Glendale, Calif.
Jones, Casey S. ..... Reedsport
Jones, Creighton B. ..... Gervais
Jones, Eleanor E. ..... Portland
Jones, Martha J. ..... Philomath
Jones, Peggy ..... Portland
Jones, Rebecca ..... Meridian, Idaho
Kalbfleisch, Beulah H. ..... Filer, Idaho
Kanzler, Reinhold ..... Portland
Kartzke, Virginia J. ..... Pasadena, Calif.
Kauppi, Henry W. ..... Vernonia
Keeler, Marie E. ..... Corvallis
Keiser, Lura ..... Corvallis
Keizer, Mabel ..... North Bend
Keller, Robert J. ..... Corvallis
Kelley, Fern E. ..... Corvallis
Kelley, George W. ..... Corvallis
Kent, Ruth ..... Pueblo, Colo.
Kepler, Elsie E. ..... Freewater
Kerr, Maurice P. ..... Corvallis
Kidder, Russell B. ..... Chico, Calif.
King, Kathryn ..... Modesto, Cailf.
Kirk, W. Duane ..... Portland
Kirkpatrick, Herbert L. ..... Corvallis
Klapotz, Caroline ..... Albany
Klapproth, Clella D. ..... Midland, Tex.
Klein, Lyle Wayne ..... Corvallis
Knowlton, Edna M. ..... Vancouver, B.C.
Koonst, Vades J. ..... Portland
Koshland, Theodore C. ..... Portland
Kremers, Edward L. ..... Portland
Kubin, June M. ..... Mehamo
Kuhlemeier, August Edward.. Gustine, Calif.
Kurtz, Olga ..... Portland
Kurtz, William H. ..... Portland
Kusel, Julius H. ..... Corvallis
Kutch, Kenneth ..... Corvallis
Lachmund, Dorothy E. ..... Portland
Landes, Alfred V ..... Corvallis
Landreth, Corinne W. ..... Pendleton
Lane, James S. ..... Cheney, Wash.
Lane, Marie ..... Glide
Larson, Earl L. ..... Corvallis
Larson, Gust A. ..... Waukigan, Ill.
Larson, Frona ..... Corvallis
Lauder, Lorne R. ..... Corvallis
Leitz, Helen K. ..... Portland
LeMaster, Ruth A. ..... Corvallis
Lewis, Eunice C. ..... Aumsville
Lewis, James N. ..... Corvallis
Light, James F. ..... Tangent
Lightowler, George ..... Oregon City
Lillie, Crystal M. ..... Palermo, Calif.
Lillie, John ..... Corning, Calif.
Lindseth, Elnora ..... Corvallis
Link, William H. ..... Seattle, Wash.
Linstedt, Daniel ..... Newman, Calif.
Lloyd, Omar M. ..... Portland
Long, Esther T. ..... Fullerton, Calif.
Losse, Betty ..... Santa Clara, Calif.
Lowe, Arthur L. ..... Corvallis
Lowe, Howard ..... Corvallis
Lu, Ching Pao ..... China
Lupton, Alice Louise ..... Burns
McAllester, Laura C. ..... Corvallis
McBride, William V. ..... Palo Alto, Calif.

McClain, Mary O. ..... Grants Pass
McCormick, Eva Helen ..... Hillsboro
McCoy, Arthur L. ..... Forest Grove
McCulloch, Mary E. ..... Lovelock, Nev.
McCurley, Herbert S. ..... San Jose, Calif.
McEachran, Agnes A. ..... La Grande
McEachran, Ernest A. ..... La Grande
McGauhey, Dorothy ..... Corvallis
McLimans, Sophie Dorothy ..... Sheridan, Wyo.
McMillan, Alva L. ..... Corvallis
McReynolds, Lou Vera ..... Fairfield, Nebr.
Mabee, George W. ..... Corvallis
MacCloskey, Robert W. ..... Hollywood, Calif.
MacGregor, Martha D. ..... Portland
Mack, Herbert H. ..... Huntington
Mack, Mabel C. ..... Medford
Mackey, Ulrich L. ..... Phoenix, Ariz.
Maertens, Clare N. ..... Eugene
Magallanes, Segundo V. ..... Corvallis
Manning, Juanita C. ..... Corvallis
Marr, Uel B. ..... Dundee
Martin, Ethel Ann ..... Salem
Martin, Wallace H. ..... Corvallis
Maule, Evelyn ..... Portland
May, Audrey M. ..... Eugene
Meeks, Erma Ellen ..... Salem
Melville, Grace ..... Seattle, Wash.
Meredith, John P. ..... Salem
Merrill, Frank I. ..... Corvallis
Messinger, Ray J. ..... Fresno, Calif.
Meyer, E. D. ..... Corvallis
Michaelson, Marian C. ..... Bend
Mickelson, Odine N. ..... Eugene
Mickelson, William C. ..... Salem
Mikkelson, A. Charste ..... Pendleton
Mikkelson, Inga J. ..... Spokane, Wash.
Miller, Bessie M. ..... Los Angeles, Calif.
Minaker, Carol M. ..... Woodburn
Mispley, Ruth E. ..... Sacramento, Calif.
Moe, Ray T. ..... Corvallis
Mostrom, Eldon ..... Adams
Moore, Dorothy E. ..... Salem
Moore, Orie S. ..... Medford
Moore, P. H. ..... Wasco, Calif.
Moore, Ruth A. ..... Anaheim, Calif.
Morgan, Lottie E. ..... Albany
Morse, Annie M. ..... Hoquiam, Wash.
Morse, Maud Mueller ..... Portland
Morse, Walter W. ..... Grants Pass
Moulton, Edith Alicia ..... Kirkland, Wash.
Muller, Hazel ..... Albany
Mullin, Florence ..... Corvallis
Mullin, M. William ..... Portland
Mullin, William A. ..... Corvallis
Munro, Donald R. ..... Portland
Murray, Mildred S. ..... Freewater
Muth, Dorothea Cordley ..... Corvallis
Neireiter, Doris ..... Corvallis
Nelson, Helen C. ..... El Monte, Calif.
Nevin, Muriel C. ..... Durham, Calif.
Newberg, Annie M. ..... Tillamook
Newth, Carroll R. ..... Corvallis
Niederfrank, Evlon J. ..... Corvallis
Nixon, Richard A. ..... Pilot Rock
Northey, Percival G. ..... Williams, Calif.
Olds, Clarence R. ..... Corvallis
Olmsted, Helen ..... Wells, Nev.
Olson, Alma J. ..... Kanawha, Iowa
Olson, Ellen ..... Reno, Nev.
Olson, Theodore W. ..... Salem
Osika, Clarence S. ..... Monmouth
Owen, Wilma M. ..... Harrisburg
Palmiter, Jessie E. ..... Portland
Parker, Ralph W. ..... Corvallis
Patton, Lyman W. ..... Jefferson
Penland, Mary E. ..... Berkeley, Calif.
Pepoon, Lucile ..... Douglas, Alaska
Petersen, Nellie ..... Sacramento, Calif.
Peterson, Edith M. ..... Auburn, Wash.
Peterson, Lillian E. ..... Portland
Peterson, M. Maxine ..... Corvallis
Pietarila, Helen ..... Astoria
Pitcher, Alice Clark ..... Fullerton, Calif.
Pitcher, Laurence ..... Orange, Calif.
Platt, Helen M. ..... Corvallis
Pope, Dorothy C. ..... Missoula, Mont.
Powell, Dorla ..... Piedmont, Calif.
Prentiss, Donald C. ..... Corvallis
Price, Anna C. ..... Corvallis
Price, Cora N. ..... Corvallis
Prizer, Robert M. ..... Marshfield
Pugh, John M. ..... Shedd
Purvine, Maud C. ..... Corvallis
Quigley, Alice E. ..... San Francisco, Calif.
Raasina, Esther E. ..... Astoria
Ralston, Helen ..... Corvallis
Ramos, Jose M. ..... Corvallis
Rathbone, Tom G. ..... Tacoma, Wash.
Reck, Myrtle J. ..... Seattle, Wash.
Redfield, Katherine M. ..... Corvallis
Reed, Flo Z. ..... Elko, Nev.
Reese, George W. ..... Corvallis
Reese, Virgil ..... Kinzua
Reichart, Robert R. ..... Corvallis
Reid, Warren A. ..... Corvallis
Reilly, Gertrude A. ..... Carson City, Nev.
Reimers, Laurel A. ..... Marysville, Calif.
Reische, Alice B. ..... Meridian, Calif.
Reische, Helen E. ..... Meridian, Calif.
Renninger, Rita M. ..... Albany
Reynolds, Lenore ..... Portland
Rice, Freda R. ..... Corvallis
Richards, Guy E. ..... Albany
Richards, Leslie C. ..... Portland
Richards, Mildred Arline ..... San Diego, Calif.
Ricks, Estora V. ..... Portland
Riffe, Jesse L. ..... Corvallis
Rigdon, Verna E. ..... Anaheim, Calif.
Riggs, Mary Lee ..... Los Angeles, Calif.
Robinette, Kelley F. ..... Klamath Falls
Robinette, Wilbur ..... Sprague River
Robinson, Fred R. ..... Weiser, Idaho
Robinson, Paul E. ..... Independence
Roner, Joseph G. ..... Corvallis
Root, Floyd ..... Wasco
Rosenberg, Vera ..... Tillamook
Ruch, Lawrence E. ..... Vallejo, Calif.
Rumbaugh, Candace A. ..... Parkdale
Runion, Marguerite ..... Portland
Runkle, A'leen E. ..... Corvallis
Ruppel, Henry G. ..... Corvallis
Sanborne, Paul B. ..... Honokaa, T.H.
Sather, Pauline ..... Vancouver, Wash.
Schell, Roger E. ..... Corvallis
Schiller, Paul E. ..... Albany
Schlieman, Elva I. ..... Zamora, Calif.
Schmitt, Roland A. ..... Albany
Schrepel, Marie F. ..... Corvallis
Schuele, Winifred J. ..... Portland
Schulze, Estelle F. ..... Brownsville
Schump, Arthur L. ..... Big Timber, Mont.
Schwarz, Edward R. ..... Tacoma, Wash.
Scott, Dorris ..... Corvallis
Scott, Marjorie F. ..... Portland
Shank, Gladys L. ..... Corvallis
Sherwood, Marguerite F. ..... Corvallis
Sherwood, Ruth ..... Merced, Calif.
Sheythe, Martin B. ..... Corvallis
Shipley, Helen L. ..... Corvallis
Shirley, Lovelle ..... Corvallis
Shogren, Harold W. ..... Astoria
Shoudy, Myrrh June ..... St. John, Wash.
Shryack, Dora C. ..... Nampa, Idaho
Sick, Gertrude ..... Portland
Simpson, Mabel ..... Alton, Mo.
Skeen, Priscilla P. ..... Salt Lake City, Utah

Skow, Gertrude L. ..... Eugene
Sloan, Nola P. ..... Richland, Wash.
Sloper, Mildred A. ..... Independence
Small, Hiram F. ..... Corvallis
Smith, Elizabeth L. ..... Santa Maria, Calif.
Smith, Hiram Chester ..... Newberg
Smith, Neal C. ..... Seaside
Smith, Stephen E. ..... Scappoose
Sorem, Clifford M. ..... Ferndale, Calif.
Southern, Verda E. ..... Portland
Spangenberg, Esther ..... Lakeview
Spike, Eleanor May ..... Echo
Spike, Frances M. ..... Echo
Sprague, Mary W. ..... Corvallis
Stafford, James L. ..... Portland
Stanley, Vesta B. ..... Corvallis
Stearman, Willardie ..... Vancouver, B.C.
Stewart, Irene ..... Corvallis
Stollar, Mable Alice ..... Salem
Striker, Georgia E. ..... Wasco
Stuttaford, Charlotte ..... Salem
Summers, Robert E. ..... Corvallis
Sutton, Donald Lee ..... Los Angeles, Calif.
Swan, Rogene A. ..... Portland
Swan, Verna B. ..... Portland
Swanson, Violet T. ..... Salem
Swift, Harvey M. ..... Corvallis
Sylvester, Bernice M. ..... Palermo, N.D.
Tallent, Roxie E. ..... Corvallis
Teale, Harold A. ..... Ashland
Teats, Bert A. ..... Sheridan
Thiessen, Justina ..... Dallas
Thompson, Carolyn I. ..... Pendleton
Tobie, Harvey E. ..... Stayton
Tomlin, John F. ..... Corvallis
Tomlin, Mrs. John Francis ..... Corvallis
Tortora, Edith M. ..... Corvallis
Trachtenberg, Isadore N. ..... Oswego
Tracy, Edna P. ..... Claremont, Calif.
Tucker, Reva L. ..... Gaston
Tumbleson, Harold J. ..... Forest Grove
Turner, Eleanor J. ..... Ogden, Utah
Turner, Harold W. ..... Portland
Turner, R. Izer ..... Phoenix, Ariz.
Turner, Richard R. ..... Dallas
Vahldieck, LaVaun ..... Albany
Vahldieck, LaVern ..... Albany
Van Arsdale, Mary Lois ..... Redmond
Van Ausdle, Anna G. ..... College Place, Wash.
Vance, Ruth ..... Corvallis
Vannice, H. Kenneth ..... Halsey
Van Waning, Isabel ..... Corvallis
Varner, William R. ..... Corvallis
Waddell, Howard J. ..... Tacoma, Wash.
Wagner, Don ..... Corvallis
Walker, Lois V. ..... Oakland, Calif.
Waln, A. Kehne ..... Salem
Ware, Margaret C. ..... Corvallis
Weber, Harold K. ..... Corvallis
Weber, Helen A. ..... Junction City
Weidermier, Helen R. ..... Orland, Calif.
Weir, William Henry ..... Albany
Wertz, Sara H. ..... Grants Pass
Westhoff, Beatrice J. ..... Portland
Westhoff, Marie B. ..... Mt. Angel
Whaley, Mercy Jane ..... Corvallis
Whitaker, William C. ..... Yuba City, Calif.
Whiteis, Helen C. ..... Prineville
Whitlock, Gladys ..... Corvallis
Whitney, Mary ..... Springfield
Widlund, Elva M. ..... Denair, Calif.
Wieting, John O. G. ..... Corvallis
Wiggman, Hannah M. ..... McMinnville
Wilbur, Norman R. ..... Corvallis
Williams, Helen L. ..... Corvallis
Williams, Mildred J. ..... Portland
Willis, Esther ..... Vancouver, B.C.
Wilson, George T. ..... Corvallis
Wilson, James B. ..... Oahu, T.H.
Wilson, Julius R. ..... Salem
Wilson, Merritt D. ..... Portland
Winston, Mabel W. ..... Corvallis
Winzenburg, Louis M. ..... Portland
Withers, Jr., Charles H. ..... Portland
Wood, G. Burton ..... Corvallis
Wood, J. Esther ..... Salem
Woodworth, Hazel ..... Sixes
Woolley, Lucille E. ..... Portland
Wooster, Lawrence F. ..... Corvallis
Wright, Frances M. ..... Salem
Yeager, Paula ..... Hemingford, Neb.
Yeater, Helen M. ..... Monmouth
Yerian, Charles T. ..... Harrisburg
Young, William N. ..... Kuna, Idaho
Zimmerman, Margaret F. ..... Portland

Summary of Enrollment and Degrees Granted 1932-33

ENROLLMENT BY CURRICULUM AND CLASS, REGULAR SESSION 1932-33

Curriculum	Freshman year	Sophomore year	Junior year	Senior year	Graduate	Special	Total
Agriculture	65	77	30	45	17	3	237
Education	103	182	123	73	41	1	523
Engineering	------	------	------	------	------	------	518
Chemical	25	24	13	17	3	------	------
Civil	------	42	17	18	4	------	------
Electrical	------	58	26	22	1	------	------
General	89	------	------	------	------	------	------
Industrial Arts	13	25	7	5	1	1	------
Mechanical	------	59	27	17	------	1	------
Mines	------	------	------	3	------	------	------
Forestry	45	56	23	25	4	2	155
Home Economics	108	134	42	59	13	------	356
Pharmacy	29	45	19	16	5	------	114
Science	------	------	------	------	------	------	115
Bacteriology	------	------	1	1	2	------	------
Botany	------	------	1	------	7	------	------
Chemistry	------	------	9	7	28	------	------
Entomology	------	------	5	1	4	------	------
Geology	------	------	3	2	6	1	------
Mathematics	------	------	5	------	9	------	------
Physics	------	------	3	------	10	------	------
Zoology	------	------	2	2	6	------	------
Lower Division	------	------	------	------	------	------	126
Biological Science	19	12	------	------	------	------	------
Humanities	16	8	------	------	------	1	------
Physical Science	20	18	------	------	------	------	------
Social Science	29	3	------	------	------	------	------
Other Lower Division	------	------	------	------	------	------	338
Business Administration	64	102	------	98	------	2	------
Fine Arts	9	6	2	------	------	1	------
Journalism	7	------	------	------	------	------	------
Physical Education	12	7	------	------	------	1	------
Secretarial Training	23	3	------	------	------	1	------
Total Students, Regular Session	676	861	358	411	161	15	2482
Auditors	------	------	------	------	------	------	27
Total							2509

DISTRIBUTION OF ENROLLMENT AS TO SEX AND RANK 1932-33

	Men	Women	Total
Total Graduate students	118	43	161
Total Undergraduate students	1549	772	2321
Total Auditors	5	22	27
Totals	1672	837	2509

ENROLLMENT IN SUMMER SESSION, 1932

	Men	Women	Total
Regular Students	231	310	541
Auditors	3	13	16
4-H Club Short Course	286	352	638
Total	520	675	1195

ENROLLMENT IN GENERAL EXTENSION DIVISION*

Oregon State System of Higher Education
(See pages 357-359)
July 1, 1932, to June 30, 1933

	Undergraduate			Graduate			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Extension Classes									
Portland Extension Center	566	865	1,431	44	61	105	610	926	1,536
Eugene	13	55	68	.....	.....	.....	13	55	68
Hood River	14	31	45	.....	.....	.....	14	31	45
Medford	4	22	26	.....	.....	.....	4	22	26
Salem	18	57	75	.....	.....	.....	18	57	75
Total	615	1,030	1,645	44	61	105	659	1,091	1,750
Correspondence Study									
New registrants	258	457	715	.....	.....	.....	258	457	715
Students registered before July 1, 1932, still enrolled	285	438	723	.....	.....	.....	285	438	723
Total	543	895	1,438	.....	.....	.....	543	895	1,438
Total, General Extension Division	.....	.....	.....	.....	.....	.....	1,202	1,986	3,188

*The enrollments given in the table do not include adult extension in agriculture and home economics or junior extension in the 4-H clubs through the Federal Cooperative Extension service (see pages 359-362) nor do they include enrollments in radio classes and other non-credit work of the General Extension Division.

SUMMARY OF DEGREES GRANTED 1932-33

Advanced Degrees		
Doctor of Engineering (Honorary)	1	.....
Doctor of Laws (Honorary)	1	.....
Doctor of Science (Honorary)	1	.....
Master of Arts	1	.....
Masters of Science	52	.....
Total advanced degrees	.....	56
Bachelors' Degrees		
Bachelors of Science —		
Agriculture	46	.....
Commerce	105	.....
Education	87	.....
Chemical Engineering	16	.....
Civil Engineering	18	.....
Electrical Engineering	21	.....
Industrial Arts	3	.....
Mechanical Engineering	14	.....
Mines	3	.....
Forestry	24	.....
Home Economics	57	.....
Pharmacy	13	.....
Science	11	.....
Total bachelors' degrees	.....	418
Other Degrees		
Pharmaceutical Chemists	13	.....
Total	.....	13
Total degrees granted 1932-33	.....	487

Index of Names

(For General Index see page 411.)

Index

(For Index of Names see page 407.)