CATALOGUE

OF THE

Oregon Agricultural College

FOR

1913-1914

With List of Students for 1912-1913

CORVALLIS, OREGON

May, 1913

CALENDAR, 1913

JULY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
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AUGUST

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SEPTEMBER

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CALENDAR, 1914.

JANUARY

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MAY

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JUNE

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21	22	23	24	25	26	27
28	29	30				

COLLEGE CALENDAR—1913-1914

1913.

July 9, Wednesday—Annual meeting of Board of Regents.
September 19, 20, 22, Friday, Saturday, Monday—Registration and examinations for admission.
September 23, Tuesday—Recitations begin.
November 26, 27, 28, 29, Wednesday (noon), Thursday, Friday, Saturday—Thanksgiving recess.
December 8-13, Monday-Saturday—Farmers' Week.
December 20, Saturday (noon)—Christmas recess begins.

1914.

January 5, Monday—Regular exercises resumed.
January 5, Monday—Winter short courses begin.
January 7, Wednesday—Semi-annual meeting of Board of Regents.
February 2, 3, 4, 5, Monday, Tuesday, Wednesday, Thursday—First semester examinations.
February 5, Thursday—First semester ends.
January 31, Saturday—Winter short courses end.
February 10, Tuesday—Second semester begins.
April 8, Wednesday—Meeting of Board of Regents.
May .....—Military Inspection.
May .....—Senior Rhododendron Excursion.
May 30, Saturday—Decoration Day; legal holiday.
June 1, 2, 3, 4, 5, Monday, Tuesday, Wednesday, Thursday, Friday—Second semester examinations.
June 7, Sunday—Baccalaureate Exercises.
June 8, Monday—Alumni and Graduating Class Exercises.
June 9, Tuesday—Commencement Exercises.
June 15, Monday—Summer School begins.

BOARD OF REGENTS

of the

OREGON AGRICULTURAL COLLEGE

and

Experiment Station

OFFICERS

HON. J. K. WEATHERFORD, President ..... Albany
HON. E. E. WILSON, Secretary ..... Corvallis
HON. B. F. IRVINE, Treasurer ..... Portland

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HON. OSWALD WEST, Governor of the State ..... Salem
HON. BEN W. OLCOTT, Secretary of State ..... Salem
HON. J. A. CHURCHILL, Supt. of Public Instruction ..... Salem
HON. CHARLES E. SPENCE, Master of State Grange, Oregon City

APPOINTED BY THE GOVERNOR

		Term Expires.
MRS. CLARA H. WALDO	Portland,	1915
HON. E. E. WILSON	Corvallis,	1915
HON. B. F. IRVINE	Portland,	1915
HON. J. T. APPERSON	Parkplace,	1918
HON. J. K. WEATHERFORD	Albany,	1918
HON. C. L. HAWLEY	McCoy,	1918
HON. WALTER M. PIERCE	La Grande,	1921
HON. H. VON DER HELLEN	Wellen,	1921
HON. GEO. M. CORNWALL	Portland,	1921

STANDING COMMITTEES

of the

BOARD OF REGENTS

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FINANCE COMMITTEE

J. T. Apperson, Chairman; W. M. Pierce, C. L. Hawley.

COLLEGE COMMITTEE

B. F. Irvine, Chairman; W. M. Pierce, C. L. Hawley.

STATION COMMITTEE

W. M. Pierce, Chairman; Geo. M. Cornwall, H. Von der Hellen.

INSTITUTE COMMITTEE

C. L. Hawley, Chairman; C. E. Spence, H. Von der Hellen.

FORESTRY

Geo. M. Cornwall, Chairman; Oswald West, C. L. Hawley.

OFFICERS OF ADMINISTRATION AND INSTRUCTION

(Arranged in groups in the order of seniority of appointment)

ADMINISTRATIVE COUNCIL

WILLIAM JASPER KERR, D. Sc.,
President.

JAMES WITHYCOMBE, M. Agr.,
Director of the Agricultural Experiment Station.

ARTHUR BURTON CORDLEY, M. S.,
Dean of the School of Agriculture.

GRANT ADELBERT COVELL, M. E.,
Dean of the School of Engineering and Mechanic Arts.
Professor of Mechanical Engineering.

JOHN ANDREW BEXELL, A. M.,
Dean of the School of Commerce.
Professor of Business Administration.

EDWIN DEVORE RESSLER, A. M.,
Director of the Summer School.
Professor of Industrial Pedagogy.

ANNA ZOU CRAYNE, A. B., M. D.,
Dean of Women.

HENRIETTA WILLARD CALVIN, S. B.,
Dean of the School of Domestic Science and Art.
Professor of Domestic Science.

RALPH DORN HETZEL, A. B., LL. B.,
Director of Extension Service.

COLLEGE COUNCIL

(The members of the Administrative Council are also members of the College Council.)

FREDERICK BERCHTOLD, A. M.,
Professor of the English Language and Literature.

JOHN B. HORNER, A. M., Litt. D.,
Professor of History.

GORDON VERNON SKELTON, C. E.,
Professor of Civil and Highway Engineering.

JOHN FULTON, M. S.,
Professor of General and Analytical Chemistry.

THOMAS HENRY CRAWFORD, A. M.,*
Professor of Commercial Law.

CLAUDE ISAAC LEWIS, M. S. A.,
Professor of Horticulture.

CHARLES LESLIE JOHNSON, B. S.,
Professor of Mathematics.

CLARENCE MELVILLE McKELLIPS, Ph. C.,
Professor of Pharmacy.

JAMES DRYDEN,
Professor of Poultry Husbandry.

HENRY DESBOROUGH SCUDDER, B. S.,
Professor of Agronomy.

HENRY MARTIN PARKS, B. S., E. M.,
Professor of Mining Engineering.

WILLIAM FREDERIC GASKINS, B. S.,
Professor of Music.

*On leave of absence.

WILLIAM ARTHUR JENSEN,
Recorder of the Faculties.
Secretary to the President.

GEORGE WILCOX PEAVY, M. S.,
Professor of Forestry.

FARLEY DOTY McLOUTH, B. S.,
Professor of Art.

WILLIBALD WENIGER, Ph. D.,
Professor of Physics.

HERBERT SPENCER JACKSON, A. B.,
Professor of Botany and Plant Pathology.

LOUIS BACH, M. A.,
Professor of Modern Languages.

CLARENCE A. DOBELL,
Manager Business Office.

IDA ANGELINE KIDDER, A. B., B. L. S.,
Librarian.

ERMINE L. POTTER, B. S..
Professor of Animal Husbandry.

THEODORE DAY BECKWITH, M. S.,
Professor of Bacteriology.

WILLIAM ARTHUR HILLEBRAND, A. B.,
Superintendent of Light and Power.
Professor of Electrical Engineering.

HELEN BRYCE BROOKS,
Professor of Domestic Art.

EDWARD JAMES STEWART, M. D.,
Director of Athletics
Professor of Physical Education for Men.

MIRIAM THAYER, A. B.,
Professor of Physical Education for Women.

P. J. HENNESSEY, 1st Lieut. 15th U. S. Cavalry,
Commandant of Cadets.
Professor of Military Science and Tactics.

HECTOR MACPHERSON, Ph. D.,
Professor of Political Economy.

ULYSSES GRANT DUBACH, Ph. D.,
Professor of Political Science.

ROY R. GRAVES, M. S.,
Professor of Dairy Husbandry.

VICTOR RAY GARDNER, M. S.,
Associate Professor of Pomology.

MARK CLYDE PHILLIPS, B. M. E.,
Superintendent of Heating.
Associate Professor of Mechanical Engineering.

ARTHUR LEE PECK, B. S.,
Superintendent of Campus and Greenhouses.
Associate Professor of Landscape Gardening and Floriculture.

EDWIN T. REED, B. S., A. B..
College Editor.

GEORGE ROBERT HYSLOP, B. Sc.,
Associate Professor of Crop Production.

HERMAN VANCE TARTAR, B. S.,
Associate Professor of Agricultural Chemistry.

FRED LLEWELLYN GRIFFIN, M. S.,
Associate Professor of Agricultural Education.

.....

Associate Professor of Mining Engineering.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English Language and Literature.

NICHOLAS TARTAR, B. S.,
Assistant Professor of Mathematics.

ELMER POLIC JACKSON, B. S.,
Superintendent of Carpentry Shop.
Assistant Professor of Technical Woodwork.

ARTHUR GEORGE BOUQUET, B. S.,
Assistant Professor of Vegetable Gardening.

SAMUEL HERMAN GRAF, M. S.,
Assistant Professor of Experimental Engineering.

HAROLD MANLEY TENNANT,
Registrar.

AVA B. MILAM, Ph. B., A. M.,
Assistant Professor of Domestic Science.

EDGAR RAYMOND SHEPARD, A. M.,
Assistant Professor of Electrical Engineering.

WILBUR LOUIS POWERS, M. S.,
Assistant Professor of Irrigation and Drainage.

MERRIS M. McCOOL, Ph. D.,
Assistant Professor of Soils.

HAILEY FROST WILSON, M. S.,
Assistant Professor of Entomology.

EDWARD BENJAMIN BEATY, B. S.,
Assistant Professor of Mathematics.

GEORGE FRANCIS SYKES, M. A.,
Assistant Professor of Zoology and Physiology.

HAROLD STEPHENSON NEWINS, Ph. B., M. F.,
Assistant Professor of Forestry.

RENTON KIRKWOOD BRODIE, M. S.,
Assistant Professor of General Chemistry.

MILO REASON DAUGHTERS, A. M.,
Assistant Professor of Organic Chemistry.

ALFRED GUNN LUNN, B. S.,
Assistant Professor of Poultry Husbandry.

GEORGE W. SCOTT,
Assistant Professor of Stenography.

ELMER J. BROWN, Ph. D.,
Assistant Professor of Political Economy.

LULIE W. ROBBINS, B. S.,
Assistant Professor of Domestic Science and Art.
Extension Service.

.....
Assistant Professor of Civil Engineering.

.....
Assistant Professor of Veterinary Science.

WALTER S. BROWN, B. A., B. S.,
Assistant Professor of Horticulture.
Extension Service.

FACULTY

(The members of the Administrative and College Councils are also members of the Faculty.)

HARRY L. BEARD, B. S.,
Director of Cadet Band.
Instructor in Mathematics.

LOREN BURTON BALDWIN, A. M.,
Instructor in English.

WILLIAM McCAULLY PORTER,
Instructor in Forging.

CARL LAFAYETTE KNOPF, M. E.,
Instructor in Mechanical Engineering.

EARL PAUL HARDING, B. S.,*
Instructor in Chemistry.

GENEVIEVE BAUM-GASKINS,
Instructor in Voice.

OTTO GERALD SIMPSON, B. S.,
Instructor in Dairy Husbandry.

GERTRUDE EWING McELFRESH, A. B.,
Instructor in English.

ALICE LEORA EDWARDS, B. S.,
Instructor in Zoology.

JAMES GEORGE ARBUTHNOT, B. S.,
Instructor in Physical Education.

MAY BABBITT-RESSLER,
Instructor in Piano.

*On leave of absence.

FLORENCE BOWDEN,
Instructor in English and Music.

GEORGE ROY SAMSON, B. S., A. B.,
Instructor in Animal Husbandry.

EDITH CARTER KUNEY, A. B.,
Instructor in Modern Languages.

WILLIAM EVANS LAWRENCE, B. S.,
Instructor in Botany.

LAWRENCE F. WOOSTER, B. S.,
Instructor in Electrical Engineering.

GRACE CAMPBELL, B. S.,
Instructor in Mathematics.

SAMUEL MICHAEL PATRICK DOLAN, C. E.,
Instructor in Civil Engineering.

ROY HERBERT DOBELL, A. B.,
Instructor in Art and Architecture.

ARTHUR MATHIAS SWARTLEY, B. S., M. E.,
Instructor in Mining Engineering.

LUCY M. LEWIS, A. B., B. L. S.,*
Library Cataloguer.

JOHN MONTGOMERY SPEIDEL, B. S.,
Instructor in Horticulture.

AMBROSE ELLIOTT RIDENOUR, B. S.,
Instructor in Foundry Practice.

EDGAR PERKINS WALLS, M. S.,
Instructor in Botany.

*On leave of absence.

CHARLES GEORGE WILTSHIRE,
Instructor in Plumbing and Steam Fitting.

SIGURD H. PETERSON, B. A.,
Instructor in Public Speaking.

CHARLES E. OWENS, A. M.
Instructor in Botany.

ERWIN BERTRAN LEMON, B. S.,
Instructor in Commerce.

FLOYD ROWLAND, B. S.,*
Instructor in Chemistry.

JOSEPH B. YODER, B. S.,
Instructor in Mechanical Drawing.

ALBERT FRED JOHN LAFKY, B. S.,
Orchard Foreman.
Instructor in Horticulture.

ALICE MARKS DOLMAN, M. S.,
Instructor in Domestic Science.

ANNIE L. ROBINSON, B. S.,
Instructor in Domestic Art.

WILLIAM ALFRED BEVAN, B. S.,
Instructor in Physics.

REX E. EDGECOMB, B. S.,
Instructor in Civil Engineering.

QUEEN INEZ JOHNSON,
Instructor in Music.

HILDA MILLER, B. S.,
Instructor in Chemistry.

*On leave of absence.

SARAH LOUISE LEWIS,
Instructor in Domestic Science.

GILBERT BRUCE BLAIR, A. M.,
Instructor in Physics.

CAROLYN M. PLOCK,
Instructor in Physical Education for Women.

FAY HARRY ROSENCRANTS, B. S.,
Instructor in Mechanical Engineering.

EMIL MARK D. BRACKER, B. S.,
Instructor in Farm Mechanics.

GEORGE EDWARD GOODSPEED, Jr., B. S.,
Instructor in Mining Engineering.

HARVEY GODFREY McCOMB,
Instructor in Pattern Making.

KATHERINE MONELL HITCHCOCK,
Instructor in Domestic Art.

DARWIN G. THAYER, B. S.,
Instructor in Mechanical Engineering.

SIDNEY WILLIS FRENCH, E. Met.,
Instructor in Mining Engineering.

RUTH McNARY SMITH, B. S.,
Instructor in Domestic Science.

ELTA MARIE RABER, B. S.,
Instructor in Domestic Art.

MARGARET McCALL, B. S.,
Instructor in Domestic Science.

JOHN HARRISON BELKNAP, B. S.,
Instructor in Physics.

BARBARA MOORE, B. S.,
Instructor in Domestic Art.

GRACE CHRISTINE ROSAAEN,
Instructor in English and Dramatic Art.

ETHEL ISABEL GROAT, Ph. B.,
Instructor in Modern Languages.

DONALD E. BUYERS, B. S.,
Instructor in Experimental Engineering.

LILLIAN M. GEORGE,
Cataloguer in Library.

IRVING H. BLAKE, A. B., A. M.,
Instructor in Zoology and Physiology.

CATHERINE T. VANCE, A. M.,
Secretary of College Y. W. C. A.,
Instructor in English.

O. M. NELSON, B. S.,
Instructor in Animal Husbandry.

WINIFRED M. ATWOOD, M. S.,
Instructor in Botany and Plant Pathology.

.....
Instructor in Pharmacy.

.....
Instructor in Bacteriology.

.....
Instructor in Physical Education for Men.

.....
Instructor in General Chemistry.

R. ADAMS DUTCHER, M. S., A. M.,
Instructor in Agricultural Chemistry.

RACHAEL WEBB HAIGHT,
Assistant in Library.

BERTHA HERSE, B. S.,
Assistant in Library.

GODFREY VERNON COPSON, M. S.,*
Assistant in Bacteriology.

CHARLES REYNOLDS,
Assistant in Military Science.

DOROTHY KEATLEY, B. S.,
Assistant in Domestic Art.

ROY E. MARSHALL, B. S.,
Assistant in Horticulture.

LYNN E. CRONEMILLER,
Student Assistant in Forestry.

OTHER OFFICERS

ESTHER VESTAL LEECH, B. S.,
Preceptress of Women's Dormitory.

PAUL MEREDITH COLLINS, A. B.,
Secretary of Extension Service.

SIBYLLA HADWEN,
Housekeeper, Women's Dormitory.

DAVID MASTERTON,
Foreman Campus and Greenhouses.

GEORGE B. KEADY,
Foreman Printing Plant.

JOHN H. EDWARDS,
ELLSWORTH ERWIN,
Head Janitors.

*On leave of absence.

STAFF OF AGRICULTURAL EXPERIMENT STATION

WILLIAM JASPER KERR, D. Sc.,
President.

JAMES WITHYCOMBE, M. Agr.,
Director.

CLAUDE ISAAC LEWIS, M. S. A.,
Horticulturist.

JAMES DRYDEN,
Poultry Husbandman.

HENRY DESBOROUGH SCUDDER, B. S.,
Agronomist.

HERBERT SPENCER JACKSON, A. B.,
Botanist and Plant Pathologist.

THEODORE DAY BECKWITH, M. S.,
Bacteriologist.

ERMINE L. POTTER, B. S.,
Animal Husbandman.

HERMAN VANCE TARTAR, B. S.,
Chemist.

HAILEY FROST WILSON, M. S.,
Entomologist.

ROY R. GRAVES, M. S.,
Dairy Husbandman.

VICTOR RAY GARDNER, M. S.
Pomologist.

GEORGE ROBERT HYSLOP, B. Sc.,
Assistant Agronomist.

ARTHUR GEORGE BOUQUET, B. S.,
Olericulturist.

EDWARD JACOB KRAUS, B. S.,
Research Associate in Horticulture.

VICTOR I. SAFRO, B. S. A.,
Research Assistant in Entomology.

WILBUR LOUIS POWERS, M. S.,
Assistant Agronomist.

HOWARD P. BARSS, A. B., S. M.,
Research Assistant in Plant Pathology.

MERRIS M. McCOOL, Ph. D.,
Assistant Agronomist.

BERT PILKINGTON, B. S.,
Research Assistant in Chemistry.

FRANK ROSS BROWN, B. S.,
Research Assistant in Horticulture.

LYMAN BUNDY, B. S.,
Research Assistant in Chemistry.

FLOYD DOUGLAS BAILEY, M. S.,
Research Assistant in Plant Pathology.

FREDERICK CHARLES BRADFORD, M. S.,
Research Assistant in Horticulture.

HENRY ELLSWORTH EWING, Ph. D.,
Research Assistant in Entomology.

A. LESTER LOVETT, B. S.,
Research Assistant in Entomology.

ALONZO F. VASS, M. S.,
Research Assistant in Bacteriology.

REGINALD H. ROBINSON, A. B.,
Research Assistant in Chemistry.

ALFRED FRED JOHN LAFKY, B. S.,
Orchard Foreman.

GEORGE ROY SAMSON, A. B., B. S.,
Assistant Animal Husbandman.

O. M. NELSON, B. S.,
Assistant Animal Husbandman.

GLANCY S. RALSTON, B. S.,
Research Assistant in Horticulture.

CHARLES EUGENE ROBINSON,
Foreman Stock Farm.

CHARLES CHAUNCY LAMB,
Foreman Poultry Plant.

HELEN LUCILE HOLGATE, B. S.,
Station Clerk.

UNION BRANCH EXPERIMENT STATION

ROBERT WITHYCOMBE, B. S.,
Superintendent.

UMATILLA BRANCH EXPERIMENT STATION

RALPH WILMER ALLEN, B. S.,
Superintendent.

SHERMAN COUNTY DRY-FARM BRANCH EXPERIMENT STATION

D. E. STEPHENS, B. S.,
Superintendent.

SOUTHERN OREGON BRANCH EXPERIMENT STATION

F. C. REIMER, M. S.,
Superintendent.

HARNEY VALLEY BRANCH EXPERIMENT STATION

LEROY BREITHAUPT, B. S.,
Superintendent.

HOOD RIVER COUNTY BRANCH EXPERIMENT STATION

C. C. STARRING,
Horticulturist.

.....

Plant Pathologist.

STANDING COMMITTEES

(The President of the College is ex-officio a member of all standing committees.)

1. **Entrance Examinations**—Professors Tartar, McLouth, Mr. Baldwin.

2. **Scholarship and Graduation**—Professors Berchtold, Skelton, Weniger, Hillebrand, Mr. Tennant.

3. **Graduate Students and Advanced Degrees.**—Professors Skelton, Cordley, Ressler, Weniger.

4. **Credentials, Advanced Standing, and Substitutions**—Professors Ressler, Berchtold, Johnson, Mr. Tennant.

5. **Schedules**—Professors Johnson, Beaty.

6. **Student Affairs**—Professors Peavy, Beckwith, Reed, Thayer, Mr. Peterson.

7. **Student Domiciles**—Professor Horner, Dean Crayne, Professor Beckwith, Mr. Simpson.

8. **Athletics**—Professors Stewart, Cordley, Peavy, Mr. C. A. Dobell, Mr. Pilkington, Mr. Dolan.

Oregon Agricultural College

GENERAL INFORMATION

FOUNDATION AND ENDOWMENT

In pursuance of an Act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each State in the Union to the amount of thirty thousand acres, or its equivalent, for each Senator and Representative in Congress to which the State was entitled by the apportionment of the census of 1860. The proceeds under this Act were to constitute a perpetual fund, the principal of which was to remain forever undiminished; but the interest arising from said fund was to be inviolably applied by each State that should avail itself of the benefits of the Act, to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

THE LAND GRANT FUND. The subsequent sale of this land has netted the College approximately $200,000. This at present is

invested in securities bearing six per cent interest. The Act of Congress of 1862 explicitly states that no part of the funds so appropriated, or the interest arising therefrom, shall be used for the purchase, erection, or maintenance of any building or buildings.

THE HATCH FUND. Under an Act of Congress, approved March 2, 1887, the College receives $15,000 a year for the maintenance of an Agricultural Experiment Station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture."

THE MORRILL FUND. On August 30, 1890, an Act was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the Act of 1862." This Act provided that in 1890, $15,000 should be paid to each of the land grant colleges, and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000. Under an Act of Congress, approved March 4, 1907, known as the Nelson Amendment, this fund is increased by the sum of $5,000 for the first fiscal year ending June 30, 1908, and by an additional $5,000 for each succeeding year until the total annual amount is $50,000.

THE ADAMS FUND. An Act of Congress, approved March 20, 1906, appropriated an initial $5,000 for that year, and $2,000 additional for each year thereafter until the annual amount should reach $15,000. This fund is "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry" of the State, and therefore supplements the Hatch Fund in the maintenance of the Experiment Station.

In addition to the income which it derives from the National Government, the College is dependent upon the State Legislature for such appropriations as are required for the maintenance and development of the institution, in accordance with the provisions of the Acts of Congress, and in response to the industrial and educational demands of the State.

HISTORY

As there were no State colleges in Oregon in 1868, the Legislature of that year, which provided for the location of the land received under the Act of 1862, gave the interest on the funds derived from the sale of the land to the Corvallis College, a private institution in Benton County, which was then under the control of the Methodist Episcopal Church, South. For a number of years, none of the land granted was sold, and the Legislature made small annual appropriations for the support of the school.

In 1885, the church voluntarily relinquished its claim on the funds of the college and the State assumed entire control of the institution. The Legislature of that year provided for the "permanent location of the State Agricultural College at Corvallis, in Benton County," on condition that the citizens of said county should, within four years, erect on the "farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College Farm, brick buildings for the accommodation of said State Agricultural College at a cost of not less than $20,000." During the summer of 1887, the corner stone of the building erected by the citizens of Benton County was laid by the Governor of Oregon, amid imposing ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew, more land was needed and provided, and instead of thirty-five acres originally comprising campus and grounds, the institution now owns three hundred and forty acres; and instead of one structure, there are now thirty. There has also been an increase in the attendance from ninety-seven to upwards of two thousand students. Twenty years ago, most of the students came from Benton and neighboring counties. Now, every county in Oregon, thirty-seven other states, and ten foreign countries are represented. The increase in the number of students, called for an increase in the number of the faculty. This body, from the number of five in 1884, has grown until it now closely approaches the seven-score mark. Other

features usually found in connection with progressive educational institutions have grown in equal ratio. The courses have been strengthened, the standard has been advanced, and other improvements have been made from time to time, which have added to the thoroughness and efficiency of the work.

GOVERNMENT

The general government of the College is vested primarily in the Board of Regents, and, under their control, in four other administrative bodies—the Administrative Council, the College Council, the Faculty, and the Experiment Station Staff. These bodies, in the exercise of their respective duties, determine the questions of policy and regulate all matters relating to the interests of the institution.

THE BOARD OF REGENTS consists of thirteen members, of whom the Governor, the Secretary of State, the Superintendent of Public Instruction, and the Master of the State Grange, are ex-officio members. The other nine members are appointed by the Governor with the approval of the State Senate, and hold office for a term of nine years. Under a law of the State Legislature, passed in 1885, the Board of Regents constitutes a body corporate, under the name of "The Board of Regents of the State Agricultural College, * * * with power to sue and be sued, and to make contracts," and to enact such regulations as may be necessary for the maintenance and development of the College.

THE ADMINISTRATIVE COUNCIL consists of the President of the College, the Director of the Experiment Station, the Deans of the different Schools, the Director of the Summer School, the Dean of Women, and the Director of Extension. The function of this Council is to consider and determine the larger questions of policy and administration.

THE COLLEGE COUNCIL is composed of the President of the College and all officers of administration and instruction with the rank of professor, associate professor, or assistant professor. This body considers all general questions relating to the educational work and policy of the College; arranges and correlates the courses of study, and determines the requirements for admission and

graduation. The different committees of the College Council, representing the several schools of instruction, have charge of the enrollment and progress of students in the respective schools, and investigate the records of all candidates for graduation.

THE COLLEGE FACULTY comprises members of the College Council and all other instructors and members of the Experiment Station Staff. It considers routine questions of method and discipline, for which it is particularly well adapted, being in close contact with all that pertains to student interests and student life.

THE EXPERIMENT STATION STAFF includes the President of the College, the Director of the Experiment Station, the heads of the various departments of the School of Agriculture and all assistants, engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in the development of the agricultural interests of the State. They also distribute information regarding their investigations by means of correspondence, circulars and station bulletins.

THE STUDENTS. The College does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Since the advantages of the institution are provided at public expense, the students are under special obligation to perform faithfully all their duties, not only to the College, but also to the State and to the community. Whenever the deportment of any student is such that his influence is inimical to the interests of the institution, he will be relieved from further attendance.

PURPOSE AND SCOPE

The purpose of the College is to provide, in accordance with the Acts of Congress under which it is maintained, a liberal, thorough, and practical education,—an education that will afford the training required for efficient service in different branches of industry. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the application of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is

based on scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development, and culture, is recognized in all of the work throughout the institution. The object is to meet the demand for a broad and general education, supplemented by special technical training.

The work, therefore, covers a broad field, including technical courses along the different lines of agriculture and forestry, commerce, pharmacy, engineering, and household technology; with the necessary training in the basic subjects of mathematics and the natural and physical sciences; and also the general training in language, literature, history, and civics, which constitutes an essential part of a liberal education.

In all the work of the institution, the object is to train the mind, the eye, and the hand to act in unison; to unfold and coordinate the faculties of mind and body; to develop a symmetrical manhood and womanhood, and a just appreciation of clean, upright citizenship.

LOCATION

The seat of the Oregon Agricultural College is Corvallis, a city of over five thousand inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the far-famed Willamette Valley. It is readily accessible by railway from all parts of the State; it has free mail delivery; there are many churches, and no saloons, and the moral tone is equal to that of any city within the boundaries of the State. It is a city of homes, and its people are justly proud of the great institution in the midst of them, and jealously guard its good name.

Situated on high, well-drained land, open to the invigorating sea-breeze, Corvallis is one of the most healthful cities in the State. It has never been visited by any dangerous epidemic disease, and the possibilities of such visitation in the future appear remote, for the city has a complete modern sewerage system and first-class gravity water system, supplied from springs high up the slope of Mary's Peak, the tallest mountain in the Coast Range, some fifteen miles away to the west. The city and its environs are conducive

to wholesome student and home life. It has an ample supply of pure mountain water for all domestic and sanitary purposes. The atmosphere is purified and the climate ameliorated by almost constant ocean breezes —warm in winter and cool in summer. The surrounding landscape elicits praise from all who behold its delightful charms as viewed in the extensive area of fertile fields, gardens and orchards. The wooded glens of the near-by foothills, and the rippling mountain brooks, or the more pretentious streams frequented by canoe, yacht, and launch parties, are fruitful sources of recreation; while the magnificent distant views to the east, where the fir-clad Cascade Mountains, with their wealth of trees and the perennially snow-capped sentinels —Hood, Jefferson, and the Three Sisters—present a constant panorama of picturesque mountain scenery. With such an environment, the city is truly an ideal location for a college and a home.

GROUNDS AND BUILDINGS

THE COLLEGE GROUNDS comprise three hundred and forty acres. That part of the grounds, forty-five acres in extent, lying immediately about the several buildings and usually designated as the lawns and campus, is tastefully planted with both native and exotic ornamental trees, shrubs, and herbs. The one hundred and eighty acres used for the farm, garden, and orchard operations is so platted and planted as to meet the demands of the various lines of work and still conform to a general scheme of landscape embellishment. This portion occupies a slightly elevated and gently undulating site wholly within the western limits of the City of Corvallis. In addition to the above plot, one hundred and fifteen acres, comprising the College stock farm, recently acquired, lies just south of the city limits. Broad drives and walks traverse the campus in all directions, thus rendering every objective point easily accessible. The numerous magnificent specimen trees, groups of shrubbery, and massed borders are a source of enjoyment as well as of instruction to all those who frequent the grounds. The scheme of planting has been such as to give an air of peaceful activity, orderly effort, earnest purpose, and quiet refinement. Daily association with such scenes, for a period of years, during the time

when men and women are forming the habits of thought and action that will be theirs through life, is certain to have a deep-seated and subtile influence for good in moulding the character of future citizens.

The following brief descriptions will convey a general idea as to the principal buildings and the purposes for which they are used:

THE ADMINISTRATION BUILDING is a three-story brick structure 90x120 feet, containing nine recitation rooms, the library, the offices of the President, the Registrar, and the Business Manager. Centrally located and on a slight eminence, it commands an unsurpassed view of the campus, the city of Corvallis, the Willamette River, and the picturesque Cascades.

SCIENCE HALL, situated southeast of the Administration Building, and constructed of gray granite and sandstone, covers a ground space of 85x125 feet, has three stories and basement, and contains twenty-nine rooms. It is one of the most substantial buildings on the ground, and within it, at present, are the Forestry, Pharmacy, and Chemical Departments, with their various laboratories, recitation rooms and lecture halls, together with the offices and laboratories of the experiment station chemist.

AGRICULTURAL HALL, standing southwest of the Administration Building, is the largest structure on the campus. It is an imposing edifice of brick and sand stone and consists of the central or Administrative Building, the north or Agronomy wing, and the south or Horticultural wing.

The central or Administrative Building is 66x140 feet, four stories and basement, and contains a total of forty-two conveniently arranged and well-lighted class rooms, laboratories and offices. Upon the first floor are the offices of the Director of the Experiment Station, the Dean of the School of Agriculture, the Professor of Poultry Husbandry, the Director of Extension Work, the mailing rooms, and the Agricultural library. The second floor is occupied by the department of Industrial Pedagogy, the offices of the Dean of the School of Domestic Science and Art, and of the Professor of Animal Husbandry; the third floor, by the department of Zoology and Entomology; and the fourth floor, by the departments of Bacteriology and Art, together with the general museums.

The north or Agronomy wing is 72x130 feet, and three stories high. It faces north and east, commanding splendid views of the valley and the College grounds. It is thoroughly modern in all its equipments, and while intended solely for the work in Agronomy, at present it accommodates, temporarily, three departments, with parts of others. The first floor, occupied by the department of Agronomy, contains eight rooms, and is especially arranged for such work as Agrostology, Soil Physics, and kindred subjects. The second floor contains nine large rooms, particularly arranged for the work in Domestic Arts, such as dressmaking, sewing, millinery, cutting, fitting, and modeling. The third floor, with eight rooms, is fitted for the work of the course in Commerce, consisting of accounting, shorthand, typewriting, banking, merchandising, and other phases of commerce.

The south or Horticultural wing is 72x130 feet, and three stories high. In the basement are located laboratories for plant propagation, spraying, vegetable preparation, and fruit packing. The basement also contains the general storage rooms for the department, and rooms which are especially adapted for the storage of fruits. The first floor contains the offices of the Division of Horticulture, the research laboratory, systematic pomology laboratory, and three large lecture rooms. The second floor contains the offices of the department of Botany and Plant Pathology, three recitation rooms, and three student laboratories. The third floor contains the horticultural museum and horticultural herbarium, photograph room, large student lecture room, drafting rooms, lecture rooms, and office of the Landscape Gardening Section. These rooms are all especially well lighted and contain every convenience for conducting the work with efficiency.

GREENHOUSES. A new range of greenhouses, modern in every respect, has recently been constructed with a view to aiding the student in his studies in commercial greenhouse work. The range is made up of five even-span houses, three ninety feet long by twenty feet wide, and two thirty-three feet long by twenty feet wide, making the total area under glass 6,720 square feet. A modern hot water heating apparatus has been installed, with valves and pipes so arranged that different temperatures can be

maintained in every separate thirty feet of house in the three long houses. Each of the large houses has been divided into sections thirty feet long so that the entire space in each may be given up to a single crop. Of the two smaller houses, one is given up to research work and one to the propagation of plants in general. The central building is large and conveniently arranged for all work that is to be met within greenhouse establishments. Such crops as carnations, chrysanthemums, violets, palms, ferns, general pot plants, and forced vegetables, like tomatoes, lettuce, and cucumbers, are grown in these houses.

DAIRY BUILDING. About sixty feet to the northward of the Agricultural Building is located the new Dairy Building. The general scheme of both outside and inside finish is similar to that of the Agricultural Building. The structure is 54x141 feet, three stories high. On the first floor are located the offices of the Dairy Department and commodious laboratories for butter making, cheese making, and market milk instruction, including a well equipped boiler and engine room and student lockers. On the second floor are the testing laboratory, advanced laboratory, farm dairy and shop rooms, two recitation rooms, office, exhibit, and drafting rooms. The third floor is temporarily occupied by the department of mathematics, with the exception of a general lecture room, extending across the south end of this floor, and having a seating capacity of two hundred.

THE MINES BUILDING, which is 65x81 feet, is located about 100 yards northwest of the Administration Building, and is the newest building on the campus. This building forms the northern boundary of the quadrangle which is planned in the new building scheme on the College campus. It is a fine four-story structure, constructed of brick, trimmed with stone, and similar in type to the new Agricultural Hall. The first floor of the building contains the main offices, assaying, metallurgical and ore dressing laboratories. The basement contains the crushing and sampling rooms, the ceramic laboratory and stock rooms. On the second floor will be found the Bureau of Mines laboratory and lecture and class rooms. On the third floor is the geological museum, the mineralogical and petrological laboratories and drafting room. All

the laboratories are provided with water, gas, electric lights, and steam heat.

MECHANICAL HALL, about one hundred and fifty yards northeast of the Administration Building, is 90x120 feet, two stories high, and constructed of Oregon gray granite and sandstone. It is a fine, substantial building, well arranged and admirably adapted to the purpose for which it is used. Besides recitation and lecture rooms for the classes in Mechanical, Electrical, and Civil Engineering, it contains the Physical and Engineering Laboratories.

MECHANICAL ARTS BUILDING is a modern, well-lighted structure of brick with cement foundations, 52x52 feet, two stories high, flanked by a one-story wing on the east, 40x220 feet, and a similar wing on the south, 40x200 feet. The central portion contains the office of the Dean, a display room for student work, a tool room for the machine shop, and a finishing room for the wood shop. On the second floor is a general drafting room, 30x50 feet, with a commodious blue-print room and a dark room adjoining. The south wing contains the main wood-working shop, 40x97 feet, a stock room, 30x40 feet, a carpenter shop, 20x40 feet, and the College printing plant, 40x50 feet. The east wing contains the machine shop, 40x80 feet, the blacksmith shop, 40x100 feet, store room for coal and iron, lockers, and toilet rooms.

THE FOUNDRY is immediately south of the blacksmith shop; it is built of brick and contains one 35-inch Colliau cupola for melting iron, one brass furnace, one portable core oven, and one stationary core oven for larger work; also pouring ladles, crucibles, snap flasks, and the usual equipment of hand tools for green sand moulding.

THE GYMNASIUM is situated about two hundred yards south of the Administration Building. The structure, 70x120 feet, is built of stone and wood. Its one large room is also used as a lecture hall and assembly room, or a place for entertainments when large audiences are to be accommodated. It will seat fourteen hundred persons. It has lockers and dressing rooms for six hundred men. The showers in the bath room are of modern design, and hot and cold water are available throughout the year. The floor of the gymnasium, with its 8,000 square feet of space, is surmounted by

a balcony and running track, suspended from the rafters. Basket ball court, 79x54 feet, indoor baseball diamond, and courts for various winter and indoor games, are provided on the main gymnasium floor.

THE ARMORY is situated about three hundred yards south of the Administration Building. It is one of the largest of its kind in the United States and is built of concrete and steel, 126x355 feet. The drill hall portion has an unobstructed area of 36,000 square feet. The arms room, offices, and drill hall afford facilities for the accommodation of 1,000 men.

THE POWER PLANT, a one-story brick building in the rear of Mechanical Hall, contains the requisite equipment for supplying the various buildings with heat, light, and power. The apparatus installed in this building serves the purpose also of demonstration equipment in these special lines.

THE NEW HEATING PLANT, located south of the Armory, is a one-story reinforced concrete building, with a concrete tunnel and conduits leading to the various buildings on the south side of the campus. It contains one two-hundred-fifty horsepower boiler with the necessary equipment for heating the buildings connected with it.

WALDO HALL, the women's dormitory, occupies a commanding site one hundred and fifty yards west of the Armony. It is a large building of striking appearance, with a cement foundation and basement wall, and a cream-colored, pressed-brick superstructure, three stories high. The dimensions are 96x240 feet; and it contains one hundred and fifteen rooms for students, besides a kitchen, dining room, parlors, and Domestic Science laboratories. It is modern in all its appointments and finished throughout in natural grain Douglas fir, stained to conform to the color scheme.

CAUTHORN HALL, the men's dormitory, is a well-proportioned frame building, situated on a sightly spot in the extreme western part of the campus. It is 160x50 feet, has three stories and basement, and contains sixty-two rooms, besides a large kitchen, dining room, and reception rooms. Its furnishings and appointments are adequate and in harmony with its use. Each floor is supplied with hot and cold water, baths, electric light, and steam heat.

SHEPARD HALL, the student building under the auspices of the Y. M. and Y. W. C. A., was completed at a cost of something over $22,000. The original plans were somewhat modified, giving in many respects a better building than planned at first. This building contains in the basement a swimming pool, shower baths, lockers, banquet room, kitchen, wood room, and accessories. The first floor contains a large lobby which is used for a reading room, game room for social events, and general assembly. It also contains an office for the General Secretaries, a public office, a cabinet and check room combined, a room for the Y. W. C. A., and one to be used jointly by the Athletic Association and the staffs of the different College papers. The second floor contains six rooms for the use of the literary societies. The third floor is devoted for the present to dormitory purposes. The building is known as Shepard Hall, and is a fitting tribute to the memory of Clay Shepard, who gave his life to the cause of cleaner, higher, and truer citizenship as exemplified in student life.

FARM BUILDINGS. The College Farm is now well equipped with farm buildings, and modern facilities for conducting practical and scientific work in animal husbandry.

THE NEW BARN is commodious, modern, and attractive in design. It is a frame building, with cement foundation and brick pilasters. The main part is 50x100 feet, two stories high, with two wings extending to the south, each 46x80 feet, one story in height. There is also a milk room, an engine room, and a fuel room. The building is utilized as a general barn, and will accommodate nine horses and seventy cattle, with sufficient space for the storage of feed. On the first floor of the main portion are located the horse stalls, bins for storing the various grains and mill feeds, a seed room and space for vehicles. The concrete basement is of sufficient dimensions to permit the storing of about one hundred tons of roots. The second floor has a storage capacity for one hundred tons of loose hay. A prominent feature of the barn is the cow stable. This is strictly modern, well lighted and ventilated, with concrete floor, thirty individual, tubular-iron adjustable stalls, and two commodious box stalls. The aisles are wide, and thus not only furnish an abundance of air space for the animals, but

also afford visitors an excellent opportunity to view the stock. The milk and engine rooms are conveniently situated but sufficiently isolated for proper sanitation. This building is lighted by electricity, well supplied with water, thoroughly sewered and furnished with an elaborate system of bell traps.

The old barns were moved and remodeled so as to harmonize with the new structure. They contain rooms for housing machinery, sheds for fattening cattle, and a commodious piggery.

THE STOCK JUDGING BUILDING. The Animal Husbandry work of the College has been aided during the past year by the erection of a new judging pavilion. This pavilion provides very comfortable and commodious quarters for all of the live stock work. The main room is 40x90 feet, well lighted and provided with steam heat. A movable partition is provided whereby this large room may be divided into two smaller ones, each large enough for all ordinary purposes. The live stock work in the past has been very much handicapped by crowded quarters without heat or good light, but these difficulties are now past and the department is in a position to do much better work than before.

FARM MECHANICS BUILDING. A new building has recently been completed for the Farm Mechanics work. It is an attractive, well-lighted brick building, having a large operating floor, a class room, locker room, shop, and tool room on the first floor. This operating floor is of cement and is roomy enough for demonstration and for the operation of the heavier farm machines. Within this place is reserved space for the very heavy farm tractors. A gallery surrounds this operating floor and provides space for the lighter farm implements such as the tillage, haying and harvesting machines.

The building is equipped with shafting, belting, and power for the operating and testing of the various machines. A large well is provided for making pump tests and a very large equipment of the most up-to-date farm machinery is loaned 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 classes of farm machinery of all types.

Representative machines are found in the laboratory as follows: plows, harrows, pulverizers, cultivators, plant setting machines, corn planters, potato planters, grain and grass seeders, mowers, rakes, binders, sprayers, manure spreaders, potato diggers, wagons, etc. Among the power machines are stationary gasoline engines, various types of pumps and pressure water systems, feed grinders, gasoline tractors, steam tractors, gang plows and complete threshing machines. All of this expensive equipment is available to students in Farm Mechanics in the regular and short course work.

THE POULTRY HOUSES. On a ten-acre tract of land, lying southeast of Cauthorn Hall, and west of Waldo Hall, there have been erected several buildings specially planned for the needs of the department of Poultry Husbandry. These buildings comprise an incubator house, with a capacity of twenty-four incubators and complementary apparatus, and thirty colony houses for laying stock and growing chicks. The colony houses are movable and constructed upon a plan that could be adopted by any farmer. The colony brooding coops are also portable, and are used for investigations in both natural and artificial brooding.

EQUIPMENT

It is impossible, in the brief space that is devoted to this topic, to give more than a bird's-eye view of the equipment of the institution. However, the following data have been so arranged as to give the prospective student a very good general idea of the comprehensive equipment that the institution possesses for carrying forward its designated work.

AGRONOMY. The new Agronomy Building provides spacious and well lighted offices, class rooms, laboratories, store rooms, and other facilities for this work. The large soil laboratory is newly equipped with the most modern apparatus for an exhaustive study of the physical properties of soils and of problems of soil fertility, Abundant desk and locker room, supplied with running water, gas, compressed air, and electricity, is furnished for sections of fifty students. Compound microscopes, compacting machines, aspirators, percolators, capillary tubes, mulch cylinders, electric centrifuges, shakers, and sifters, electrically heated air baths, thermometers, soil sieves, scales, analytic balances, chemical apparatus, pots and wire baskets, and greenhouse room, form part of the equipment for the work in Soil Physics and Soil Fertility. Soil surveying and mapping outfits, soil survey charts of the United States, and specimens of the chief soil types of Oregon and of the United States are being assembled.

For the work in Crop Production, another large laboratory is provided with special grain-judging compartment desks, sufficient to accommodate sections of thirty students. Part of the apparatus used for the several courses in this subject are grain sampling and mixing machines, complete sets of compound microscopes, dissecting microscopes, and large, mounted field lenses, general and special germinating chambers, various types of germinators, grain tester, grain receptacles of all kinds, and complete sets of seed and plant

specimens. Each student is provided with samples of both the seed and the plant of all the important field crops and weeds of Oregon and of the United States.

Farm Mechanics is provided for in a separate building on the farm, fitted with shafting and power, and fully equipped with all classes and types of tillage implements, manure spreaders, seeding, harvesting, and power machinery, farm engines of all kinds, together with apparatus for testing these machines. Drain tiles, surveying instruments, tile and ditching tools are furnished for drainage and irrigation work.

The Agronomy class rooms have demonstration tables, lantern facilities, illustrative charts of various kinds and a new reference library.

ANIMAL HUSBANDRY. The equipment of the department of animal husbandry consists essentially of the barns and live stock of the college stock farm. The live stock available for illustration and demonstration purposes includes typical specimens of Shorthorn and Angus cattle; Cotswold and Shropshire sheep; Berkshire, Yorkshire, Poland China, and Duroc Jersey swine; Belgian, Percheron, Clydesdale and Standard bred horses, together with the live stock being used in the experimental feeding tests. In addition to the live stock regularly kept on the college farm, much good stock is brought in from time to time by the leading breeders of the State. The college also possesses the necessary maps, charts, slides, studbooks, and other equipment for conducting the various lines of lecture, laboratory, field, and research work necessary to a broad course of study in the several phases of Animal Husbandry.

DAIRY HUSBANDRY. Commodious quarters are provided for this department in the new Dairy Building. The equipment is such as to permit handling milk and cream on a commercial scale, thus giving the student practice under actual factory conditions. The offices and manufacturing rooms are located on the first floor, the latter including a boiler room equipped with a 15 H. P. Internal Furnace boiler and a 10 H. P. Jewel Automatic steam engine. In the separator room are found turbine, belt and electric driven separators and the refrigerating machine. The churn room is provided with modern ripeners, combined churns and various

forms of butter molding appliances. The market milk room has a concrete sterilizer, a bottle washer, a bottle filling machine and milk coolers. The cheese room equipment includes a regulation cheese vat, small vats for individual student use, automatic pressure cheese press, curd mill, and various smaller articles to be found in a properly equipped cheese room. Two curing rooms adjoin the main cheese making laboratory.

On the second floor are located recitation rooms, exhibit and reading rooms, shop, farm dairy, advanced and general laboratories. The latter will accommodate two hundred students in sections of forty each, and are equipped with a full line of appliances for testing milk and milk products. In the advanced laboratory will be found moisture tests, salt tests, curd tests, and various other forms of apparatus suited to the needs of the advanced student. A circulating hot water system connects the wash sinks in all the laboratories. Both steam and electricity are used for power purposes.

HORTICULTURE. The new Horticultural Building contains many spacious rooms, and splendid equipment for teaching the various subjects. In the basement will be found a large spray laboratory furnished with gas and water and all the equipment, chemicals, and apparatus which are necessary to teach students the proper mixing and testing of the different sprays; accommodations are offered also for the testing of nozzles and spraying apparatus. The department has a large number of hand and power spraying outfits that are placed at the disposal of students.

A large, well lighted plant propagation laboratory offers unexcelled opportunities for the study of plant propagation. Specially equipped cabinets, tables, and incubator have been constructed; so that the students can handle to advantage such topics as seedage, layerage, making of cuttings, and budding and grafting.

A laboratory has been especially fitted for the use of students in gardening. It contains large cement set tubs, where students are taught the proper method of preparing vegetables for market. This room also contains a demonstration earth bed for use during the winter to show how the various tools for planting seed and cultivation are used. The demonstration bed also allows the

instructor to demonstrate the proper method of interplanting and transplanting of plants.

In the basement is also located a very large fruit packing laboratory especially equipped with fruit presses, packing and grading tables. The large storage rooms are also located in the basement and include a suite of rooms which are chilled by mechanical refrigeration.

On the first floor a systematic pomology laboratory is especially equipped for the study of nuts, fruits, etc. A special research laboratory, found on this floor, is used for the research assistants in the department, and is also at the disposal of advanced students. This room is splendidly equipped with ovens, microscopes, and similar apparatus necessary for extensive research work.

On the top floor is the horticultural museum, which is found to be of great value, as in this room are stored all sorts of equipment used in Horticulture, such as pruning shears, budding and grafting utensils, prune drying apparatus, fruit grades, etc. The Department also has on this floor an herbarium which is especially supplied with the plants used in Horticulture. On this floor is also found a large drafting room, extending along the entire south end of the building, which is supplied with tables, cabinets, etc., for the use of students studying Floriculture, Landscape Gardening, and Greenhouse construction, Orchard Planting, and Packing House construction. In addition to these rooms, the department has four large lecture rooms. A balopticon with a good collection of lantern slides, and a large library, add materially to the equipment.

The department is also especially provided with tools and apparatus necessary for conducting field exercises in Truck Gardening, Floriculture, Landscape Gardening and Pomology.

POULTRY HUSBANDRY. The equipment of this department consists of a number of poultry houses of different types; about 1,000 fowls of several breeds and varieties, twenty incubators of six different makes; brooders of different types;hatching, brooding, and colony coops; bone and clover cutters, trap-nests, and various other appliances necessary for practical poultry keeping. There are also sets of charts, lantern slides, motion pictures, and photographs, illustrating breeds of fowls, poultry farms and houses.

BACTERIOLOGY. This department now occupies new and commodious quarters on the fourth floor of the Agricultural Building. It has much more room at its disposal than heretofore, occupying at present three large laboratories, besides an incubator room and a smaller room for a library. The laboratories in general and advanced Bacteriology are completely equipped for work in this science. Apartment, lead-topped desks, individual wall lockers, cylindrical and square copper sterilizers supplied with steam from the main heating plant, small and large hot air sterilizers, a small and a large steam pressure sterilizer, the latter measuring 14x22 inches inside chamber, and arranged for "dry steam" sterilization, are conveniently arranged in the general laboratory for the larger sections. Small incubators are used by the advanced students, while a large incubator room, steam heated, is within easy access to both general and advanced laboratories. Lead-topped tables with convenient drawers furnish ample working space. Hot and cold water is supplied to a large 14-foot sink, fed by the main water system and by a 40-gallon hot water tank. Each desk and locker is equipped with a complete outfit of microscopes and accessories for high power work. There is a complete collection of common and precision glassware; and all the other necessary minor equipment for work in bacteriology is at the disposal of elementary and advanced students. There is a splendidly equipped dark room fully fitted up for work in photomicrography. In connection with this room there is an arc lamp for illumination purposes for this work.

This department is now presenting courses dealing directly with the following lines of work: Agriculture, pharmacy, clinical, vaccine therapy, home economics, sanitation, yeast culture, dairy, soil, water and sewage, and poultry diseases.

BOTANY AND PLANT PATHOLOGY. This department occupies the entire second floor of the Horticultural wing of the Agricultural Building. Besides three general student laboratories, a special laboratory for plant physiological work and an herbarium room, which is also used as an instructor's preparation room, are provided. This latter room is equipped with desks for special and graduate students. A large, well-lighted laboratory is provided for the experimental work in plant pathology. A small room for the

Department library and records is available. A special physiological dark room for experimental work in plant physiology is provided. The student laboratories are equipped with large student tables, each of which will accommodate four students. Compound and dissecting microscopes are provided for each student. The physiological laboratory is equipped with the essential apparatus for modern laboratory courses. The research laboratory in Plant Pathology has the most modern equipment available.

The phanerogamic herbarium of several thousand mounted and many thousand unmounted plants is particularly rich in Oregon forms, while containing quite extensive collections of the New Mexico, California, Michigan, Washington, and Alaska floras. The herbarium is being rapidly enlarged by purchase and exchange; particular attention is being given to the accumulation of economic material including the forest and shade trees of North America, agricultural plants of the world, pharmaceutical plants, weeds and grasses of economic importance. Large and miscellaneous collections of the various groups of cryptogamic plants are being assembled. Particular attention is being given to the collection of parasitic fungi for use in the work in Plant Pathology. A private collection of about five thousand specimens of fungi particularly rich in parasitic forms has been temporarily loaned by H. S. Jackson for the use of students and instructors.

A large amount of class study material is preserved in alcohol for the use of classes. A well selected collection of microscopic slides, photographs, lantern slides, and charts is provided and is being rapidly enlarged.

ZOOLOGY. The laboratories of this department occupy the following rooms on the third floor of the new Agricultural Hall; three offices, three research laboratories for entomology, physiological laboratory, general laboratory for zoology, lecture room, vault and photographic dark room. The general laboratory is equipped with desks with individual drawers to accommodate 280 students; each desk is provided with compound microscopes, dissecting microscopes, and various minor pieces of apparatus. The physiological laboratory is similarly equipped for 225 students and in addition is provided with an articulated skeleton, a dissectible human skull, a com-

plete Azoux model of the human body, greatly enlarged Azoux models of the brain, eye, ear, and other organs, a set of the celebrated Leukart zoological charts, and a good supply of specimens and dissections for illustrating the work in physiology. The entomological laboratory contains the entomological collections and a portion of the department library, and although used as a research laboratory for the head of the department and assistants, it is fully equipped for twenty-four advanced students. The laboratories are provided with high grade compound and dissecting microscopes, a Minot rotating microtome, a Minot automatic precision microtome, water bath, 5x7 view camera, 4x5 micrographic camera, laboratory balances, eye-piece, and stage micrometers, and an abundant supply of minor instruments.

The museum contains, in addition to a beautiful collection of native birds, a small collection of mounted mammals, the Ladd collection of bird skins, a large collection of eggs of native birds, a small collection of fishes and reptiles, a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells, an extensive collection of native insects, and numerous specimens of a miscellaneous nature.

FORESTRY. The department of Forestry occupies the third floor of Science Hall. It has a complete herbarium of the forest trees of the Pacific Coast, as well as a cone and seed collection representing the important commercial conifers of the United States. It has apparatus for applying preservatives to timbers by the open tank method, timber testing machinery, incubators for testing tree seeds, wood specimens, stereopticon and slides, compound and low power microscopes, hypsometers, increment borers, scale sticks, calipers, Biltmon sticks, surveyors' compasses and chains, pack outfits, axes, saws, drafting tables, and other equipment necessary for efficient laboratory and field work. Valuable collections of tools used in logging have been loaned the department by several commercial companies. A nursery has been established on the College farm, in which native and exotic timber-tree seedlings are being grown. The City Water Company of Corvallis has placed a timbered tract of eighty acres at the disposal of the College for demonstration purposes.

DOMESTIC SCIENCE. The department is at present located on the basement floor of Waldo Hall and on the second floor of the central Agricultural Hall. There are three large school laboratories, a lecture room, and offices in the Waldo Hall basement. The school kitchens are equipped with work tables, cupboards, ranges, gas stoves and all necessary utensils and modern conveniences for teaching cookery. The dining room, which is on the first floor of Waldo Hall, is furnished with an extension table, chairs, cupboards, china, silver and table linen. A recitation room and the Dean's offices are on the second floor of the Agricultural Hall.

DOMESTIC ART. The entire second floor of the Agronomy Building is allotted to the work in Domestic Art, containing rooms for hand and machine sewing, cutting and fitting, millinery, household decoration, and a rest room for the young women. The machine rooms are furnished with the latest improved machines; and the sewing rooms are provided with tables, electric irons, wardrobes, and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets for the collection of samples showing the proceses of manufacture of cotton, wool, silk, and linen.

CIVIL ENGINEERING. In addition to joint use with the other engineering departments of the testing laboratories described elsewhere, this department has for its exclusive use a suite of six well-lighted rooms, suitably arranged on the second floor of Mechanical Hall. This suite includes an office, two recitation and lecture rooms; an instrument room and a drafting and designing room; also a well equipped blue print room with a cylindrical electrical blue print machine, sun frames, and washing pans.

The drafting and designing room, 28x47 feet, is well lighted and fully equipped with thoroughly modern and convenient drawing tables, supplied with individual lockers for instruments and other apparatus. The instrument room is conveniently arranged, having an individual glass-front case for each instrument and its accompanying equipment, which includes marking pins, tape, range-poles, notebook, etc. The instrumental equipment includes the following: Twelve transits, four of which are provided with solar attachment; eight levels, four plane-tables, one compass and two current meters, all high-class instruments of various standard

makes and styles; a sufficient supply of level and stadia rods, range-poles, tapes, chains, plain and prismatic compasses, aneroid barometers, clinometers, planimeters, plumb-bobs, hand levels, etc., together with a well-selected assortment of specifications and blue print plans of engineering structures for illustrative purposes.

ELECTRICAL ENGINEERING. The laboratory of this department occupies a large part of the west half of the first floor of Mechanical Hall, and is divided into several rooms; one for testing, one for instruments, and another for supplies. Besides the equipment therein, including generators, motors, and other apparatus, the machinery in the College Power Plant, and sub-station is available for study and testing purposes. Three-phase electrical energy is supplied by the long distance transmission line or by the local generating unit as desired.

In the laboratory is a 6½x15 foot switchboard, consisting of three asbestos wood panels on which are mounted a number of voltmeters and ammeters for direct and alternating current; a power factor meter; a frequency meter, and synchroscope; a set of synchronizing lamps; circuit breakers; switches; and a large number of plug terminals, the leads of which extend to the eight machine platforms; two slate panels with instruments and switches for direct current machines; and an arc light regulating panel. Immediately adjacent thereto is a controller, auto-transformer and rheostat rack, six feet high by sixteen feet in length.

The machine platforms just mentioned are four feet wide by fourteen feet long, and have upon them the following equipment: One five, one seven and one-half, one ten, and one fifteen horse power, three-phase, induction motors; two five, two seven and one-half, two ten, and two twelve and one-half kilowatt, 125-volt direct current generators; one ten-kilowatt double current generator, and one two-kilowatt rotary converter; two two and one-half kilowatt induction motor generator sets; one two and one-half kilowatt synchronous motor generator set; one seven and one-half kilowatt revolving field alternator, with three additional rotors, and one seven and one-half kilowatt revolving field alternator, from both of which current of single, two, three, four and six phases may be taken; one five-arc light regulating, one ten-kilowatt 110,000-

volt high tension testing, one ten-volt 1000-ampere welding, one five kilowatt 15,000-volt wireless, three 7½ kilowatt, 2200-220,110-volt transformers with ten taps each in the secondary, giving nine different voltages from 24 to 220 volts, with 87% taps in both primary and secondary for transformation from three to two phases or the reverse, and a number of ordinary transformers and compensators.

The instruments available are ample in number and range, and consist of direct and alternating current voltmeters and ammeters; milli-voltmeters and shunts; wattmeters and watthour meters; and the following precision instruments for standardizing: One ammeter and one voltmeter operating on the Kelvin balance principle; one poly-phase and two single-phase indicating wattmeters, and one 100-ampere manganin shunt.

MECHANICAL ENGINEERING. The department laboratories contain the apparatus necessary for the work in calibration, strength of materials, testing of lubricants, power engineering and hydraulics. This equipment is described in detail under the headings of Experimental Engineering and Shop Work.

EXPERIMENTAL ENGINEERING. Appropriate portions of the equipment for this work are used by all departments of the Engineering School and by the department of Forestry. The equipment comprises the following divisions: A material labortaory, a cement laboratory, and a power and hydraulic laboratory. These divisions have in common the equipment for the preliminary work, such as calculating devices, several high grade planimeters, Amsler integrator, micrometers, and other general apparatus.

Among the appliances in the materials laboratory there are for general work: A 150,000-pound Riehle universal testing machine fitted with extension table for beams up to 16 feet in length; a 50,000-pound Riehle automatic and autographic testing machine; a 60,000-pound-in. Olsen torsion testing machine; a 400 ft.-pound drop testing machine built in the College shops; a Case tempering furnace with pyrometer; Scleroscope and Brinell ball hardness testers; and auxiliary apparatus including a deformeter, torsion indicator, compression micrometers, several extensometers, deflectometers, and other minor pieces.

A part of the main laboratory also is devoted to the testing of materials for highway construction. This equipment includes the following: Olsen impact machine for toughness tests, Riehle machine for hardness tests, rattler for macadam or paving rock, another for paving brick, core drills and saw for cutting stone specimens, sieves for mechanical analysis of sand and aggregates penetrometer, viscosimeter, float test, centrifuge, and other appliances for making physical tests of bituminous cements and road oils.

The cement testing laboratory is equipped with convenient glass topped tables for mixing, intended to accommodate two students each. Apparatus is provided sufficient to make all standard A. S. C. E. tests, as well as for some additional experiments. There are a large number of briquette, cube, and cylinder molds, three Vicat needles, Gillmore needles, standard screens, moist closet, aging tanks, boiling test apparatus Bohme hammer and Olsen briquette molding machines, a 1000-lb. Fairbanks cement testing machine, permeability apparatus for testing various mixtures or waterproofing compounds, and small apparatus including balances, sampling irons, towels, etc.

For work in steam and power engineering there is available the equipment of the College Power Plant as well as that of the new heating plant. In the latter are two Flanner water-tube boilers of 155 and 250 H. P. capacity; these are oil fired and supplied with thoroughly modern auxiliary equipment including feed water and oil meters, thermometer wells, flue gas sampler, etc. The power plant equipment consists of a bank of three fire-tube boilers of 170 H. P., supplying steam to part of the heating system and to a 40 H. P. Ideal automatic high speed engine which drives a 3-phase generator. In addition to this there are the following: A 7x8 throttling engine, two four cycle and one two cycle gasoline engines, an 8-inch Reeco-Ericson hot air engine, two duplex pumps, and a centrifugal blower. All the engines are fiitted with various types of brakes and other auxiliaries for testing. The plant also affords facilities for testing boiler auxiliaries, such as injectors, feed water heaters, vacuum pumps, etc. Of smaller apparatus there might be mentioned a transmission dynamometer; General Elect-

ric steam meter; guage tester;five indicators, one a Trill instrument with continuous drum, reducing wheel, and high pressure piston; two steam calorimeters; fuel calorimeters; flue gas sampling and analysis apparatus; two pyrometers; draft gages; recording and indicating pressure gages, etc.

In the general laboratory tests may also be made on lubricants, bearing metals, and different types of bearings, by means of a Golden Bearing and Oil Dynamometer, or a Thurston oil testing machine. There are also provided the usual minor pieces, as flash point apparatus, viscosimeter, etc.

The hydraulic equipment consists of a centrifugal pump driven by a rated variable speed motor, several steam pumps, 12-inch Doble laboratory water motor, hydraulic ram, 2-inch Venturi meter, current meter, two ordinary water meters, calibrating tanks, orifice boxes with suitable plates, weirs, hook gage and other small apparatus. In addition to work in the laboratory, measurements and tests of neighboring streams and installations may be made.

THE WOOD SHOP, supplied with the best machines and tools the market affords, contains twenty-four double benches of modern design, accommodating forty-eight students. Each bench is provided with patent rapid action vises for holding the work, and is furnished with two sets of hand tools, consisting of rip saws, cut-off saws and back saws, planes, chisels, paring gouges, marking gauges, try squares, hammers, dividers, and oil stones. The machine equipment of this shop consists of fifteen wood-turning lathes, each furnished with a set of tools; one iron saw-table with rip and cut-off saws, one band saw, one jig saw, 24-inch surface planer, 16-inch glue joiner, post boring machine, swinging-arm sander, two grind-stones, one concave for gouges and one straight for plane irons and chisels; there are also two glue tables with clamps of various sizes and one steam and gas glue heater of three gallons capacity; the power is furnished by two three-phase induction motors of fifteen horse-power each.

Nearly all of the mill work for repairs, and the cabinet work for new equipment in the various departments of the college is made in the manufacturing wood shop. This shop contains a full

line of machinery which is also available for the instruction of students. The principal items are, a 40-inch combined band saw and re-saw, 14-inch self-feed circular rip saw, 14-inch swing cut-off saw with electric motor attached, 30-inch single surfacer, 8-inch jointer and buzz planer, tennoning machine with cut off attachment, power mortiser and borer combined, dowel machine, swinging arm sander, 48-inch triple drum sander, and a four-sided 4-inch moulder.

THE FORGE SHOP contains forty-two down draft forges of the most improved pattern. Blast is furnished by a steel pressure blower driven by a 10-horse-power induction motor, and the smoke and gases are removed by an 80-inch exhaust fan, driven by a 20-horse-power motor. Each forge is provided with anvil, hammers, hardies, tongs, and other small tools. There are also swedge blocks and vises at convenient points in the room for general use.

THE MACHINE SHOP contains one 24 x 24-inch iron planer, one 15-inch shaper, one 12-inch shaper, one universal milling machine, one universal tool grinder, one wet tool grinder, one radial drill, one 20-inch drill press, one sensitive drill press, one 20-inch engine lathe, one 16-inch engine lathe, one 16-inch universal turret lathe, one 14-inch modern geared lathe, five 14-inch engine lathes, two 10-inch speed lathes, one shop saw, one automatic knife grinder, and twelve bench vises. A 20-horse-power induction motor furnishes the power. A tool room adjacent contains the small tools, such as twist drills, taps, dies, reamers, calipers, gauges and scales. These tools are given out to the students on the check plan.

THE FOUNDRY contains a modern foundry equipment consisting of a cupola, brass furnace, core oven and accessories.

The Plumbing and Steam Fitting Shop is equipped with all of the hand tools necessary for cutting, threading, and general pipe work, as well as gasolene torches, soldering outfits, and other apparatus for making lead pipe connections and wiped joints.

MINING ENGINEERING. The new Mines Building provides spacious and well lighted offices, laboratories, and lecture rooms for work in this department.

The Assaying and Metallurgical laboratory is a cement-floored room 30 feet wide and 60 feet long on the first floor of the building extending across the entire east end. It is well illuminated as it has windows on one side and both ends. At the south end of the room are the most modern type of oil-fired furnaces for all fusion and other fire work. Conveniently arranged nearby are suitable lockers and work tables with the necessary tools, fluxes, etc. The north end of the room is amply equipped with sinks, ventilating hoods, gas burners, electric hot plates, and other paraphernalia of use in carrying on the various operations involved in parting buttons, assaying solutions, making cyanide tests, etc. One corner of the laboratory is partioned off for a balance room and provided with the most delicate balances obtainable for weighing the gold beads. Balances of both Keller and Ainsworth make are available. These are mounted on a specially constructed table not connected with the floor in order to avoid vibration.

The Crushing and Sampling laboratory in the basement is 25 feet by 30 feet. It contains a power driven sample crusher of the latest design and one of the recently modelled disk grinders, for properly pulverizing samples for assay or other purpose. The usual bucking board and muller and other hand grinding devices are also available for use of the students at any time, together with the Jones sampler and other appliances used in preparing samples. Such work will all be done here, so as to keep dust and disturbance occasioned by such work out of the assay laboratory.

The Ore Testing laboratory is a room 25 feet wide by 30 feet long on the first floor of the building. It is equipped with appliances for studying the behavior of ores when subjected to the various concentrating operations of jigging, vanner, and table concentration.

The equipment in the Ceramics laboratory comprises a convenient chemical laboratory for analysis of silicates, a complete mechanical outfit for the preparation of clays for the manufacture of brick, tile, pottery, terra-cotta, etc., including machinery for grinding, tempering, washing, filtering, and molding. The laboratory will be equipped with kilns, burning crude petroleum, in

which a large number of brick or equivalent quantity of tile or pottery can be burned. The laboratory will also be equipped with smaller muffle kilns to be used especially for clay testing and glazing experiments. There will also be a ceramic museum containing samples of American pottery and clay products of every class.

The Geological and Mining. Museum on the third floor will be fitted up with a number of glass top cases in which will be exhibited large and attractive specimens of minerals and rocks, not only from our own State, but coming from all over the United States. In the museum will also be found large collections of the different manufactured geological products, including samples of all the different grades of brick, tile, pottery, terra-cotta and cement manufactured products, together with the raw materials from which the same are manufactured.

The Mining Drafting room will be equipped with convenient desks and tables and all necessary equipment for the use of Mining students.

The Mineralogical laboratory possesses the following collections:

No. 1, the Mineral Type Collection consisting of about 1,500 characteristic and labeled specimens used by the students for the purpose of study and comparison.

No. 2, an Exhibit Collection of minerals consisting of large and attractive specimens.

No. 3, a Working Collection of minerals consisting of about 4,000 unlabeled specimens similar to those in the Type Collection.

No. 4, a Crystal Collection containing about 1,000 natural crystal forms.

No. 5, a Crystal Model Collection consisting of 48 large glass crystal models and about 500 smaller wooden models used by the students in the study of crystallography.

No. 6, a Blowpipe Collection containing minerals and metals used in blowpiping.

The Petrological laboratory contains the following collections:

No. 1, the United States Geological Survey Educational Series of rocks containing 165 characteristic rock specimens from all over the United States.

No. 2, the Foote Rock Collection containing 150 specimens of characteristic rock types.

No. 3, the Structural Mineral Series containing about 100 specimens of all the different rocks used for structural purposes.

No. 4, the Working Collection of rocks containing about 2,000 unlabeled specimens for the use of the students in the work of petrology.

COMMERCE. This department is completely equipped for thorough and efficient work in modern business courses. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of individual desks and counters, a complete set of modern banking fixtures, a wholesale house, a retail house, a commission house, freight, real estate and insurance offices. Permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks and similar material are provided by the College. A Burroughs Adding Machine is in constant use in the department. The room for typewriting contains twenty standard machines, each provided with approved conveniences for the operator. The room for stenography is furnished with tables designated for convenience in practical work; also equipment for illustrating various systems of filing. The department of Political Economy is developing a commercial museum for use in the various courses in social science.

PHARMACY. This department has its lecture rooms and laboratories in Science Hall, a building which amply meets the needs for space, light and ventilation.

In the way of equipment, in addition to the usual permanent fixtures such as desks and apparatus for the individual students, the department is supplied with a number of special pieces of apparatus for general use, such ac pahrmaceutical stills, from the simple retort to the complicated vacuum still; drug mills, for hand and power; suppository machines, for fusion and for compression; tablet machines, mold and compression; pill machines; tincture presses; capsule filling machine; percolators and much minor apparatus.

ART AND ARCHITECTURE. (*a*) *Art.*—The department occupies three commodious, well-lighted studies on the third floor of Agri-

cultural Hall. The rooms have north light, are well heated and ventilated, and furnished with suitable studio material, such as easels, drawing tables, portfolio racks, cast forms for models, architectural pieces, and a number of full figure pieces in full and bas-relief. There is also a good collection of still life objects. (*b*) *Architecture*—The department is temporarily accommodated on the third floor of the Mines Building, where an office, which also serves as a draughting room for the instructor, is provided, together with a large drawing room, fitted with suitable desks, and facilities for recitation purposes. The department is well supplied with wall drawings, pictures, and portfolios illustrating different phases of the work.

The College Library has a well-selected and growing reserve in art and architecture. The course in the History of Architecture is illustrated by lantern slides.

CHEMISTRY. The department of chemistry occupies nearly all of the south wing of Science Hall, and one room in the basement of the central portion. In this latter room, aside from desk space for seventy-two students, is a 150-light Terril gas machine that supplies gas for the different laboratories throughout the building. The main lecture room is situated on the third floor, and has a seating capacity of one hundred and fifty. It is provided with lecture tables that are supplied with gas, electricity and water. Adjoining the lecture room is a small preparation room, in which is kept all special apparatus used for lecture demonstration, as well as supplies for the agricultural laboratory. This room is supplied with all the necessary apparatus for the proper elucidation of the principles of this branch of chemistry.

The organic laboratory is fitted for twenty-four students. Each student has a drawer and locker, a sink, a Richards' filter pump, a full set of reagent-bottles, individual gas and water outlets. Next to this laboratory is a room set apart for fuel and gas analysis and for photographic chemistry. The special apparatus of this room consists of Orsats bulbs, and pipettes, Winkler's burettes, the latest forms of Hompel's bulbs, Victor Myers', Dumas', and Hoffman's apparatus for molecular weight determination, Beckman's cryoscope, Landsberger's ebulliscope, Parr's latest form of colori-

meter, analytical and torsion balances, and the usual small pieces that accompany the above.

The largest room in the building is the main general laboratory, which will accommodate three hundred and ninety students, in four sections. Adjacent to this laboratory is a store room amply stocked with all necessary supplies and apparatus. The weighing room contains eight analytical balances of the best type for student use, and is well lighted and ventilated. The quantitative laboratory, which will accommodate seventy-two students in three sections, is in the basement, and adjoins the store room. It is fully supplied with various kinds of calibrated ware, as flasks, burettes, cylinders, urinometers, lactometers, hydrometers and barometers; centrifuges for rapid separation of precipitates, glass lamps for fusions, muffles for incinerations, tables for glass working, and much minor apparatus.

For work in Agricultural Chemistry an entire room is set aside. This room is fitted with gas, water, and electricity, condensers for distilled water, batteries, extraction apparatus for fats, nitrometers, Kjeldahl apparatus, hot water filtering apparatus, grinders for fodders, steam and air baths, calorimeter, polariscope, Westphal and analytical balances, coarse balance for rough work, hot-plates, and minor apparatus. This is one of the strongest divisions in the department and is lacking in nothing that makes a fully equipped agricultural chemical laboratory.

PHYSICS. The physical laboratory has a good working equipment for the study of general physics, the apparatus being such as to allow a qualitative or quantitative verification of all of the important laws by the student. In addition to the equipment of the general laboratory, there are many pieces of apparatus intended mainly for class room demonstration. Instruments are also available for the usual work in electrical measurements and the standardizing of electrical instruments.

THE GYMNASIUM is equipped with lockers and dressing rooms with accommodations for seven hundred men. In the shower-bath room, hot and cold water is available throughout the year, and free towels are furnished to the students. The floor of the gymnasium is surmounted by a balcony running-track, and a splendid playing space is provided for basketball and other indoor games.

The equipment includes horizontal bars, vaulting horses and bucks, parallel bars, swinging rings, travelling rings, wrist machines, Swedish wall racks, climbing ropes, wrestling and boxing mats, dumb bells, Indian clubs, Swedish wands and chest weights. The athletic field adjoining the gymnasium has within its bounds a quarter mile running-track, football gridiron and baseball diamond. Bleachers and grandstand accommodate the spectators.

Directly opposite the gymnasium is located the new Armory, with a dirt floor over one hundred yards long and fifty yards wide. The dirt running track in the Armory is an eighth of a mile long. These facilities afford opportunities for all of the athletic teams to train every day in the year. There are galleries for the spectators, and at indoor winter meets, 2,000 spectators can be easily accommodated. The regular gymnasium classes are taken to this indoor athletic field for part of their work in physical education.

THE EXPERIMENT STATION

The Station bears an important relation to the College, as the scientific investigations conducted at the Station strongly support the instruction given in the class room. Aside from the original investigations of economic significance to agriculture, the work of the Station affords daily object lessons in modern farm methods.

About three hundred acres of land are devoted to the use of the Station workers. This land is utilized by the various departments represented in Station organization, including the departments of Chemistry, Agronomy, Horticulture, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, Entomology, Bacteriology, Botany, and Plant Pathology. Each department is actively engaged in the scientific investigation of problems presented by the different branches of agriculture.

As an illustration of the comprehensive character of this work, the following investigations, taken at random from the list of those now being conducted by the Station workers, may be cited. The value of such work, as an object lesson to the students in the various fields of agriculture, can hardly be overestimated. There are experiments with long and short rotation systems for the

improvement of soil fertility; tests to ascertain the adaptability and value of alfalfa for soiling and pasture; tests to determine the adaptability of kale as a winter succulent feed for dairy cows and other stock; experiments in breeding wheat for increase in both quantity and quality of yield, and improvement in adaptation to soil and climatic conditions of the Willamette Valley; experiments in testing the value of irrigation in Western Oregon for general farm crops; tests for comparing the merits of longanberries and phenomenal berries; variety tests of strawberries; experiments in cross pollination of apples; investigation of gummosis of the cherry; a study of the effects of the lime-sulphur spray under varying conditions; investigations of apple tree anthracnose, peach spot, potato blight, and celery leaf blight; investigations as to the relation of speed, the temperature, and the fat content of milk, to the cream produced by cream separators; co-operative investigations with the department of bacteriology relative to the best manner of using "cultures" in butter and cheese making; breeding for egg producduction; experiments in incubation to discover, if possible, the cause or causes of the great losses in artificial incubation; comparisons between hen-hatching and incubator-hatching; the humidity conditions of natural and artificial methods of incubation; carbonic acid gas as a factor in incubation; feeding experiments to determine the value of various forage crops and cereals for the growing and fattening of hogs; experiments in the feeding of dairy cows; experiments in grazing and fattening swine; investigations in the economical production of beef and mutton.

COLLEGE ORGANIZATIONS

One of the most important factors in rounding out the results and benefits of a college course is the society, club, or association work. Because of the diverse interests of college life and the varied tastes of the students, the following organizations are maintained by students and faculty:

THE STUDENT BODY ASSEMBLY. This is an organization of the entire student body, working under a constitution and by-laws approved by the faculty, and having general authority over all

student enterprises. In order to secure an effective administration of the business coming within its jurisdiction, there are permanent committees on athletics, publications, oratory and debate, and such special committees as the assembly may by vote determine. Officers are elected yearly, and nominations and elections are conducted in a manner similar to that of the State electorate.

STUDENT SELF-GOVERNMENT. A system of student self-government has been established at the College which places the general disciplinary powers of the institution in the hands of the students. The Student Council, an organization made up of thirteen students, seven of whom are seniors, three juniors, two sophomores and one freshman, has been created and vested with such powers as are necessary to enforce such rules and regulations as are adopted by the students. Members of the Student Council are elected annually by popular vote of the student body.

THE LITERARY SOCIETIES. These six organizations—Utopian, Clionian and Adelphae, for women; and Zetagathian, Athenaeum, and Hesperian, for men—have the common purpose of promoting literary work among the students. The weekly literary programs and occasional joint meetings tend to this end. To stimulate interest in debate and oratory, there are held during the year inter-society, inter-collegiate and inter-state contests. Gold medals and cash prizes are presented to the winners in the contests, and the successful society in debate receives the "Gatch Cup." This is the silver cup that was presented in 1901 by Dr. Thomas M. Gatch, then president of the College, to the society that had received highest honors in the season's debates. Annually this cup is to go to the successful society in the debates, but it is ultimately to become the property of the society winning it three years in succession. Many and determined have been the battles for its possession, but the cup is still without a permanent home.

THE CHRISTIAN ASSOCIATIONS. The religious work of the College is well cared for by the Young Men's and Young Women's Christian Associations, these organizations being particularly strong. The construction of Shepard Hall, the new student building, has materially increased the scope and added to the effectiveness of the work. The Associations aim to provide a moral

atmosphere and pleasant social advantages for the students. Religious meetings are held in the rooms of these organizations every Sunday afternoon, and Bible study classes are regularly conducted. On registration days, committees are on hand to assist students in adjusting their work satisfactorily, and in securing comfortable quarters in good homes. Those who wish to make their way through College, will find the employment agencies always ready and glad to assist them as far as possible in procuring positions.

THE ATHLETIC ASSOCIATION. This organization, maintained by the students through the student body assembly, encourages wholesome competition in the various outdoor and indoor sports and pastimes. It has charge of all details pertaining to the conduct of intercollegiate athletics in which the College may be interested. A committee of the faculty has general supervision over the whole subject of athletics, thus insuring a sound and conservative management.

COLLEGE FOLK CLUB. This club was organized in October, 1908, and membership is open to all women of the faculty and other women employees of the institution, and to the women members of the immediate families of the faculty and other employees. The object of the club is social diversion, general culture, and the promotion of the best interests of the College. The organization at this time is divided into three sections: Art and Music Section, Sociology Section, and Mothers' Section. Aside from the semimonthly meetings of the various sections, the general club convenes on the first Saturday of each month, at which time an address is given by an outside speaker, or a musical or literary program is furnished by members of the club, to which the public is invited. In January, 1913, the organization became affiliated with the Oregon State Federation of Women's Clubs. It is the purpose so to extend the work of the club as to effect the greatest possible good to the College and to the city.

THE MASK AND DAGGER. This club was organized for the purpose of offering special training in dramatic art. An annual "try out" is held in which all students of the institution may participate, and any who possess talent in this direction may be elected to

membership in the club. No student, however, will be permitted to take part in a public production who has not an average for all of his College work, at the time the play is being prepared, of 80 per cent. Platform exhibitions will be given and standard plays presented during the College year.

THE ORATORICAL ASSOCIATION. This body has immediate charge of all business pertaining to the competitive work in oratory and debate. Schedules, dates, prizes, conditions of competition and all similar matters are in its care.

INTERCOLLEGIATE DEBATE AND ORATORY. Each year the Oregon Agricultural College has at least one intercollegiate debate, putting into the field two teams, one supporting the negative and the other the affirmative of the same question. The College also sends one representative each year into the State Oratorical Contest in which eight colleges take part. Gold medals are awarded to the men who represent the College in these events.

LOCAL DEBATE AND ORATORY. There is held annually a local peace oratorical contest, to the winner of which the Cosmopolitan Club of the College presents a $10 prize. There are also interclass contests in Declamation, Debate, Oratory, and Extempore Speaking, prizes being awarded by the Oratorical Association to the winners of these events. These latter contests are forensic events in the annual Interclass Forensic-Athletic Championship Contest, wherein the four classes compete for individual prizes and three loving cups—the Shakopean Cup, which becomes the permanent property of the highest individual forensic point-winner of the class winning the championship; the Orange O Cup, which becomes the property of the best athlete in that class, and the Barometer Cup which is held one year by the class winning the interclass championship.

THE SPHINX. This is the senior honor society. Membership is acquired by election based on prominence in student activities and scholastic excellence.

THE COSMOPOLITAN CLUB. This is an organization of foreign and American students. It is a local chapter of the Association of Cosmopolitan Clubs of the World. Its purpose is to provide social and educational advantages for its members and to promote

international friendship. At present, nine nations are represented in the local chapter.

THE AGRICULTURAL CLUB. This club was established for the purpose of advancing interest in the various phases of agriculture, and promoting the investigation and discussion of both general and special agricultural subjects. Suitable programs are prepared for each meeting, and whenever practicable, leading authorities on practical agriculture are engaged to address the members.

THE LEWELLING CLUB. This is the Horticultural Club conducted under the auspices of the Horticultural Department. There is no regular organization, except an executive committee, which has power to transact such business as requires action on the part of the club. It is open to all students interested in horticulture.

DELTA THETA SIGMA. There is established at the College a local chapter of this national honorary agricultural fraternity. The aim of the society is to advance the study of agricultural subjects by giving honorable recognition to students taking the lead in the work. Elections to membership are made by the members of the local chapter from the junior and senior classes.

THE FOREST CLUB. This is an association of students and instructors "formed for the purpose of promoting the forestry interests of the State." In order to carry out its purposes, it meets twice each month. The first meeting of each month is purely of a social nature, with each alternate meeting for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest service, forest products, forest industries, lumbering, and the lumber trade.

THE CIVIL ENGINEERING CLUB. This is an organization within the department of Civil Engineering. The active membership is drawn from the junior and senior classes, and the privilege of associate membership is extended to the members of the two lower classes. It meets weekly for the discussion of subjects of interest to the civil engineer.

THE ELECTRICAL ENGINEERS. This is a College branch of the American Institute of Electrical Engineers. The aim of the organization is to discuss the topics contained in the monthly proceedings of the A. I. E. E., and in this way develop an intimate knowledge of the activities of the national organization, thereby coming into closer touch with the practical problems in the engineering world and becoming better fitted for their life work.

THE MINERS' ASSOCIATION. This body has for its object the discussion of technical engineering subjects; the review of current mining literature; the presentation of original papers by the active members; and occasional lectures on special mining topics by men outside of the College.

MECHANICAL ENGINEERS. This is a College branch of the American Society of Mechanical Engineers. The purpose of the association is to keep in touch with the practical problems of the engineering world.

SIGMA TAU. This is a local chapter of the national honorary engineering fraternity, chapters of which are at nearly all of the recognized technical schools of the United States. Membership in the fraternity is restricted to junior and senior students in Engineering and Forestry, election to membership being based principally upon scholastic excellence.

THE HOME ECONOMICS CLUB. This is an organization for the purpose of bringing all the women of the School of Domestic Science and Art into closer touch with one another than is possible without a central organization. The aim of the club is to give, by a series of monthly meetings, a general survey of Home Economics questions not covered in regular class-room work. The aim is carried out by means of well directed discussions and by securing outside lecturers who by virtue of their training and experience are considered authorities on subjects relating to Home Economics.

THE COMMERCIAL CLUB. This is a student organization within the School of Commerce. The purpose of the club is to bring its members into close relation with current methods and events in the commercial world. This is accomplished by discussions of topics pertaining to commerce by members of the club, and

by addresses at various times during the year by men prominent in the fields of law and business. Active membership is open to the juniors and seniors of the school, and associate membership may be enjoyed by the underclassmen.

THE PHARMACEUTICAL ASSOCIATION. The main purpose of this organization, which consists of the pharmacy students, is to bring its members into close relation with the current events of the pharmaceutical world. This is brought about by discussions in the meetings of topics pertaining to pharmacy, and by addresses at various times during the year by prominent pharmacists and salesmen of the State.

THE EASTERNERS' CLUB. Membership in the Easterners' Club is open to all student and faculty members who have at any time resided in those states situated east of the Mississippi River or in those provinces of Canada east of Manitoba. The objects of the club are to promote the interests of the College throughout the East, to encourage prospective students from the East and to offer social diversion to its members by providing occasions for the mingling of ideas on such current events as the sports, and politics, which are represented by the various states included within the membership.

THE EASTERN OREGON CLUB. This is an organization effected for the purpose of promoting the mutual interests of the College and the people of the eastern part of the State. Its members are afforded many social and intellectual advantages from the regular club meetings. Membership is open to all students from Eastern Oregon.

THE CALIFORNIA CLUB is, as the name implies, composed of students whose homes are in California. It is for the purpose of bringing "Californians" together socially that the club meets.

COLLEGE PUBLICATIONS

Two classes of publications are issued from the College; one, official, published by the College authorities; the other, unofficial, and published by the various student organizations.

The college publications include:

THE CATALOGUE. The General Catalogue is published at the close of the College year and contains much general and specific information as to the courses of study, equipment, and instruction, and gives a list of faculty members and students for the year.

THE ALUMNI DIRECTORY. This publication gives in each edition revised information as to the name, year of graduation, degree, present occupation and present address of each graduate of the College.

THE BULLETINS OF THE SUMMER SCHOOL. These announcements contain specific information of expenses, courses of instruction, character of the work presented, and the requirements that prospective students must meet.

THE BULLETINS OF THE WINTER SCHOOL. These announcements carry such information regarding the winter courses as may fully present the advantages of these courses to the public.

EXTENSION BULLETINS. These bulletins consist of monographs on the various phases of Agriculture, Domestic Science and Art, Engineering, Mining, and Commerce. They are written in such style as to be easily understood, thus meeting the popular demand for scientific knowledge and giving it in such form that the people of the State may profit by its application to the problems of everyday life.

THE STATION BULLETINS. These publications constitute a series of special reports upon experimental investigations in agronomy, horticulture, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, and special subjects of interest to the husbandman.

STUDENT PUBLICATIONS

The student publications comprise:

THE BAROMETER. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the "O. A. C. Barometer." The enterprise has met with deserved success, and "the organ of the student body" is now issued as a four-page, five-column semi-weekly. It publishes the "news of the College," and is of general public importance as representing the interests, character and accomplishments of the student body of the College.

THE ORANGE. This is the annual publication of the junior class, and made its initial appearance in 1907. It is a high-class publication, bound in leather, and fully illustrated with photo-engravings, pen and ink sketches, line and wash drawings. It is a compendium of college life as seen by the juniors, brimful of wit, humor, sarcasm, sentiment and good will.

THE OREGON COUNTRYMAN. This is a monthly magazine published by the Agricultural and Domestic Science and Art students under the supervision of the faculties of these courses. Besides dealing with the work of the various departments in a practical manner, it contains articles of scientific value contributed by the Experiment Station workers. Successful men and women of the State contribute articles for each issue.

THE STUDENT ENGINEER. This is a magazine devoted to engineering and mechanic arts. Its purposes are to record the engineering progress in the Northwest; to furnish news; to discuss methods relating to the mechanic arts; to publish records of scientific work done by the students in this institution; and to publish any matter of special technical and scientific interest. Items of interest will be found for civil, mining, mechanical, and electrical engineers, and for others who are engaged in technical pursuits. The journal is under the supervision of the faculty of the School of Engineering and Mechanic Arts, but the work and responsibilities of the publication are borne by the staff, elected by the students of the School of Engineering.

THE C-P JOURNAL. This magazine, published monthly by the students of the Commerce and Pharmacy departments under the supervision of the faculty of the two schools, is devoted to the commercial and pharmaceutical interests of the school and State. Articles of merit are contributed for each issue by students, faculty and prominent business men of the State. One distinguishing feature of the C-P Journal is the publication each semester of a complete directory of all the students of the institution.

STUDENT EXPENSES

GENERAL FEES

Tuition is free to all students, regardless of the place of residence. The regular College fees required of all students, with the exception of special students in Music who take no other College courses, are as follows:

Entrance fee, payable annually on registration	$5.00
Incidental (Student) fee, payable each semester	2.00
Diploma fee on graduation	5.00
Binding fee for graduation thesis	1.00
Entrance fee for Winter Short Courses	1.00

LABORATORY FEES AND DEPOSIT

Students are charged small fees in the different laboratory courses to cover the cost of material used; and deposits are required to cover cost of breakage in laboratory courses where breakages are likely to occur. These fees are payable at the beginning of each semester. At the end of the semester, deduction is made for actual breakage, and the balance of the deposit is refunded to the student. The fees and deposits charged each semester in the different courses are as follows:

	Fees	*Deposits*
AGRONOMY:		
Courses A, B, 101, 201, 501	$ .25	$
Courses C, 202, 204, 205, 211, 301, 302, 303, 404, 502	.50	
Course 505	1.00	
Courses 103, 111, 304, 311, 401, 402	1.00	1.00
Courses 102, 403, 411	1.00	2.00
Course 104	1.00	3.00
ANIMAL HUSBANDRY:		
Course 2	1.50	
Course 5	.50	

ART AND ARCHITECTURE:		
Art—Courses A, B, C, D, 101, 102, 103, 109, 110, 204, 305, 306, 407, 408, 409, 410, 411, 412	.50	
Architecture—Courses 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 516	1.00	
Courses 514, 515	.75	
BACTERIOLOGY:		
Course 401	1.50	
Courses 102, 201, 202, 203, 204, 205, 300, 301, 302, 402, 403, 501, 600	2.00	
Courses 111, 112, 502, 701	2.50	
BOTANY:		
Courses A, 20, 21, 41, 60	1.00	
Courses 30, 31, 45, 70, 71, 100, 102, 104, 106, 110, 112, 115	1.50	
Courses 50, 51	2.50	1.50
Courses 82, 83 (per credit)	.50	
CHEMISTRY:		
Courses 100, 101, 102, 103, 200, 201, 300, 301, 400, 401, 402, 409, 500, 501, 502	3.00	2.00
Course 202	1.50	1.00
CIVIL ENGINEERING: (See Engineering.)		
COMMERCE:		
Courses 100, 101, 102, 103	1.00	
Courses R, S, 400, 401, 402, 403, 404, 405	2.00	
DAIRY HUSBANDRY:		
Courses A, 1, 2	1.00	2.00
Courses 10, 11, 15, 16	1.00	
Course C	5.00	3.00
Course 11 (Special Winter Course)	1.00	2.00

DOMESTIC SCIENCE:

Course E	.50	
Course 401	1.00	
Course 190	2.00	
Course 180	2.50	
Courses A, B, C, D, 101, 102, 103	3.00	
Courses 104, 105	3.50	
Courses 201, 202	5.00	

DOMESTIC ART:

Courses 101, 102, 103, 201, 202, 203, 204, 501, 502, 601, 701, 801, 802	.50	
Course 301	1.00	
Courses 401, 402, 403, 404	3.00	

ENGINEERING:

Civil—Courses 201, 203, 204, 206, 207, 211, 212, 213, 231, 236, 508	1.00	
Courses 101, 102, 103, 104, 301, 302, 303, 505, 506, 507	.50	
Electrical—Courses 201, 202, 203, 204, 402	2.50	3.00
Courses 101, 102, 103, 105, 106, 108	.50	
Experimental—Courses 105, 106, 107, 108, 113, 123, 125, 128, 134	3.00	
Courses 124, 126, 127, 131, 141	2.00	
Mining—Courses 140, 142	1.00	
Courses 101, 102	3.00	
Courses 301, 342	7.50	
Course 220		2.00

FORESTRY:

Courses 201, 202, 203, 204, 303	1.00
Courses 501, 502	1.50

HORTICULTURE:

Courses 1, 12, 13, 17	1.00
Courses 3, 19, 54	.50
Course 18	2.50

INDUSTRIAL ARTS:

Courses 101, 102, 103, 104, 105, 106, 130, 131	3.00	2.00
Courses 120, 140	3.00	

MECHANIC ARTS (Winter Course):

Woodwork	3.00	
Blacksmithing	3.00	

MINING ENGINEERING:

(See Engineering.)

PHARMACY:

Courses 111, 112, 151	5.00	1.00
Courses 160, 161	3.50	
Courses 130, 140	.50	

PHYSICS:

Courses A, B, 111, 112, 212	.75	
Courses 5, 6, 101, 102, 103, 104, 201, 202	1.50	

PHYSICAL EDUCATION:

All courses except those in Hygiene	1.50	

(All students using Gymnasium pay the fee of $1.50 per semester, for which they are given use of all equipment, baths, and are furnished with towels, soap, and medical supplies for injuries.)

SHOPWORK:

Courses A, B, C, D, E, F	5.00	2.00
Courses J. K. M. N	5.00	
Courses L, 122	2.00	
Courses 101, 102, 103, 104, 105, 111, 112, 113, 115, 116, 201, 203, 204	3.00	2.00
Courses G, 106, 114, 200, 202	2.00	2.00
Courses 120, 123, 130, 131	3.00	
Course 121	1.00	

VETERINARY SCIENCE:

Course 2	.50	
Course 3	.75	
Course 1	1.00	

ZOOLOGY:

Courses 101, 102, 103, 104, 105, 201, 202, 203, 204, 205	1.00
Courses 301, 302, 304, 308, 309	.50

BOARD AND ROOM

Board and room accommodations may be had either in private families or in the College dormitories.

WOMEN'S DORMITORY. Waldo Hall, with its large airy parlors, halls, music and play rooms, is a pleasant residence for the young women who come from distant homes. The building is supplied throughout with pure mountain water, hot and cold in each room, electric lights, steam heat, and all modern conveniences. The rooms are furnished with an iron bedstead, a mattress, a chiffonier, a table, and chairs. Such other materials as are needed to make the furnishings complete, including pillows, pillow cases, sheets, blankets, bedspread, are furnished by the student; and many of the students prefer to make the rooms more homelike by bringing rugs, curtains, pictures, sofa cushions, etc. These latter articles, however, are not at all necessary. The rooms are cheerful and comfortable without additional furniture. 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 windows. Each student also furnishes her own towels and table napkins. Students who room together may choose to have a double bed or two single ones. Their preference must be indicated with application for a room. No definite promise for a single room can be made, the privilege of rooming alone depending upon the number of applications for rooms. The many advantages of having a room-mate should not be overlooked by the student in making her plans for college life.

The conditions of living in Waldo Hall are such that the College considers it a distinct advantage to the women students to live in the dormitory. A wholesome, busy, student atmosphere is maintained. Reasonable freedom is allowed, but week nights are reserved for study. All girls entering the College are expected

to live either in the dormitory or in homes selected by the Dean of Women, unless their parents reside in the city, or they are given special permission to live with relatives or friends who assume the responsibility of their care.

The expenses of living for each student in Waldo Hall are as follows:

Room deposit	$ 3.00
Room rent per semester	
Single room	10.00
Double room	5.00
Board per week, payable monthly in advance	3.50
Incidentals, as laundry fee, electric iron fee, etc., per semester	2.00

The deposit is returned to the student at the close of the semester or school year, in case the room is maintained in a condition satisfactory to the Dean of women.

Young ladies wishing to reserve rooms should send the deposit to the Registrar, Corvallis, Oregon.

Students who are planning to enter the School of Domestic Science and Art, or to live in Waldo Hall, are asked to write to the Registrar for special circulars giving more detailed information than will be found in the Catalogue.

Waldo Hall will be open for students September 18, 1913.

Students who wish to arrive in Corvallis previous to the opening day should make arrangements to board and lodge in town until the morning of that date, when the Hall will be opened to receive them.

MEN'S DORMITORY. Cauthorn Hall, as a home for young men while in College, offers many inducements. There is room for about one hundred students. Accommodations in this Hall are similar to those described for the Women's Dormitory, each room being furnished with bedsteads, mattresses, chiffonier, table, and chairs. Students furnish bed clothing and other articles as desired. The Hall is conducted on the club plan, all business connected with the management of the club being in the immediate charge of a Manager and Steward elected by the members of the

organization. This plan has proved to be very popular and successful; so much so, that more than twice as many students have been turned away as it was possible for the Hall to accommodate. Applications for rooms in Cauthorn Hall should be made in person to the manager. The building, though having been in use for many years, is yet very substantial, and with the late improvements, is very comfortable. It is heated by steam and has hot and cold water on every floor, with all modern lavatory conveniences. The club rents the building from the College at the rate of $5.00 per student per semester. The club purchases all the supplies in as large quantities as possible, and at the best possible advantage. The club also pays for all heating, lighting, and water supply. Each person pays his portion of the actual cost of living, which may be varied from time to time as the club wishes. The actual cost of living for the past year, including all expenses, is about $18.00 per calendar month. Not only does the Hall afford a very comfortable home for young men while in College at minimum cost, but it is a place where friendships are formed which are never forgotten in after years.

PRIVATE BOARD. Board and room may be secured in private families in the city of Corvallis for from $4.00 to $5.50 per week. Good accommodations for self-boarding, or for club-boarding, can also be secured in the city. By clubbing, or renting rooms and boarding themselves, students materially reduce the cost of living. Students, however, will not be permitted to live at places not approved by the Faculty.

Lists of private boarding places can be secured from the Secretary of the Y. M. C. A. after the student arrives at the College.

PERSONAL EXPENSES

The personal expenses of students vary. Many students are able to go through the college year on a comparatively small amount. Books, including drawing instruments, will amount to between $10 and $25 per year. Each male student, immediately upon registration, is required to supply himself with a military uniform, the cost of which will be approximately as follows: Suit

and cap, $15; tan shoes, $3.25; leggings, $1.00; hat band and breast cord, $1.15; gloves, 25c per pair; total, $20.65. The uniform is very serviceable and is more economical than civilian clothing. Women pursuing work in physical culture are required to provide themselves with a gymnasium suit, consisting of blouse-waist and bloomers of regulation style, and with the regulation gymnasium shoes. The cost of the suit, which should be purchased following consultation with the Physical Education Department after the student arrives at the College, will be about $3.50. This suit should be serviceable for a number of years. The students in Domestic Science work provide themselves with cookery costume, consisting of dull blue dress, with white cap and apron. Students may make their own costumes, under the direction of the instructors in Domestic Art. The material will cost approximately $5.00.

SELF-SUPPORT

A considerable number of students manage, in one way or another, to earn the whole or a part of their expenses while attending the College. Such opportunities occur in the line of office and laboratory assistance, personal services of numerous kinds, the management of various student enterprises, agencies for laundries, etc.

The Student Employment Bureau (in charge of the Christian Associations) registers without charge all students who apply for employment after they arrive at the College, and supplies employers with student labor as demanded. In general, the demand and supply are nearly equal, but the attention of new students who intend to earn the whole or part of their living is called to the following results of past experience:

1. There is a constant *over-supply* of those wishing to do teaching and clerical work. None but those having superior qualifications and experience are likely to secure employment the first semester.

2. There is a considerable demand for efficient stenographers; also for men and especially women students who can do domestic labor of any kind; board and room rent may be earned by table

service, dish washing, general housework, house cleaning, gardening, etc.

3. Students who can do any kind of domestic or manual labor *well*, and who have thoroughly good health, can earn their board by three hours' work per day, or board and room by four hours' work per day. *But no student should come to the College without resources sufficient for the expenses of one semester.* (See "Personal Expenses.")

4. No student should come expecting to earn money, who can do nothing well; skill is essential, as competition is quite as severe in the College community as elsewhere.

5. Opportunities for earning money during the summer vacations can usually be counted on, the demand for canvassers, horticultural, farm, and forestry laborers being most constant.

Upon arrival at the College, new students should report for information to the Information Bureau of the Christian Associations.

STUDENT LOAN FUND

Through the liberality of friends of the Oregon Agricultural College, a number of irreducible student loan funds have been established. 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."

The funds so far provided are:

1. The R. A. Booth Fund of five hundred dollars, established by Senator R. A. Booth of Eugene. This loan fund is restricted to those studying—

(*a*) Agriculture in its various phases, with a view to becoming producers from the soil.

(*b*) Such branches of Mechanics as properly relate to Agriculture.

(*c*) Domestic Science.

2. The Ashby Pierce Fund of five hundred dollars, restricted to students in the Mechanical and Agricultural courses.

3. A fund of fifty dollars, established by the Philadelphian and Feronian Literary Societies of this institution.

4. The Clara H. Waldo Fund of fifty dollars, established by Mrs. Clara H. Waldo, of Portland.

5. A fund of ten dollars established by the Portland, Oregon, Chapter A, of P. E. O.

Great care is exercised in granting the loans. The student's character, standing, personal habits, and associations must be above reproach, to enable him to become a beneficiary of this fund. As a rule, the loans are secured and bear a reasonable rate of interest.

PRIZE FUND

THE CLARA H. WALDO PRIZE of one hundred dollars is an award annually made in the proportions of forty, thirty, twenty, and ten dollars respectively, to the woman of highest standing registered as a regular student in one of the degree courses in the senior, junior, sophomore, and freshman year. In the distribution of the prizes, the committee is guided by the following points:

(*a*) Proficiency in literary and scholastic attainments.
(*b*) Success in student activities.
(*c*) Qualities of womanhood.
(*d*) Qualities of leadership.

CONDITIONS OF ADMISSION

SECONDARY COURSES. To enter these courses, applicants must have completed the work required in the eighth grade of the public schools, and should have on file at the Registrar's office the eighth grade diploma not later than September 10, 1913. These courses are established for the benefit of persons who desire industrial training; but admission is limited to those students only who live in parts

of the State where no provision is made in the public schools for industrial work. The minimum age of those entering the Secondary courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce, and the special winter courses in Agriculture, Mechanic Arts, and Domestic Science and Art, is fifteen years. Those entering as special students must be at least eighteen years of age. Good moral character is a requisite for admission.

DEGREE COURSES. For admission to the freshman class in any course in the college, the applicant must be at least sixteen years of age and must have completed all the subjects prescribed in the first and second years of the Oregon State High School Course, or their equivalent.

Applicants having completed the second year of the high school course, but without the required credit in plane geometry, may be admitted to the freshman class conditionally, being allowed to make up the deficiency in plane geometry by completing courses D and K.

Applicants who enter from the second year high school, but with one-half year's credit in plane geometry, will be conditioned in mathematics, being allowed to make up the deficiency by taking course K, five hours per week during the second semester, or the equivalent courses G and H, two and one-half hours per week throughout both semesters.

Applicants entering the freshman class of any of the engineering courses of the College, having had two years of high school work, but with no credit in plane geometry, will take courses D and E. Those having completed in the high school one-half year in plane geometry, will take course E. Those entering with full credit in plane geometry, but without solid geometry, will be required to take course F.

Students with advanced preparation, wishing to take the Engineering courses offered in the junior and senior years, must have completed the Calculus.

(After September 1, 1914, applicants must have completed the first three years of high school work, or its equivalent, before registering as freshmen at the College.)

ENTRANCE REQUIREMENTS

The following high school units are entrance requirements for admission to the freshman year: English 72 weeks, 2 units; Algebra 54 weeks, 1½ units; Plane Geometry 36 weeks, 1 unit; Electives 162 weeks, 4½ units.

A unit represents the work of thirty-six weeks with five recitations a week and forty-five minutes to the recitation. Certified certificates from high schools and academies will be accepted in lieu of entrance examinations. Students who have completed any of the Secondary industrial courses offered by the College may be admitted without examination to the corresponding degree courses. A statement of all high school work completed should be signed by the principal and forwarded to the Registrar, Corvallis, Oregon, not later than September 10, 1913. Special forms for this record may be secured from the Registrar.

ENGLISH. Admission to the English courses of the freshman year is by certification from accredited secondary schools. When an applicant cannot furnish such certification, his admission to the freshman courses is conditioned on his passing an examination in essentially the following tests:

1. To test his power of written expression, he will write one or more compositions on a subject, or on subjects, suggested by his personal, school, community, or literary interests.

2. To test his power of oral expression, he will read at sight, in the presence of the Examiner, passages of prose, or of poetry, or of both, with accuracy and effectiveness. He will also be expected to talk intelligently in good English, on some assigned subject adapted to his ability.

3. To test the range and character of his reading, and his power of appreciation, he will be expected to answer a number of simple questions on standard classics and contemporary literature not previously prescribed. He will also be expected to explain the meaning of several passages of prose and of poetry of moderate difficulty, selected from books not previously prescribed.

Whether the applicant be admitted by certification or by examination, the English department will, whenever it deems such a

course advisable, deal with the student as in a probationary relation.

In case the work of such student should, at the expiration of thirty days after matriculation, fail to conform to the standard set for creditable freshman work, he may be relegated to one of the Secondary courses.

Candidates presenting exercise books containing compositions or other written work properly certified to by the instructor, will be given credit for such work.

MATHEMATICS. For entrance into the freshman year, a thorough working knowledge of the following topics in Algebra is required: addition, subtraction, multiplication, and division of positive and negative numbers, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, fractional and literal equations, simultaneous equations, problems involving linear equations with one or more unknown numbers, graphical representation of simultaneous linear and quadratic equations, involution, evolution, theory of exponents, radical expressions, imaginary numbers, quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, factoring of quadratic equations, solution of quadratic equations by factoring, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers.

The requirements in Plane Geometry are the five books of Wentworth's Plane Geometry, or of any other standard text on the subject. That the student may be trained to think for himself, and not be dependent upon the published proofs of the text, much importance is placed upon the proving of original exercises. It is strongly advised that students preparing for entrance examination in Geometry devote considerable time to the study of original exercises.

LIST OF ACCREDITED SCHOOLS

High Schools

Adams
Airlie
Albany
Alpine
Alsea
Amity
Antelope
Applegate
Ashland
Astoria
Athena
Aumsville
Baker
Ballston
Bandon
Bay City
Beaverton
Bend
Bonanza
Brogan
Brownsville
Buena Vista
Burns (County)
Butte Falls
Camas Valley
Canyon City
Canyonville
Carlton
Cascade Locks
Central Point
Clackamas
Clatskanie
Coburg
Condon (County)
Coquille
Corvallis
Cottage Grove
Cove
Crabtree
Crawfordsville
Creswell
Crow
Dallas
Days Creek
Dayton
Dee
Dilley
Dorena
Drain
Drewsey
Dufur
Dundee
Echo
Elgin
Elmira
Enterprise
Estacada
Eugene
Falls City
Florence
Forest Grove
Fossil
Frankton
Freewater

Ft. Klamath
Gardiner
Gaston
Gladstone
Glendale
Gold Hill
Goshen
Grants Pass
Grass Valley
Gresham
Haines
Halsey
Harrisburg
Heppner
Hermiston
Hillsboro
Hood River (District 2)
Hood River (District 3)
Hubbard
Huntington
Imbler
Independence
Ione
Irrigon
Irving
Island City
Jacksonville
Jefferson
John Day
Joseph
Junction
Klamath Falls (County)
Klondike
Lafayette
La Grande
Laidlaw
Lakeview
Lebanon
Lexington
Lorane
Lostine
Madras
Mapleton
Marcola
Marion
Marshfield
McCoy
McMinnville
Medford
Merrill
Metolino
Milton
Milwaukee
Molalla
Monmouth
Monroe
Mosier
Muddy Creek
Myrtle Creek
Myrtle Point
Nehalem
Newberg
Newport
North Bend
North Powder
Nyssa
Oakland
Ontario
Oregon City
Parkplace
Pendleton
Perrydale
Philomath
Phoenix

Pilot Rock
Pleasant Hill
Portland
Prairie City
Prineville (County)
Rainier
Rickerall
Riddle
Rogue River
Roseburg
Salem
Scappoose
Scio
Scotts Mills
Seaside
Shaw
Shedds
Sheridan
Silverton
Springfield
St. Helens
St. Johns
Stanfield
Sumpter
Sutherlin
Sweet Home
Talent
Tangent
The Dalles
Tillamook
Toledo
Turner
Tygh Valley
Umatilla
Union
Vale
Waldport
Walker
Wallowa
Waltonville
Wamic
Wasco
Weston
Wheeler
Wilbur
Willamette
Willamina
Woodburn
Yamhill
Yoncalla

Academies

Hill Military Academy
Pendleton Academy
Portland Academy
St. Helen's Hall

ADVANCED STANDING

Certificates of work completed in other institutions of recognized standing may be received in lieu of examinations for advanced standing, to the extent that such work is equivalent to the corresponding work required in the College courses. Applications for advanced standing, accompanied by a certified record of all High School and College work completed, and a statement of Honorable Dismissal, should be deposited with the Registrar not later than September 10, 1913.

SPECIAL STUDENTS

Persons eighteen years of age may be admitted as special students, provided they give satisfactory evidence of proper preparation for the studies desired, and have not already been admitted to the College, nor, having applied for admission, have been rejected. Special students may be allowed to graduate in any of the courses, on condition that they complete the required work and pass the necessary examinations.

Special students are expected to select their studies from courses open to freshmen. If they desire to take studies to which only advanced students are regularly admitted, they must show special preparation or special necessity for such courses.

Candidates applying for admission on the above basis should file with the Registrar before registration day a detailed statement of their preparatory work.

OPTIONAL STUDENTS

Applicants who meet all the entrance requirements may be admitted as optional students upon presenting satisfactory evidence that they are unable, because of poor health, or outside business, or professional duties, to take a full course. They should file with the Registrar, before registration day, a certified statement of all preparatory work.

REGISTRATION

All candidates for admission should file with the Registrar a certificate of their High School record on or before September 10, 1913. Blank forms for such record may be secured from the Registrar. Such candidates should present themselves for regisration at the College on September 19, 1913. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Students in all courses register at the beginning of the collegiate year for the work of the entire year. Credit for work not so registered, and changes in registration, will be allowed only by special permission of the College Council.

Students who have never before registered at the College are advised to reach Corvallis not later than September 18, 1913, in order that they may secure a boarding and rooming place before the first registration day.

GRADUATION

The degrees of Bachelor of Science in Agriculture, in Forestry, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering, in Commerce, and in Pharmacy, are conferred upon those who have satisfactorily completed the respective four-year courses which in the aggregate comprise 152 credits of college work. A graduate in any of the courses may receive the bachelor's degree in any other course by completing the studies required in that course.

GRADUATE STUDY

This institution offers to its graduates and those of other institutions of equal rank, two-year courses leading to the degree of Master of Science and to the professional degrees of Civil Engineer, Electrical Engineer, Forestry Engineer, Mechanical Engineer, and Mining Engineer.

Between the time of granting the baccalaureate degree and these advanced degrees there shall intervene at least two years, of which the candidate shall devote not less than one year to resident study at this College.

In lieu of a second year's collegiate work the candidate, with the approval of the head of the department in which the major is taken, may offer one or more year's of acceptable work in a responsible technical or professional position. A responsible technical or professional position for this purpose is defined as one requiring the exercise of skill or executive ability, or both, in designing, construction, or operation.

Candidates for any of these degrees shall, within two weeks after the beginning of the first semester's resident work, file with the Committee on Advanced Degrees an application for the privilege of pursuing advanced study. This application shall specify the departments in which the major and minor subjects are to be taken, contain a detailed outline of the work to be done, and shall bear the approval of the heads of the several departments concerned.

Major subjects for the degree of Master of Science may be selected from the following departments: Agronomy, Animal Husbandry, Agricultural Chemistry, Bacteriology, Commerce, Dairy Husbandry, Domestic Science and Art, Horticulture, and Pharmacy; or from the following subjects: Economic Botany, Entomology, Economic Zoology, and Plant Pathology.

Major subjects for the degrees of Civil Engineer, Electrical Engineer, Mechanical Engineer, Mining Engineer, and Forestry Engineer must be selected from the departments of Civil Engineering, Electrical Engineering, Mechanical Engineering, Mining Engineering, or Forestry respectively.

The minor subjects may be selected from any of the above departments or from the departments of English, History, Mathematics, Chemistry, and Modern Languages.

Persons desirous of studying for advanced degrees shall select two lines of work, designated as major and minor subjects. The major subjects shall be research work, the results of which shall be incorporated in a thesis. The minor subjects shall be so selected as to support and strengthen the major.

The time factor in post graduate study contemplates forty hours per week of the student's time, not less than one-half of which shall be devoted to the major.

Candidates for advanced degrees shall present themselves for examination not later than ten days prior to Commencement.

Candidates for advanced degrees shall sustain final written and oral examinations in major and minor subjects by a special examining committee of the Faculty consisting of (1) the professor in charge of the major subject, (2) the one or more professors in charge of the minor subjects, and (3) the Committee on Advanced Degrees.

COURSES OF STUDY

The Oregon Agricultural College offers the following courses of study, each of which extends over four years, and leads to the degree of Bachelor of Science:

I. AGRICULTURE, offering major courses in—
- (*a*) Agricultural Chemistry;
- (*b*) Agronomy;
- (*c*) Animal Husbandry;
- (*d*) Bacteriology;
- (*e*) Dairy Husbandry;
- (*f*) Entomology;
- (*g*) Horticulture;
- (*h*) Plant Pathology;
- (*i*) Poultry Husbandry;
- (*j*) Agriculture for Teachers.

II. FORESTRY.

III. DOMESTIC SCIENCE AND ART, offering major courses in—
- (*a*) Domestic Science;
- (*b*) Domestic Art.

IV. ENGINEERING, offering major courses in—
- (*a*) Civil Engineering;
- (*b*) Electrical Engineering;
- (*c*) Mechanical Engineering;
- (*d*) Mining Engineering.

V. COMMERCE.

VI. PHARMACY.

VII. INDUSTRIAL ARTS.

In addition to the above courses, provision has been made for the following secondary courses; each of which extends over two years:

A. Agriculture.
B. Forestry.
C. Mechanic Arts.
D. Domestic Science and Art.
E. Commerce.

There is also a half-year course in Dairying and a special two-year course in Pharmacy.

During the year there are also offered the following short courses: A four-week winter course in Agronomy, Animal Husbandry, Horticulture, Dairying, Forest Rangers, Domestic Science and Art; Farmers' Week; a six-week Summer School; ~~and a special six-week course in Cookery~~

← Music

SCHOOL OF AGRICULTURE

The School of Agriculture offers a two-year course in secondary Agriculture; nine four-year courses, each of which leads to the degree of Bachelor of Science; a half-year course in Dairying; a four-week Winter course in Agronomy; a four-week Winter course in Animal Husbandry; a four-week Winter course in Dairying; a four-week Winter course in Horticulture; and a Farmers' Week.

The Two-Year Course, known as the Secondary Course, is provided especially for those who have had no opportunity to pursue their public school course beyond the eighth grade, or who from necessity or choice desire, upon completing the work of this grade, to obtain as quickly as possible a working knowledge of the principles of agricultural science and practice. The technical instruction given during the course includes courses in Agronomy, Animal Husbandry, Horticulture, Dairy Husbandry, Botany, Physiography, Business Administration, Drawing, Woodwork, and Blacksmithing. Courses in English, Mathematics, and History are provided so that students who finish these subjects and who so desire, will be fully prepared to enter upon the degree courses.

THE DEGREE COURSES. Students who have completed any of the secondary courses at this institution may register in the degree courses without conditions. Those who have completed the second year of the Oregon State High School course are entitled to register as freshmen. (See "Conditions of Admission.") Graduates of a good four-year high school course are often able to finish this course in three years.

The various subjects of instruction may be conveniently arranged into three groups, each of which requires approximately

one-third of the student's time: (*a*) Sciences related to Agriculture, *i. e.*, Botany, Zoology, and Entomology, Chemistry, Physics, and Bacteriology; (*b*) Technical Agricultural subjects, *i.e.*, Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, and Veterinary Science; (*c*) non-technical subjects, *i.e.*, English Language and Literature, Mathematics, History, Modern Languages, Drawing, Political Science, Rural Economy, Rural Sociology, and similar subjects.

The subjects of the first group are designed to furnish the student with an insight into the principles of agricultural science. Those of the second group teach him the application of these principles and give him also, both theoretically and practically, various subjects of agricultural technology. The subjects of the third group tend further to develop the student's intellect, broaden his view, and train him in good citizenship.

To indicate briefly the nature of the work, it may be stated that in the courses in Agronomy, the student studies the origin, structure, fertility, cultivation and improvement of various soils; the history, growth, culture, improvement and value of the different field crops; the structures, machinery, drainage and irrigation of the farm; and the history, economics, methods, and business principles in farm management. Thorough courses in Business Administration, Rural Economy and Sociology, and Political Science for Agricultural students are given by the School of Commerce. In the course in Animal Husbandry, consideration is given to the history and characteristics of the various breeds of livestock; the principles of breeding; the principles and practice of feeding with particular reference to conditions in this State. By constant practice in stock judging, the student is made familiar with the good points of the various breeds. In Horticulture the student studies the problems of the orchard and garden, such as choice of sites, soils, planting, pruning, choice of varieties, sprays and spraying, and thinning; he obtains instruction and practice in the propagation of plants by various methods; in the harvesting, packing, storage and marketing of fruits; he may study the principles of plant breeding or the construction and management of greenhouses or the culture of small fruits and vegetables for market or canning

purposes. In Dairy Husbandry he studies the secretion, composition, and separation of milk and cream; and obtains abundant practice in the use of the Babcock and other tests, in butter and cheese making, and in creamery practice. A Department of Poultry Husbandry offers to students exceptional opportunities to specialize in this line. The instruction will include a study of breeds, the principles of feeding, housing and incubation, and will be supplemented by practical work on the farm. In Veterinary Science the student is taught to prevent disease, diagnose existing pathological conditions, arrest outbreaks of contagious and infectious diseases among domestic animals, give medical attention in emergency cases, and take care of the sick.

In response to the demand for special teachers of Agriculture in the high schools, an opportunity is given students to major in agricultural education. Certain courses are prescribed in the Junior and Senior years to broaden the general agricultural training of the first two years, so that the teacher may be prepared to meet the conditions in any section of the State. Courses in Pedagogy provide the necessary principles and methods of teaching. Some election is also allowed in order that the student may specialize along the lines of his greatest interest.

The aim of the two and four-year courses is to train young men to become successful farmers, stockmen and fruit growers; to prepare them to become specialists in some branch of agricultural college or experiment station work; to fit them to become teachers of agriculture in the public schools. In short, they offer to those who have faith in the farm and in rural life, opportunities for intellectual development and technical training equal to those provided for the educated in other professions.

THE FOUR-WEEK WINTER COURSES. The Four-Week Winter courses are designed for special purposes, and it is the aim in each to furnish the greatest amount of special information in the least possible time. They are provided especially for those who desire technical information in some particular phase of agriculture, but have not the time nor the opportunity to pursue any of the degree courses.

Secondary Course in Agriculture

FIRST YEAR

	Semester 1st.	2nd.
Advanced Grammar (English A, B)	4	3
Elements of Literature (English C, D)	1	2
Algebra (Math. A. B)	5	5
Ancient History (Hist. A)	3	
Mediæval and Modern History (Hist. B)		3
Drawing (Art. A, C)	2	2
Soils (Agron. A)	2	
Crops (Agron. B)		3
Stock Judging (An. Hus. A)	2	
Elementary Orchard Practice (Hort. A)	2	
Elementary Orchard Practice and Vegetable Gardening (Hort. B)		3
	21	21

SECOND YEAR

Rhetoric and Composition (English E, F)	3	3
Elements of Literature (English G, H)	2	2
Algebra, Plane Geometry (Math. C. D, K)	5	5
Accounting and Business Methods (Com. E)	2	
Commercial Law (Com. L)		2
Principles of Dairying (Dairy Hus. A)	2	
Elementary Farm Mechanics (Agron. C)	2	
Veterinary Science (Vet. Sci. B)		2
Bacteriology (Bact. A)		2
Practical Stock Feeding (An. Hus. C)		3
Physiography A	3	
Woodwork (Shop. G)	2	
Blacksmithing (Shop. L)		2
	21	21

One Semester Course in Dairying

FIRST SEMESTER

Dairy Methods (Dairy Hus. B)	5
Dairy Practice (Dairy Hus. C)	4
Dairy Bacteriology (Bact. 403)	3
Basic Agronomy (Agron. 101)	3
Stock Judging (An. Hus. A)	2
Business Methods (Com. E)	2
	19

Degree Course in Agriculture

FRESHMAN YEAR

	Semester 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
General Chemistry (Chem. 100, 101)	4	4
Agricultural Physics (Physics 111, 112)	3	3
Principles of Botany (Bot. 20, 21)	3	3
Basic Agronomy (Agron. 101)	3	
Crop Production (Agron. 201)		3
Stock Judging (An. Hus. 1)	2	
Woodwork (Shop 106)		2
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302) or Modern English Prose (English 81, 82)	3	3
Rural Economics (Com. 219)	3	
Agricultural Botany (Bot. 41)		3

Principles of Economic Zoology (Zool. 108, 109)	5	4
Elementary Bacteriology (Bact. 101)	3	
Agricultural Chemistry (Chem. 500, 501)	4	4
Orchard and Garden Practice (Hort. 2)	3	
Plant Propagation (Hort. 1)		2
Farm Dairying (Dairy Hus. 1)		3
Live Stock Management (An. Hus. 2)		2
	21	21

JUNIOR YEAR

Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Major Electives	7	7
Minor Electives	5	5
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Major Electives	8	8
Minor Electives	6	6
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

As indicated by the outlines above, all candidates for a degree of Bachelor of Science in Agriculture will pursue the same studies during the first two years of the course, in order that each may become well grounded in the fundamentals of agricultural science and practice. During the remaining two years of his course each student will be given an opportunity to become proficient in some one branch of Agriculture by specializing in one of the following groups of studies, viz.: Agronomy, Animal Husbandry, Dairy

Husbandry, Poultry Husbandry, Horticulture, Agricultural Chemistry, Agricultural Bacteriology, Plant Pathology and Entomology, or Agriculture for Teachers. All students working for degrees will be required to carry at least seventeen credits through the junior and senior years. Subjects other than those prescribed in the various groups must be selected with the advice of the head of the department in which the major is taken. Minors may be selected from any of the above departments, or from the Departments of English, Mathematics, Physics, Commerce, Industrial Pedagogy, Civil Engineering, including Highway Construction, Architecture, or Forestry.

COURSES IN AGRONOMY

(a) Regular

JUNIOR YEAR	*Semester* 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German or Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Drainage and Irrigation (Agron. 301)		3
Cereal Crops (Agron. 202)	5	
Soil Physics (Agron. 102)		5
Farm Mechanics (Agron. 401)	3	
Farm Power Machinery (Agron. 402)		3
Seminar (Agron. 503)		1
Electives	4	
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR		
Composition of Addresses, Extempore Speaking Eng. 103, 104)	2	2
Soil Fertility (Agron. 104)	5	
Farm Management (Agron. 505)		5

Agrostology (Agron. 205)	5	
Crop Improvement (Agron. 204)		3
Seminar (Agron. 504)		1
Electives	4	5
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

(b) Soils

JUNIOR YEAR	*Semester* 1st.	2nd.
French, German or Spanish (Mod. Lang.) 103, 104, 203, 204, 303, 304) or Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Agricultural Bacteriology (Bact. 501)	3	
Forage Crops (Agron. 203)	2	
Cereal Crops (Agron. 202, lect. only)	3	
Weed Eradication (Agron. 501)	1	
Electives	3	
Drainage and Irrigation (Agron. 301)		3
Soil Chemistry (Chem. 503)		3
Soil Physics (Agron. 102)		5
Seminar (Agron. 503)		1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
Argumentative Themes, Presentation (Eng. 100, 101)	1	1
	17	17

SENIOR YEAR		
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Agricultural Geology (Min. Eng. 141)	3	
Feeds and Feeding (A. H. 23)	3	
Soil Fertility (Agron. 104)	5	
Elective	3	1

Crop Improvement (Agron. 204)		3
Dry Farming (Agron. 502)		3
Farm Management (Agron. 505)		3
Advanced Soils (Agron. 111)		3
Seminar (Agron. 504)		1
(c) Crops	17	17

JUNIOR YEAR

French, German, Spanish (Mod. Lang.) 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Agricultural Bacteriology (Bact. 501)	3	
Taxonomy of Weeds and Grasses (Bot. 45)	2	
Field Crop Diseases (Bot. 103)	2	
Cereal Crops (Agron. 202)	5	
Weed Eradication (Agron. 501)	1	
Drainage and Irrigation (Agron. 301)		3
Crop Improvement (Agron. 204)		3
Field Crop Pests (Ent. 304)		2
Soil Physics (Agron. 102)		5
Seminar (Agron. 503)		1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	18	19

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Agrostology (Agron. 205)	5	
Feeds and Feeding (A. H. 23)	3	
Soil Fertility (Agron. 104)	5	
Elective	1	
Dairy Herd Management (D. H. 7)		3
Dry Farming (Agron. 502)		3
Farm Management (Agron. 505)		3
Advanced Crop Breeding (Agron. 206)		3
Advanced Crops (Agron. 211)		3

Seminar (Agron. 504)		1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	19

(d) Irrigation Farming

SOPHOMORE YEAR.

For Rural Economics (Com. 219, three credits first semester), in the regular Agricultural course, substitute Trigonometry (Math. 11, thre credits first semester).

For Agricultural Botany (Bot. 41, three credits second semester), substitute Plane Surveying (C. E. 231, three credits, second semester).

JUNIOR YEAR.

French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Farm Mechanics (Agron. 401)	3	
Climatology (Agron. 303)	1	
Topographic Surveying (C. E. 236)	3	
Forage Crops (Agron. 203)	2	
Irrigation Farming (Agron. 302)	3	
Drainage and Irrigation (Agron 301)		3
Farm Power Machinery (Agron. 402)		3
Soil Physics (Agron. 102)		5
Seminar (Agron. 503)		1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Hydraulics (C. E. 351)	3	
Feeds and Feeding (A. H. 9)	3	
Soil Fertility (Agron. 104)	5	
Advanced Irrigation Farming (Agron. 311)	3	
Crop Improvement (Agron. 204)		3
Dairy Herd Management (D. H. 7)		3

	Semester 1st.	2nd.
Dry Farming (Agron. 502)		3
Farm Management (Agron. 505)		3
Seminar (Agron. 504)		1
Elective		1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN ANIMAL HUSBANDRY

JUNIOR YEAR

Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Breeds of Stocks (An. Hus. 3, 4)	4	4
Livestock Marketing (An. Hus. 5)	3	
Soil Physics (Agron. 102)		5
Forage Crops (Agron. 203)	2	
Comparative Anatomy (Vet. Sci. 1)	3	
Veterinary Physiology (Vet. Sci. 2)		3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Commerical Law (Com. 300, 301)	3	3
Materia Medica and Comparative Medicine (Vet. Sci. 3)	3	
Surgery (Vet. Sci. 4)		3
Principles of Feeding (An. Hus. 7)	2	
Advanced Stock Judging (An. Hus. 16, 17)	2	2
Principles of Breeding (An. Hus. 6)	3	
Feeds and Feeding (An. Hus. 21)		5
Seminar (An. Hus. 18, 19)	1	1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSES IN DAIRY HUSBANDRY

(a) Milk Production

JUNIOR YEAR	*Semester* 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or Constitutional Law and Politics (Com. 320) State and Municipal Government (Com. 322)	3	3
Dairy Inspection (Dairy Hus. 2)	2	
Dairy Farm Equipment (Dairy Hus. 4)		3
Breeds of Dairy Cattle (Dairy Hus. 3)	3	
Veterinary Physiology (Vet. Sci. 2)		3
Principles of Feeding (An. Hus. 7)	2	
Forage Crops (Agron 203)	2	
Drainage and Irrigation (Agron. 301)		3
Electives	3	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR		
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
City Milk Supply (Dairy Hus. 5)		2
Dairy Herd Management (Dairy Hus. 7)		3
Seminar (Dairy Hus. 6)		1
Principles of Breeding (An. Hus. 6)	5	
Materia Medica and Comparative Medicine (Vet. Sci. 3)	3	
Dairy Bacteriology (Bact. 401, 402)	3	2
Electives	3	6
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

(b) Dairy Manufactures

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Advanced Butter Making (Dairy Hus. 10)	5	
Dairy Inspection (Dairy Hus. 2)	2	
Cheese Making (Dairy Hus. 11)		3
Dairy Chemistry (Chem. 502)		3
Forage Crops (Agron. 203)	2	
Drainage and Irrigation (Agron. 301)		3
Electives	3	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Dairy Machinery (Dairy Hus. 12)	2	
Factory Management (Dairy Hus. 13)	3	
Technology of Milk (Dairy Hus. 14)		2
Dairy Herd Management (Dairy Hus. 7)		3
Ice Cream and Ices (Dairy Hus. 15)		1
Dairy Bacteriology (Bact. 401, 402)	3	2
Seminar (Dairy Hus. 6)		1
Electives	6	5
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSES IN HORTICULTURE

(a) Pomology

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Floriculture (Hort. 3)	2	
Landscape Gardening (Hort. 4)		2
Orchard Practice (Hort. 12, 13)	2	2
Practical Pomology (Hort. 11)	3	
Introductory Entomology (Zool. 301)	3	
Entomology of Orchards and Small Fruits (Zool. 302)		3
Electives	2	5
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Seminar (Hort. 20, 21)	1	1
Systematic Pomology (Hort. 18)	3	
Commercial Pomology (Hort. 19)	2	
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Trees and Small Fruits (Bot. 102)		3
Electives	2	5
Plant Physiology (Bot. 50, 51)	3	3
History and Literature of Horticulture (Hort. 32)		2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

(b) Olericulture

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Floriculture (Hort. 3)	2	
Landscape Gardening (Hort. 4)		2
Principles of Vegetable Gardening (Hort. 31)	2	
Practical Vegetable Growing (Hort. 37)		3
Plant Breeding (Hort. 23)	3	
Introductory Entomology (Zool. 301)	3	
Entomology of Truck and Field Crops (Zool. 303)		3
Electives	2	4
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Forcing Vegetables (Hort. 32, 33)	2	2
Commercial Truck Gardening (Hort. 35, 36)	3	3
Seminar (Hort. 20, 21)	1	1
Systematic Olericulture (Hort. 34)	1	
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Vegetable Crops (Bot. 104)		3
Advanced Plant Breeding (Hort. 24)		3
Electives	4	2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

(c) Floriculture

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Annuals and Perennials (Hort. 41, 42)	3	3
Floriculture (Hort. 3)	2	
Greenhouse Construction (Hort. 51)		3
Landscape Gardening (Hort. 4)		2
Introductory Entomology (Zool. 301)	3	
Entomology of Truck and Field Crops (Zool. 303)		3
Electives	4	1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Forcing Flowers (Hort. 52, 53)	3	3
Agricultural Bacteriology (Bact. 501)	2	
Forcing Vegetables (Hort. 32)		2
Advanced Plant Breeding (Hort. 24)		3
History and Literature of Horticulture (Hort. 22)	2	
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Vegetable Crops (Bot. 104)		3
Electives	4	3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

(d) Landscape Gardening

FRESHMAN YEAR

	Semester 1st	2nd
Rhetoric (Eng. 31, 32)	3	3
Elements of Literature (Eng. 41, 42)	2	2
Agricultural Physics (Phys. 111, 112)	3	3
Principles of Botany (Bot. 20, 21)	3	3
Woodwork (Shop 106)	2	
Library Practice (Libr. 1)	1	
Plane Trigonometry (Math. 12)	3	
Plane Surveying (C. E. 201)		5
Architectural Drawing (Arch. 501)	4	
Orders (Arch. 502)		4
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

French (Mod. Lang. 101, 102)	3	3
Modern English Prose (Eng. 81, 82)	3	3
Agricultural Botany (Bot. 41)		3
General Zoology (Zool. 101, 102)	3	3
Elementary Bacteriology (Bact. 101)	3	
Orchard and Garden Practice (Hort. 2)	3	
Plant Propagation (Hort. 1)		2
Topographic Surveying (C. E. 204)	5	
Railroad Surveying (C. E. 211)		5
Silviculture (For. 202)		2
Business Contracts	1	
	21	21

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
State and Municipal Government (Com. 322)		3
Tree Surgery (Hort. 39, 40)	1	1
Floriculture (Hort. 3)	2	
Landscape Gardening (Hort. 4)		2
Roads and Pavements (C. E. 401)	3	
French (Mod. Lang. 103, 104)	3	3
Plant Materials (Hort. 43, 44)	3	3
Pen and Pencil Rendering (Arch. 503, 504)	2	2
Water Color Rendering (Arch. 505, 506)	1	1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Theory and Design (Hort. 45, 46)	2	3
Field Practice (Hort. 47, 48)	3	3
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Trees and Small Fruits (Bot. 102)		3
History and Literature of Landscape Architecture (Hort. 49)		2
Town Planning (Hort. 50)	3	
Electives	3	3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN POULTRY HUSBANDRY

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Poultry Husbandry (Poultry Hus. 1, 2)	4	4
Embryology and Histology (Zool. 104, 105)	3	3
Elementary Laboratory Bacteriology (Bact. 102)		2
Markets and Marketing (Poultry Hus. 7)	2	
Feeds and Feeding (Poultry Hus. 10)		2
Electives	3	1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Advanced Poultry Husbandry (Poultry Hus. 3, 4)	4	9
Farm Management (Agron. 505)		3
Principles of Breeding (An. Hus. 6)	5	
Minor Electives	2	2
Poultry Diseases (Bacteriology 701)	3	
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN AGRICULTURAL CHEMISTRY

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German or Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Soil Chemistry (Chem. 503, 504)	4	4
Agricultural Geology (Min. 141)	3	
Soil Physics (Agron. 102)		3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
Electives	5	5
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Advanced Agricultural Analysis (Chem. 507, 508)	4	4
Plant Physiology (Bot. 50) or		
Principles of Plant Pathology (Bot. 100) or		
Agricultural Bacteriology (Bact. 501)	3	
Advanced Agronomy (Agron. 403)		3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Electives	7	7
	17	17

COURSE IN AGRICULTURAL BACTERIOLOGY

JUNIOR YEAR	*Semester* 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304)	3	3
Major Bacteriology (Bact. 111, 112)	5	5
Electives (Chem., Agron., Zool., or Vet. Sci.)	7	7
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR		
Composition of Addresses Extempore Speaking (Eng. 103, 104)	2	2
Bacteriology, Research (Bact. 116)	8	8
Electives (Chem., Agron., Zool., or Vet. Sci.)	6	6
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN PLANT PATHOLOGY

JUNIOR YEAR	*Semester* 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Trees and Small Fruits (Bot. 102)		3
Plant Physiology (Bot. 50, 51)	3	3
General Bacteriology (Bact. 111)	5	
Phyto-Pathological Technique (Bot. 110)		3
Electives	1	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses Extempore Speaking (Eng 103, 104)	2	2
Forest Botany (Bot. 3)	3	
Phyto-Pathological Histology (Bot. 112)		3
Advanced Taxonomy of Parasitic Fungi (Bot. 115)	3	
Diseases of Vegetable Crops (Bot. 104) or Forest Pathology (Bot. 106)		3
Introduction Entomology (Zool. 301)	3	
Thesis (Bot. 82, 83)	3	3
Entomology of Orchard and Small Fruits (Zool. 302)		3
Electives	2	2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN ENTOMOLOGY

JUNIOR YEAR

Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or State and Municipal Government (Com. 320)		3
Constitutional Law and Politics (Com. 322)	3	
Introductory Entomology (Zool. 301)	5	
Advanced Entomology (Zool. 305)		5
Principles of Plant Pathology (Bot. 100)	3	
Diseases of Trees and Small Fruits (Bot. 102)		3
Practical Pomology (Hort. 11)	3	
Plant Breeding (Hort. 23)		3
Beekeeping (Zool. 309)		1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Elective	1	
	17	17

SENIOR YEAR

	Semester 1st.	2nd.
Composition of Address, Extempore Speaking (Eng. 103, 104)	2	2
Advanced Entomology (Zool. 306, 307)	5	5
Orchard Practice (Hort. 12, 13)	2	2
Embryology (Zool. 104)	3	
Histology (Zool. 105)		3
Electives	4	4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN AGRICULTURE FOR TEACHERS

JUNIOR YEAR

Argumentative Themes, Presentation (Eng. 101, 102,)	1	1
French, German, or Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
General Psychology (Ind. Ped. 101)	3	
General Method (Ind. Ped. 140)		3
Practical Pomology (Hort. 11)	3	
Soil Physics (Agron. 102)		3
Introductory Entomology (Zool. 301)	3	
Practical Vegetable Gardening (Hort. 37)		3
Electives	3	3
	17	17

SENIOR YEAR

	Semester 1st.	2nd.
Composition of Address, Extempore Speaking (Eng. 103, 104)	2	2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Special Methods in Agriculture (Ind. Ped. 150, 151)	3	3
Soil Fertility (Agron. 104)	5	
Farm Management (Agron. 401)		3
Landscape Gardening (Hort. 4)		2
Dairy Herd Management (D. H. 7)		3
Poultry Husbandry (P. H. 6)	2	
Electives	4	3
	17	17

COURSES IN FORESTRY

Nature has created conditions which have made Oregon one of the best timber growing States in the Union. At present it carries at least one-fifth of the standing timber in the United States—a stumpage estimated at more than four hundred billion feet, board measure. This immense property represents a resource second in value only to argriculture.

The College can best serve the timber owners by perparing men to assist in this great industry. Realizing this need, the Forestry course has been largely shaped to this end. The student is thoroughly trained in plane and topographic surveying and map making. He is required to apply his theory to actual practice in the woods, surveying and mapping timber lands, cruising timber and studying and planning logging operations.

To meet all the needs of the State in protection, development, and havesting of its forest resources, the College has provided a regular four-year course of instruction, in charge of professional foresters. While the course aims to give the student the maximum amount of technical instruction possible, full cognizance is taken of the fact that the forester should be fully prepared for broad citizenship.

Secondary Course in Forestry

FIRST YEAR	*Semester* 1st.	2nd.
Advanced Grammar (English A, B)	4	2
Elements of Literature (English C, D)	1	3
Algebra (Math. A, B)	5	5
Ancient History (Hist. A)	3	
Mediæval and Modern History (Hist. B)		3
Elementary Drawing (Art. A)	2	
Scientific Drawing (Art. C)		2
Farm Accounting and Business Methods (Com. E)	2	
Elementary Commercial Law (Com. L)		2
Elementary Forestry (For. A, B)	4	4
	21	21

SECOND YEAR		
Rhetoric and Composition (English E, F)	3	3
Elements of Literature (English G, H)	2	2
Algebra, Plane Geometry (Math. C, D, K)	5	5
Silviculture (For. C, D)	2	2
Business English (English 21)		3
Woodwork (Shop. G)	2	
Blacksmithing (Shop L.)		2
United States History (Hist. 20)	3	
Elementary Physics (Phys. A, B)	4	4
	21	21

Degree Course in Forestry

FRESHMAN YEAR

	Semester 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Trigonometry (Math. 12)	3	
Mechanical Drawing (M. E. 101)	2	
Plane Surveying (C. E. 201)		5
General Chemistry (Chem. 100, 101)	4	4
Principles of Botany (Bot. 20, 21)	3	3
General Forestry (For. 101, 102)	3	3
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

French, German (Mod. Lang. 101, 102, 201, 202) or Modern English Prose (English 81, 82)	3	3
Engineering Physics (Physics 101, 102)	5	5
Zoology (Zool. 101, 102)	3	3
Forest Botany (Bot. 30, 31)	3	3
Silviculture (For. 201, 202)	2	3
Topographic Surveying (C. E. 205)	5	
Engineering Geology (Min. 142)		4
	21	21

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German (Mod. Lang. 103, 104, 203, 204) or Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Introductory Entomology (Zool. 301)	3	
Advanced Silviculture (For. 203, 204)	2	2
Forest Surveying and Mapping (For. 303)		3
Forest Entomology (Zool. 304)		3
Mensuration (For. 301, 302)	3	4
Forest Pathology (Bot. 106)	4	
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Timber Testing (Exp. Eng. 127)		1
Timber Technology (For. 502)		2
Elements of Steam Engineering (M. E. 125)	2	
Management (For. 401, 402)	5	5
Utilization (For. 403)	2	
Lumbering (For. 404)		5
Dendrology (For. 501)	5	
Wood Preservation (For. 503)	2	
National Forest Administration (For. 405)		3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

LOGGING ENGINEERING

The great problem confronting the forest owners of this State now is the harvesting of the timber crop. As the woodman's axe and saw increase the distance between the standing timber and drivable streams, the difficulty of getting logs to the mill is more than correspondingly increased. In fact, with the employment of improved machinery and logging devices in a region of rugged topography, a distinct and peculiar engineering problem arises. So keenly have the lumbermen of the State felt the need of assistance in coping with this problem, that they have requested the creation of a course in logging engineering, the purpose of which would be to prepare young men to be of use to them in bringing to market this second greatest material resource of the State. To meet this need the College offers the following course in Logging Engineering.

FRESHMAN YEAR.

	Semesters	
	1st.	2d.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Trigonometry (Math. 12)	3	
Mechanical Drawing (M. E. 101)	2	
Plane Surveying (C. E. 201)		5
General Chemistry (Chem. 100, 101)	4	4
Woodwork (Shop 105)	3	
Woodwork (Shop 111)		3
General Forestry (For. 101, 102)	3	3
Library Practice (Libr. 1)	1	
Hygiene (Hyg. 19)		1
	21	21

SUMMER WORK.

Three Months in Logging Camps.

SOPHOMORE YEAR.

	Semester 1st.	2nd.
French or German (Mod. Lang. 101, 102, or 201, 202) or Modern Eng. Prose (Eng. 81, 82)	3	3
Engineering Physics (Physics 101, 102)	5	5
Principles of Economics (Com. 210)	3	
Labor Problems (Com. 213)		3
Blacksmithing (Shop 120)	3	
Machine Shop (Shop 200)		2
Tool Making and Tempering (Shop 121)		1
Denderology (For. 504)	2	
Forest Protection (For. 406)		2
Topographic Surveying (C. E. 204)	5	
Railroad Surveying (C. E. 211)		5
	21	21

SUMMER WORK.

This work should be a practical application of both Topographic Surveying and Railroad Surveying, studied in College during the preceding year.

SUMMER WORK.

Three Months in Logging Camps.

JUNIOR YEAR.

Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German (Mod. Lang. 103, 104, or 203, 204) or Constitutional Law and Politics (Pol. Sci. 320)	3	
State and Municipal Govt. (Pol. Sci. 322)		3
Forest Surveying and Mapping (For. 303)		3
Mensuration (For. 301, 302)	3	4
Hydraulics (For. 602)	2	
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
Logging Railroads (For. 601)	3	
Logging Materials (Exp. Eng. 128)		3
Mechanism (M. E. 120)	4	
Elements of Steam Engineering (M. E. 300)		2
	17	17

SUMMER WORK.

Three Months in Logging Camps.

The work of this vacation should be devoted to timber cruising under the supervision of an expert cruiser. Scientific methods should be employed. Reports should be worked up and the areas cruised carefully mapped.

SENIOR YEAR.

	Semester 1st.	2nd.
Bridge Construction (For. 603)		3
Logging Engines (For. 604)	4	
Lumbering (For. 404)		5
Wood Preservation (For. 503)	2	
Business Management (For. 605)		3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Electrical Machines (E. E. 402)	2	
Logging Devices and Equipment (For. 606, 607)	5	5
Special Subjects (For. 608)	3	
	17	17

COURSES IN DOMESTIC SCIENCE AND ART

The School of Domestic Science and Art offers two four-year courses; Domestic Science and Domestic Art, each of which leads to the degree of Bachelor of Science. In addition, there is the Secondary Course in Domestic Science and Art, which leads to freshman registration.

Professional, technical, and commercial training is everywhere offered to men. The tendency in all lines of education is so to prepare men that they may readily adjust themselves to their environment and thus become more efficient and more valuable in their world service.

Woman's relation to the economic world has undergone great changes in recent years but her education still follows the old lines. The school of Domestic Science and Art has been established that young women may be trained in their life work, Home Administration; that they may be so instructed that they can readily adjust themselves to the demands the world puts upon them; and that they may respect their own occupation and profession.

The demand for capable teachers of Domestic Science and Art is greater than the supply; and those who graduate from these courses are well prepared to teach.

Secondary Course in Domestic Science and Art

FIRST YEAR	*Semester* 1st.	2nd.
Advanced Grammar (English A, B)	4	2
Elements of Literature (Eng. C, D)	1	3
Algebra (Math. A, B)	5	5
Ancient History (Hist. A)	3	
Mediæval and Modern History (Hist. B)		3
Food Preparation (Dom. Sci. A, B)	3	3
Sewing (Dom. Art A, B)	3	3
	19	19

SECOND YEAR

	Semester 1st.	2nd.
Rhetoric and Composition (English E, F)	3	3
Elements of Literature (English G, H)	2	2
Algebra, Plane Geometry (Math. C, D, K)	5	5
Drawing (Art D)		2
Essentials of Botany (Bot. A)	3	
Food Preparation (Dom. Sci. C, D)	3	3
Sewing (Dom. Art C, D)	3	3
Laundering (Dom. Sci. E)		1
	19	19

Degree Course in Domestic Science and Art

FRESHMAN YEAR

Rhetoric (English 31, 32)	3	3
*Elements of Literature (English 41)	2	
*Public Speaking (Eng. 109)		2
General Chemistry (Chem. 102, 103)	4	4
Principles of Botany (Bot. 20, 21)	3	3
English History (Hist. 10)	3	
Drawing (Art 102)	2	
Light and Shade (Art 103)		2
***Laundering (Dom. Sci. 401)		1
**Hand Sewing, Garment Making (Dom. Art 101, 102)	3	3
***Home Nursing (Dom. Sci. 511)		2
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 9)		1
	21	21

*These courses alternate in such way that half of the students in the freshman class may take Public Speaking during the first semester and the Elements of Literature during the second semester.

**Students who present credit in Sewing from accredited high schools are not required to take Domestic Art courses 101 and 102 through both semesters. Such students take Sewing (Domestic Art 103), three credits, first semester, and may elect three credits for the second semester.

***These courses alternate in such a way that half of the students in the freshman class may take Home Nursing the first semester and half take Laundering.

SOPHOMORE YEAR

	Semester 1st.	2nd.
The Essay (English 51)	3	
The English Drama (English 52)		3
French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302)	3	3
Household Physics (Phys. 131)	3	
Household Bacteriology (Bact. 300)		4
Organic Chemistry (Chem. 200)	4	
Chemistry of Foods (Chem. 402)		4
Zoology (Zool. 103)	3	
Still Life in Color (Art 204)		2
Home and Private Business Management (Com. 122)		2
*Food Preparation (Dom. Sci. 101, 102)	3	3
Commercial Geography (Com. 201)	2	
	21	21

JUNIOR YEAR

Beginning with the junior year students are given option of specializing in either Domestic Science or Domestic Art.

DOMESTIC SCIENCE

JUNIOR YEAR

English Literature (English 61, 62)	3	3
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304)	3	3
Physiology (Zool. 203)	4	
Food Preparation (Dom. Sci. 104, 105)	3	3
House Sanitation (Dom. Sci. 301)		2
Electives	4	6
	17	17

*Students who present credits in Domestic Science from accredited high schools are not required to take Food Preparation (Domestic Science 101, 102) through both semesters. Such Students will take Food Preparation (Domestic Science 103), three credits, first semester, and may elect three credits for the second semester.

	Semester	
Electives—	1st.	2nd.
Dressmaking (Dom. Art 201, 202)	3	3
House Decoration and Furnishing (Dom. Art. 502)		2
Landscape Gardening (Flor. 55)		2
Practical Sociology (Com. 250)		3
Evolution of the House (Dom. Sci. 530)	2	
History of Education (Ind. Ped. 120)		3
School Management (Ind. Ped. 130)	3	
Advanced Physiology (Zool. 205)		3

Electives may be chosen from any department upon approval of the Dean of the School of Domestic Science and Art.

SENIOR YEAR

Dietetics (Dom. Sci. 201, 202)	5	5
General Psychology (Ind. Ped. 101)	3	
Household Administration (Dom. Sci. 501)		2
American Literature (English 71, 72)	2	2
Electives	7	8
	17	17

Electives—		
Special Methods in Dom. Sci. (Ind. Ped. 160, 161)	3	3
Special Methods in Dom. Art (Ind. Ped. 160, 162)	3	3
Principles of Vegetable Gardening (Hort. 31)		3
Tailoring, Advanced Dressmaking (Dom. Art. 203, 204)	3	3
Basketry (Dom. Art 401, 402)	2	2
Art Appreciation (Art. 408)	2	
Costume Design (Dom. Art. 701)		2
Rural Sociology (Com. 252)		3
History of Oregon (Hist. 70)		2

Electives may be chosen from any department upon approval of the Dean of the School of Domestic Science and Art.

Graduate Work

The follwong graduate courses will be conducted for those students only who are capable of carrying on investigations. They will deal with new and unsettled problems whose solution will help place the subject of Domestic Science on a more secure scientific basis. (See Courses 550, 551, 701, 702.)

DOMESTIC ART

JUNIOR YEAR	*Semester* 1st.	2nd.
English Literature (English 61, 62)	3	3
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304)	3	3
Physiology (Zool. 203)		4
Chemistry of Textiles (Chem. 202)	3	
Dressmaking (Dom. Art 201, 202)	3	3
House Sanitation (Dom. Sci. 301)	2	
Electives	3	4
	17	17
Electives—		
Food Preparation (Dom. Sci. 104, 105)	3	3
House Construction, Household Decoration (Dom. Art 501, 502)	2	2
Design and Stencil (Art 5, 6)	2	2
Practical Sociology (Com. 250)		3
Basketry (Dom. Art. 401, 402)	2	2
Landscape Gardening (Flor. 55)		2
History of Oregon (Hist. 70)		2
School Management (Ind. Ped. 130)	3	
History of Education (Ind. Ped. 120)		3

Electives may be chosen from any department upon approval of the Dean of the School of Domestic Science and Art.

SENIOR YEAR

	Semester 1st.	2nd.
American Literature (English 71, 72)	2	2
Tailoring and Advanced Dressmaking (Dom. Art 203, 204)	3	3
General Psychology (Ind. Ped. 101)	3	
Household Administration (Dom. Sci. 501)		2
Textiles (Dom. Art, 601)		2
Electives	9	8
	17	17

Electives—

Handwork and Weaving (Dom. Art. 404, 405)	2	2
Millinery (Dom. Art 301)		2
Special Method in Dom. Sci. (Ind. Ped. 160 161)	3	2
Special Method in Dom. Art (Ind. Ped. 162, 163)	3	2
Dietetics (Dom. Sci. 201, 202)	5	5
Art Appreciation (Art 408)	2	
Costume Design (Dom. Art 701)	2	

Electives may be chosen from any department upon approval of the Dean of the School of Domestic Science and Art.

COURSES IN ENGINEERING

The school of Engineering offers four four-year courses: Civil Engineering, Electrical Engineering, Mechanical Engineering, and Mining Engineering, each of which leads to the degree of Bachelor of Science. It also offers a two-year course in Mechanic Arts which leads to freshman registration in any of the four-year courses mentioned above.

Secondary Course in Mechanic Arts

The Secondary Course in Mechanic Arts is designed to meet the needs of those students who desire industrial training. It is open to those who have completed the eighth grade State examinations, provided they do not come from places where local high schools are offering the same line of work. It is thought that this course will be helpful to those who desire to become workers in wood or metal; to those who wish to teach industrial work in the schools of the State, or elsewhere, as well as to those who intend to take one of the degree courses later. The scope of the work is necessarily more limited than in the degree courses, but special stress is laid upon the industrial features. The tendency of modern education is toward industrial training. Many believe that theis training should begin in the common schools. If so, colleges and secondary schools must supply teachers who are proficient in this work.

In this course, one-third of the student's time must be given to the distinctively industrial work. Woodwork is required during the first year, but considerable latitude is allowed in the selection of the work of the second year.

The student is brought into actual contact with the work itself by being required to become proficient in the construction of useful articles of wood and metal. The purpose throughout is to combine the training of mind, hand, and eye in a manner that will enable the student to formulate plans rapidly and execute them skillfully.

Eighth grade graduates, coming from localities not offering in the high school the work outlined below, are eligible to register as freshmen in any of the Engineering courses, after having completed the following two years; work:

FIRST YEAR	*Semester* 1st.	2nd.
Advanced Grammar (English A, B)	4	2
Elements of Literature (English C, D)	1	3
Algebra (Math. A, B)	5	5
Ancient History (Hist. A)	3	
Mediæval and Modern History (Hist. B)		3
Drawing (Art A)	3	
Machine Sketching (Art B)		3
Woodwork (Shop A, B)	5	5
	21	21

SECOND YEAR		
Rhetoric and Composition (English E, F)	3	3
Elements of Literature (English G. H)	2	2
Algebra, Geometry, (Math. C, D, E)	5	5
Elementary Physics (Physics A, B)	4	4
Business Methods (Com. F)		2
Commercial Law (Com. L)	2	
Woodwork (Shop C, D), Patternmaking (Shop E, F) or Blacksmithing (Shop J, K)	5	5
	21	21

COURSE IN CIVIL ENGINEERING

The purpose of this course is to give the student thorough theoretical instruction, accompanied by as much laboratory and field practice as possible. The course includes such basic studies as English, Mathematics, Chemistry, Physics, Drawing, Materials of Engineering, Applied Mechanics, and Hydraulics, in addition to the technical work given by this department. The student has the opportunity, during the senior year, to select his work, along lines that he is most interested in. Five options are offered, leading respectively to Hydraulics, Highways, Structural Engineering, Railroads and Irrigation.

Recognizing the value of drawing to the professional engineer, not only as a means of expressing his ideas and of carrying out his plans, but also as a means by which the young graduate may enter some of the most desirable positions, the department lays special emphasis upon this subject. Besides the general course in Mechanical Drawing, three additional more technical courses are required in the Civil Engineering course. One of these, a course in Lettering and Title Design, is given by the department of Art, the others by this department. Much additional drawing is required in connection with the preparation of plans and working drawings, as part of the office work of the higher technical courses.

The work in Surveying begins with the freshman year, and continues through the sophomore year, with from six to ten hours of field practice a week. The student serves in subordinate positions at first, and gradually advances as a knowledge of the instruments is acquired until he is placed in charge of field parties and is held responsible for the results accomplished. During the freshman year he is given practice in land surveying and leveling, and during the sophomore year in topographic and railroad surveying. At all times, conscientious attention to duty, accuracy, and speed will be demanded. Every student keeps full and accurate notes of all work done in the field. These, after being criticised, are transcribed and filed with the instructor.

In the study of Highways, special reference is made to the conditions and needs in Oregon. Due consideration is given to the drainage and maintenance of dirt and gravel 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. The courses in theoretical and applied hydraulics cover a period of one and a half years. The various irrigation projects of Oregon offer to our students and graduates excellent opportunities for study and work.

Degree Course in Civil Engineering

FRESHMAN YEAR	*Semester* 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41)	2	
Trigonometry, College Algebra (Math. 11, 21)	5	
Elementary Analysis (Math. 31)		5
Spherical Trigonometry (Math. 15)	1	
General Chemistry (Chem. 100, 101)	4	4
Mechanical Drawing (C. E. 101)	3	
Descriptive Geometry (M. E. 102)		3
Plane Surveying (C. E. 201)		5
Freehand Lettering and Title Design (Art 101)	2	
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR		
Differential and Integral Calculus (Math. 51, 52)	5	5
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Engineering Physics (Phys. 101, 102)	5	5
French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302), or Modern English Prose (English 81, 82)	3	3
Topographic Surveying (C. E. 204)	5	
Railroad Surveying (C. E. 211)		5
Engineering Drawing (C. E. 103, 104)	2	2
	21	21

JUNIOR YEAR

	Semester 1st.	2nd.
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304), or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Materials of Engineering (M. E. 124)	2	
Roads and Pavements (C. E. 401)	3	
Road and Paving Materials (Exp. Eng. 131)	1	
Cement Laboratory (Exp. Eng. 126)	1	
Masonry and Foundations (C. E. 501)		4
Structural Materials Laboratory (Exp. Eng. 123)		2
Hydraulics Laboratory (Exp. Eng. 141)		1
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Roofs and Bridges (C. E. 503, 504)	4	3
Engineering Seminar (C. E. 601, 602)	1	1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Contracts and Specifications (C. E. 603)		2
Electives (Either Group 1, 2, 3, 4 or 5)	11	10
	17	17

During the senior year students may choose any one of the following option groups. Groups will be given only when the number of students applying for them is large enough to justify forming the section.

GROUP 1

	Semester 1st.	2nd.
Sanitary Engineering (C. E. 301)	3	
Bacteriology (Bact. 600)	2	
City Engineering (C. E. 206)	4	
Chemistry of Water (Chem. 403)		2
Hydraulic Motors (M. E. 204)	2	
Study of Electrical Machinery (E. E. 402)		4
Water Supply Engineering (C. E. 302)		4
	11	10

GROUP 2

Highway Engineering (C. E. 402)	3	
Economics of Highway Construction (C. E. 404)		3
Engineering Geology (Min. Eng. 142)	4	
Chemistry of Highway Materials (Chem. 405)		3
Road Machinery (M. E. 302)	2	
Road and Paving Materials (Exp. Eng. 131)	2	
Electives (Restricted)		4
	11	10

GROUP 3

Reinforced Concrete (C. E. 509)	3	
Advanced Structural Laboratory (Exp. Eng. 124)	1	
Study of Electrical Machinery (E. E. 402)		4
Structural Engineering (C. E. 505, 506)	2	3
Electives (Restricted)	5	3
	11	10

GROUP 4

	Semester 1st.	2nd.
Railway Engineering (C. E. 212, 213)	3	3
Study of Electrical Machinery (E. E. 402)		4
Reinforced Concrete (C. E. 509)	3	
Advanced Structural Laboratory (Exp. Eng. 124)	1	
City Engineering (C. E. 206)	4	
Precise Surveying and Geodesy (C. E. 207)		3
	11	10

GROUP 5

Soil Physics (Agron. 102)		5
Irrigation Farming (Agron. 301)	3	
Irrigation Engineering (C. E. 303)	4	
Design of Irrigation Structures (C. E. 508)		5
Reinforced Concrete (C. E. 509)	3	
Advanced Structural Laboratory (Exp. Eng. 124)	1	
	11	10

COURSE IN ELECTRICAL ENGINEERING

COURSES. Since the advent of steam as a motive power, it is probable that no agency has so deeply affected the course of history and the intimate life of a large portion of the human race as has the electric current, whether used in the transmission of intelligence, to furnish light, or to provide power for transportation and the industries.

Already the electrical industries are counted among the greatest in the world; their employees number more than a hundred thousand in the United States alone; their business in this country doubles every five years and their field is ever expanding.

Notwithstanding this fact, most of the business is controlled by comparatively few corporations; hence the competition for desirable positions is keen; and since the field in Electrical Engineering for the independent engineer is limited, only men of exceptional ability, energy, and character become more than salaried employees, who work very hard for comparatively small compensation.

Accordingly, no man is advised to take Electrical Engineering who does not consider himself, by taste and ability, exceptionally fitted therefor.

For men interested chiefly in the commercial, or business side of the profession, it is believed that the electrical supply and contracting business offers opportunities that are unusual; but which, nevertheless, have been practically overlooked by college graduates. Accordingly, special work in accounting, commercial law, the study of electrical appliances and the principles of the contracting business are offered for those who would care to enter this field.

The college course is designed especially to train the young engineer in the theory of his profession, such practical work as is given in shop and laboratory being subordinated to this end. Practical acquaintance with actual conditions can be acquired only in the field, during vacation and after graduation. For this reason and in order to supplement his college education, the student is urged to spend at least a part of his vacation in some line of electrical industry.

Starting with the foundation subjects of mathematics, science, drawing, and shopwork, the student proceeds through the study of form expression in Descriptive Geometry, Mechanism, the laws of Mechanics, Strength of Materials, stress in structures and machinery; through the study of electricity and its application to machinery, the characteristic performance of electrical apparatus, its design and operation; through the study of thermodynamics as applied to various types of heat engines, and finally to the composite power sysem involving the steam or hydroelectric power plant and the system for transmitting and distributing electrical energy.

ELECTIVES. The course in Electrical Engineering is designed to meet the needs of two classes of students, those who expect to become corporation employees and those who desire to engage in the supply and contracting business on their own account. In the sophomore year one of three elective subjects must be chosen, English, Modern Language, or Accounting. It is expected that the latter course will be elected by students who intend to prepare for the supply and contracting business.

Degree Course in Electrical Engineering

FRESHMAN YEAR	*Semester* 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Trigonometry, College Algebra (Math. 11, 21)	5	
Elementary Analysis (Math. 31)		5
General Chemistry (Chem. 100, 101)	4	4
Mechanical Drawing (M. E. 100)	3	
Descriptive Geometry (M. E. 102)		3
Woodwork (Shop 101)	3	
Patternmaking (Shop 102)		3
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

Freshmen entering with advanced credit will, in general, be required to register for E. E. 121-122—Survey of Electrical Industries.

SOPHOMORE YEAR		
Differential and Integral Calculus (Math. 51, 52)	5	5
Engineering Physics (Physics 101, 102)	5	5
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302), or Modern English Prose (English 81, 82) or Accounting (Commerce 107, 108)	3	3
Mechanical Drawing (M. E. 103)	4	
Mechanism (M. E. 120)		4
Blacksmithing (Shop 120)	3	
Foundry (Shop 131)		3
	21	21

JUNIOR YEAR

	Semester 1st.	2nd.
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) or Constitutional Law and Politics (Com. 320), State and Municipal Government (Com. 322), or Commercial Law (Commerce 300-301)	3	3
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Electrical and Magnetic Measurements (Physics 201)	2	
Theory and Practice of Steam Engineering (M. E. 305)		3
Electrical Engineering Laboratory (E. E. 201, 202)	3	3
Principles of Applied Electricity (E. E. 101, 102)	4	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Alternating Current Machinery (E. E. 103)	3	
Power Plants, Transmission and Distributing Systems (E. E. 108)		3
Electrical Design (E. E. 105, 106)	2	2
Electrical Engineering Laboratory (E. E. 204)	4	
Advanced Steam Engineering (M. E. 306)	3	
Elementary Mech. Laboratory (Exp. Eng. 105, 106)	2	2
Machine Shop (Shop 201)		3
Electives		4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN MECHANICAL ENGINEERING

The course in Mechanical Engineering has for its purpose. the preparation of young men for positions of usefulness and responsibility in the industrial life of the country.

The Pacific Northwest is just now entering upon a period of rapid progress in the building of railroads, the development of water power, the marketing of forest products, and the upbuilding of manufactories, all of which require men conversant with the general principles of engineering. It is the purpose of all engineering courses to contribute to this general advancement, by turning out graudates equipped with the necessary knowledge and skill to make them active factors in this great work.

It is the general plan of the course in Mechanical Engineering to lay a broad foundation in English, Mathematics, Chemistry, and Physics, accompanied by Drawing and Shopwork, during the first two years of the course. The work of the last two years is more technical and professional in its nature, consisting in a study of the principles involved in the development of power by steam engines, water wheels, gas and gasoline engines, and steam turbines. It also involves a critical study of the design of machines and materials entering into their construction, as well as tests to determine their efficiency.

Instruction is given by means of lectures, recitations, and laboratory exercises. The scientific principles involved in machines and mechanical movements are taught in the class room as well as the application of mathematics to the solution of problems in mechanical engineering. In the shops, the student learns the use of tools and the value of different methods of doing work from the standpoint of economical construction. In the drafting room, he learns to make working drawings and blue-prints of machines, and to formulate designs of his own.

With these advantages to aid him, the ambitious student should be able to take and maintain a position in the general industrial and engineering development which is the leading and characteristic feature of the age in which we live.

Degree Course in Mechanical Engineering

FRESHMAN YEAR	Semester 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Trigonometry, College Algebra (Math. 11, 21)	5	
Elementary Analysis (Math. 31)		5
*General Chemistry (Chem. 100, 101)	4	4
*Mechanical Drawing (M. E. 100)	3	
Descriptive Geometry (M. E. 102)		3
Woodwork (Shop 101)	3	
Pattern Making (Shop 102)		3
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR		
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302), or Modern English Prose (English 81, 82)	3	3
Differential Integral Calculus (Math. 51, 52)	5	5
*Engineering Physics (Physics 101, 102)	5	5
*Mechanical Drawing (M. E. 103)	4	
*Mechanism (M. E. 120)		4
*Foundry Practice (Shop 130)	3	
*Blacksmithing (Shop 120)		3
	21	21

*Students desiring to do so, may omit the subjects marked (*) and take the following: *Freshman Year*—Architectural Drawing (Arch. 501), Orders (Arch. 502), Pen and Pencil Rendering (Arch. 503, 504), Water Color Rendering (Arch. 505, 506). *Sophomore Year*—Wood Construction (Arch. 507), Metal and Masonry (Arch. 508), Elements of Design (Arch. (510, 511), Shades and Shadows (Arch. 509), Physics (Physics 5, 6). It is understood, however, that the work so elected does not count towards a degree in Mechanical Engineering.

JUNIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304), or		
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Materials of Engineering (M. E. 124)	2	
Theory and Practice of Steam Engineering (M. E. 305)		3
Elementary Mechanical Laboratory, Elementary Power Laboratory (Exp. Eng. 105, 106)	2	2
Machine Shop (Shop 200, 202)	2	2
Tool Making and Tempering (Shop. 121)	1	
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Machine Design (M. E. 125, 126)	4	4
Advanced Steam Engineering (M. E. 306)	3	
Steam Power Plant Design (M. E. 127)		2
Internal Combustion Motors (M. E. 315)		2
Steam Turbines (M. E. 312)		2
Study of Electrical Machinery (E. E. 402)		4
Advanced Mechanical Laboratory, Advanced Power Laboratory (Exp. Eng. 107, 108)	2	2
Hydraulic Motors (M. E. 204)	2	
Compressed Air and Refrigeration (M. E. 308) or Heating and Ventilating (M. E. 320)	2	
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Electives	3	
	17	17

COURSE IN MINING ENGINEERING

The course in Mining Engineering is planned to give the student a thorough knowledge of the principles which form the groundwork of the sciences of Mining and Metallurgy.

It is the aim of the Mining Engineering department in arranging the courses to give the student a drill in the fundamental studies common to all engineering courses, such as Mathematics, Chemistry, English, Physics, Drawing, Mechanics, etc. In the latter part of his course the student applies the principles of these fundamental studies to the more distinctive technical subjects, such as Mineralogy, Geology, Mining, Mine Surveying, Metallurgy, and Ore Dressing.

The methods of instruction include the ordinary lecture, textbook, and recitation work, supplemented, so far as possible, by problems and illustrations drawn from actual mining and metallurgical practice. The successful mining engineer deals largely with concrete problems, hence the laboratory method of instruction is given a very important place in the training of the student. A portion of the last two summers is devoted to summer school work in Mine Surveying, and Mining and Metallurgical inspection. The students are required to keep systematic notes on the summer work, and to turn in to the professor in charge a complete report. On these trips of inspection, visits are made to plants which exemplify, often on a large scale, the application of principles taught in the class room to problems of commercial operation.

The technical training for the mining engineer is broad rather than highly specialized. Aside from the basic subjects common to all engineering courses, he must be well grounded in the principles of Chemistry, Metallurgy, and Geology. A student who pursues the Mining Engineering course to completion is able to choose his life work from among a number of distinct industrial lines; for example, he may choose his work in the management, investigation and exploitation of mines; he may choose his work in Ore Dressing, which covers the separation of the valuable minerals from the waste; he may go into metallurgical lines, where he extracts the metal from its ores and puts it in shape for the market; or he may choose his work along geological lines and work either for the National Government or for private corporations.

Degree Course in Mining Engineering

FRESHMAN YEAR

	Semester 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Blacksmithing (Shop 123)	2	
Trigonometry, College Algebra (Math. 11, 21)	5	
Elementary Analysis (Math. 31)		5
General Chemistry (Chem. 100, 101)	4	4
Mechanical Drawing (M. E. 100)	3	
Descriptive Geometry (M. E. 102)		3
Plane Surveying (C. E. 201)		5
Woodwork (Shop 105)	3	
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

Differential and Integral Calculus (Math. 51, 52)	5	5
Engineering Physics (Physics 101, 102)	5	5
Argumentative Themes (Eng. 101)	1	
Qualitative Analysis (Chem. 301)	5	
Quantitative Analysis (Chem. 401)		5
Crystallography and Blowpipe Analysis (Min. 101)	5	
Determinative Mineralogy (Min. 102)		3
General Geology (Min. 140)		3
	21	21
Practical Mining Work	10	

NOTE—*Practical Mining Work.* All students in Mining will be required to do not less than *two* months' work in mines, mills, or other industrial plants allied to mining work, before entering upon the senior year.

GROUP 1—MINING

JUNIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Presentation (Eng. 102)		1
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Fire Assaying (Min. 301)	4	
Ore Dressing (Min. 260)		4
Mine Surveying and Mining Law (Min. 220)		3
Rock and Earth Excavation (Min. 201, 202)	2	2
Industrial Calculations (Min. 321)	4	
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Petrology (Min. 121)	3	
Economic Geology (Min. 160)		3
Mining Methods, Mine Economics (Min. 205, 206)	3	4
Cyanidation of Ores (Min. 341)	3	
Metallurgy Laboratory (Min. 342)		3
Metallurgy of Lead and Copper (Min. 325)	4	
Power Equipment (Min. 249)	3	
Structural Materials Laboratory (Exp. Eng. 123)		2
Study of Electrical Machinery (E. E. 402)		4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

GROUP 2—GEOLOGY

JUNIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Geochemistry (Min. 181, 182)	4	4
Principles of Botany (Bot. 20, 21)	3	3
Zoology (Zool. 101, 102)	2	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Petrology (Min. 121)	3	
Economic Geology (Min. 160)		3
Ore Deposits (Min. 185)	5	
Field Geology (Min. 186)		5
Petrography (Min. 131)	4	
Geology of Oregon (Min. 190)		3
Historical Geology (Min. 192)		2
Industrial Calculations (Min. 321)	4	
Mine Surveying and Mining Law (Min. 220)		3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

GROUP 3—CERAMICS

JUNIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses Extempore Speaking (Eng. 103, 104)	2	2
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Classification and Physical Testing of Clays (Min. 402)		5
Industrial Calculations (Min. 321)	4	
Geochemistry (Min. 181)	4	
Mining and Preparation of Clays (Min. 404)		3
Elementary Mechanical Laboratory, Elementary Power Laboratory (Exp. Eng. 105, 106)	2	2
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Petrology (Min. 121)	3	
Economic Geology (Min. 160)		3
Drying and Burning (Min. 442)	5	
Body Making, Designing and Shaping (Min. 421)	5	
Glazing (Min. 450)		3
Power Equipment (Min. 249)	3	
Structural Materials Laboratory (Exp. Eng. 123)		2
Study of Electrical Machinery (E. E. 402)		4
Cement; Materials and Manufacture (Min. 461)		4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

GROUP 4—INDUSTRIAL CHEMISTRY

JUNIOR YEAR

	Semester 1st.	2nd.
Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Statics and Dynamics (M. E. 200)	4	
Strength of Materials (M. E. 201)		2
Hydraulics (M. E. 202)		2
Fire Assaying (Min. 301)	4	
Industrial Calculations (Min. 321))	4	
Elementary Mechanical Laboratory, Elementary Power Laboratory (Exp. Eng. 105. 106)	2	2
Organic Chemistry (Chem. 201)		4
Chemistry for Engineers (Chem. 407)		2
Electro-Chemistry (Chem. 406)		2
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

SENIOR YEAR

Petrology (Min. 121)	3	
Economic Geology (Min. 160)		3
Cyanidation of Ores (Min. 341)	3	
Metallurgy Laboratory (Min. 342)		3
Metallurgy of Lead and Copper (Min. 326)	4	
Study of Electrical Machinery (E. E. 402)		4
Power Equipment (Min. 249)	3	
Structural Materials Laboratory (Exp. Eng. 123)		2
Industrial Chemistry (Chem. 600)	3	
Geochemistry (Min. 182)		4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSES IN COMMERCE

The most progressive colleges and universities are now offering courses in commerce and finance. These courses have rapidly gained favor in response to an almost universal demand for thoroughly trained men to assume leadership in the commerce of the world.

The School of Commerce has been established in harmony with this modern tendency in education. Its aim is to do for the business man what the trade school does for the mechanic, what the school of engineering does for the engineer, or what the school of law does for the lawyer. It does not claim to turn out experienced business men or "captains of industry," but men who shall seek, and be prepared to assume, the responsibilities of commercial and financial leadership after a comparatively short apprenticeship and practical experience.

A thorough business course, therefore, covers more than a study of bookkeeping, commercial law, and penmanship, though all are subjects of greatest importance. Thorough courses in English, economics, political science, modern languages, mathematics, natural sciences, etc., are equally important. In fact, all are in a sense only a means to one end: to facilitate the profitable exchange of commodities in the form of property or service. Hence the advantage of incorporating business courses into the curricula of the higher institutions of learning where courses in the basic subjects are already given.

The professional courses offered by the School of Commerce have been arranged and selected with special reference to two classes of students: the prospective business manager, and the office employee. The latter studies chiefly the methods and technique of commerce, while the former lays special stress on the principles of economics and commerce. Two courses are offered: A two-year, or secondary, course and a four-year course leading to the degree of Bachelor of Science. The Theory and Practice of Accounts, Stenography, and Commercial Law are the principal

technical subjects in the two-year course; while Economics, Trade and Transportation, Banking and Finance, Political Science, International Relations, and Public Accounting and Administration, are the professional subjects in the degree course. Special stress is laid on English in both courses, and the cultural development of the student is duly emphasized.

But while the School of Commerce emphasizes work preparatory to commercial pursuits, the fact that there is a business side to every vocation has been recognized by providing, in the second year of the Secondary courses, a two-hour course in Business Methods, especially adapted for the farmer, mechanic, housekeeper, professional man, etc. The laboratory and library facilities of the department are enjoyed by all students alike.

The Commercial course is especially attractive as a preparation for law; for teachers of commercial subjects; for public accountants; for administrative secretaries; and as a preparation for the Civil Service.

Secondary Course in Commerce

FIRST YEAR

	Semester	
	1st.	2nd.
Advanced Grammar and Composition (Eng. A, B)	4	2
Elements of Literature (Eng. C, D)	1	3
Algebra (Math. A, B)	5	5
Ancient History (Hist. A)	3	
Mediaeval and Modern History (Hist. B)		3
Commercial Arithmetic (Com. A)	5	
Bookkeeping (Com. B)		5
Penmanship (Com. U, V)	1	1
Drawing (Art A, C) or Typewriting (Sten. R, S)	2	2
	21	21

SECOND YEAR

	Semester 1st.	2nd.
Rhetoric and Composition (English E, F)	3	3
Elements of Literature (English G, H)	2	2
Algebra, Plane Geometry (Math C, D, K)	5	5
Business English (English 21)		3
Elementary Commercial Law (Com. L, M)	2	2
*Accounting (Com. 100, 101)	5	5
Civil Government and Administration (Com. K)	3	
Advanced Penmanship (Com. W, X)	1	1
	21	21

Degree Course in Commerce

FRESHMAN YEAR

Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Advanced Arithmetic (Com. 126)	3	
Trigonometry (Math. 12)		3
General Chemistry (Chem. 100, 101)	4	4
Commercial Geography (Com. 200)	3	
History of Commerce (Com. 205)		3
Hygiene (Phys. Ed. 9 or 19)		1
*Accounting (Com. 100, 101)	5	5
Library Practice (Libr. 1)	1	
	21	21

*Or Stenography and Typewriting (Com. 400, 401).

Students who have completed these courses in the Second year may take Commerce 400, 401, or Commerce 100, 101, or other electives of equivalent credits.

SOPHOMORE YEAR	*Semester* 1st.	2nd.
General Physics (Physics 111, 112)	3	3
French, German Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302) or Modern English Prose (English 81, 82)	3	3
Economic History of United States (Com. 206)		4
Principles of Economics (Com. 210)	4	
Stenography and Typewriting (Com. 402, 403) or Advanced Accounting (Com. 102, 103)	5	5
Commercial Botany (Bot. 60)	3	
Physiology and Hygiene (Zool. 204)		3
**Business English (English 21)	3	
European History (Hist. 30)		3
	21	21
JUNIOR YEAR		
French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304) (or Electives)	3	3
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Money and Banking (Com. 230)	3	
Corporation and Public Finance (Com. 233)		3
Advanced Commercial Law (Com. 300, 301)	3	3
Business Management (Com. 110)	3	
Advertising (Com. 112)		3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
*Electives	3	3
	17	17

Suggested Electives—
Transportation (Com. 240).
Rural Economics (Com. 219).
English 81, 82.
Public Speaking 105, 106, 107, 108.
Psychology, History, Science.
Co-operation (Com. 260).
Economic Organization (Com. 264).
Rural Finance (Com. 265).

*Since women are exempt from Military Science, they are required to take four electives instead of three.

**Students who have completed this course in the second year take History 70.

SENIOR YEAR

	Semester 1st.	2nd.
Advanced Economics (Com. 214, 215)	3	3
Constitutional Law and Politics (Com. 320)	3	
State and Municipal Government (Com. 322)		3
Composition af Addresses Extempore Speaking (Eng. 103, 104)	2	2
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
*Electives	8	8
	17	17

Suggested Electives—
Labor Problems (Com. 213).
Practical Sociology (Com. 250).
Rural Sociology (Com. 252).
Cost Accounting (Com. 104).
Public Accounting and Auditing (Com. 106).
Commercial Pharmacy (Phr. 160, 161).
Pedagogy, Science, History.
American Literature, English Literature.
French, German, or Spanish (Mod. Lang. 105, 106, 205, 206, 305, 306).

*See note, Junior year.

COURSE IN PHARMACY

It is now so generally recognized and so universally admitted as to need but passing comment, that in order to attain to any degree of success in a scientific profession, it is necessary to be thoroughly trained in the science upon which the profession is based.

With reference to the profession of pharmacy, it may truly be said that it is one of applied sciences; since the pharmacist has constant use for a knowledge of the sciences of chemistry, of physics, of bacteriology, and of botany. It is, therefore, of utmost importance to the individual who has decided to enter upon a pharmaceutical career, that he begin properly in the matter of an education. The institution in which the study of the natural sciences is prominently featured, is without doubt the one best qualified to afford him the training suited to his particular needs. In this connection, attention is directed to colleges of the land grant or agricultural type. Financed by State and Federal Government, the material welfare of the institutions of this class is assured. With unusual facilities in the way of laboratories and equipment, and with an instructional force selected especially for the purpose, they are prepared to offer exceptional advantages for mental and manual training in those professions having for their foundation a knowledge of the sciences.

In recognition of the fitness of conditions and of an apparent need for such instruction, the Oregon Agricultural College, in 1898, added to its curricula a course in Pharmacy, the purpose of which is to afford the young men and women of the State an opportunity of obtaining a thorough training in the theoretical and practical features of this profession.

The course comprehends instruction in class and lecture room, extensive practice in the laboratory, and excursions afield in botany. The value of laboratory practice is fully appreciated; it is in this connection that facts mentioned in text-book and lecture are brought to the student's notice in a way that the importance is emphasized, the significance demonstrated, and the fact itself fixed in the mind. In the pharmaceutical laboratories, the student

becomes experienced in the manufacture of medicinal preparations and in filling prescriptions. In the laboratories of chemistry, of botany, of bacteriology, of physics, and of biology, he gains valuable experience in connection with each of these related sciences. It is expected that owing to the nature and extent of the instruction given, graduates of this course will be qualified to assume positions of trust and responsibility in the professional world. Not only is this training of benefit to the pharmacist, but it forms an ideal pre-medical course.

The enactment of the Pure Food and Durg Law of 1906 has opened a new and attractive field for those who are proficient in chemical and pharmaceutical knowledge. Laboratories for the examination of food and drug samples are being established in the various large cities of the country by the Federal Government. Positions in these laboratories are, in many instances, held by graduates of pharmacy.

Two courses are offered: One of four years, leading to the degree of Bachelor of Science in Pharmacy; the other a short course of two years, for the completion of which a certificate is given.

Degree Course in Pharmacy

FRESHMAN YEAR	*Semester* 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Principles of Botany (Bot. 20, 21)	3	3
Zoology (Zool. 101, 102)	3	3
General Chemistry (Chem. 100, 101)	4	4
Pharmacy Physics (Physics 121, 122)	3	3
Elementary Drawing (Art 109, 110)	2	2
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

	Semester 1st.	2nd.
American Literature (English 71, 72)	2	2
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302)	3	3
Qualitative Analysis (Chem. 300)	4	
Organic Chemistry (Chem. 201)		4
*Pharmaceutical Botany (Bot. 70, 71)	3	3
Commercial Law (Com. 306)	2	
Pharmacy Accounting (Com. 124)		2
Nomenclature (Phar. 100, 101)	3	3
*Physiology, Anatomy (Zool. 201, 202)	3	3
	21	21

JUNIOR YEAR

French, German, Spanish (Mod. Lang. 103, 104, 203, 204, 303, 304)	3	3
Quantitative Analysis (Chem. 400)	4	
Physiological Chemistry (Chem. 409)		4
General Pharmacy (Phar. 110, 111)	3	6
Therapeutics and Doses (Phar. 120)	3	
Pharmacognosy (Phar. 130, 131)	3	3
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
	17	17

*Bot. 70, 71 and Zool. 201, 202 are elective courses. In case other courses are substituted for them it is suggested that the student elect Commerce 107, 108 and Chemistry 409, 413.

SENIOR YEAR	*Semester* 1st.	2nd.
Composition of Addresses Extempore Speaking (Eng. 103, 104)	2	2
Pharmacy Bacteriology (Bact. 201, 203)	4	3
General Pharmacy (Phar. 112)	2	
Materia Medica, Toxicology (Phar. 140, 141)	3	3
Prescription Practice (Phar. 150, 151)	3	6
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Electives	2	2
	17	17

Two-Year Course in Pharmacy

(Requirements for entrance to this course are identical with those for entrance to any of the degree courses.)

FIRST YEAR		
General Chemistry (Chem. 100, 101)	4	4
General Pharmacy (Phar. 110, 111)	3	6
Nomenclature (Phar. 100, 101)	3	3
Therapeutics and Doses (Phar. 120)	3	
Pharmacognosy (Phar. 130, 131)	3	3
Elective	1	1
	17	17

SECOND YEAR		
Qualitative Analysis (Chem. 300)	4	
Organic Chemistry (Chem. 201)		4
General Pharmacy (Phar. 112)	2	
Materia Medica, Toxicology (Phar. 140, 141)	3	3
Prescription Practice (Phar. 150, 151)	3	6
Electives	5	4
	17	17

INDUSTRIAL ARTS

Degree Course in Industrial Arts

FRESHMAN YEAR

	Semester 1st.	2nd.
Rhetoric (English 31, 32)	3	3
Elements of Literature (English 41, 42)	2	2
Trigonometry, College Algebra, (Math. 11, 21)	5	
Plane Surveying (C. E. 203)		3
General Chemistry (Chem. 100, 101)	4	4
Mechanical Drawing (M. E. 100)	3	
Descriptive Geometry (M. E. 102)		3
Man. Train. for Elem. Grades (Ind. Arts 101, 102)	3	3
Elementary Drawing (Art.)		2
Library Practice (Libr. 1)	1	
Hygiene (Phys. Ed. 19)		1
	21	21

SOPHOMORE YEAR

The Essay, The Eng. Drama (English 51, 52) or French, German, Spanish (Mod. Lang. 101, 102, 201, 202, 301, 302)	3	3
Engineering Physics (Physics 101, 102)	5	5
Commercial Geography (Com. 200)	3	
Economic History of the U. S. (Com. 206)		3
School Management (Ind. Ped. 130)	3	
History of Education (Ind. Ped. 120)		3
Advanced Manual Training (Ind. Arts 103)	3	
Art Metal Work (Ind. Arts 104)		3
Freehand Drawing (Art)	2	2
Electives	2	2
	21	21

JUNIOR YEAR

	Semester 1st.	2nd.
Argumentative Themes, Presentation (Eng. 101, 102)	1	1
Constitutional Law and Pol., State and Municipal Government (Com. 220, 322) or French, German, Spanish (Mod. Lang. 103, 104, 202, 204, 303, 304)	3	3
General Psychology (Ind. Ped. 101)	3	
General Method (Ind. Ped. 140)		3
Wood Turning, Pattern Making (Ind. Arts 105)	3	
Forging (Ind. Arts 120)		3
Dendrology, Wood Technology (Forestry 504, 502)	2	2
Theoretical Instruction (Mil. Sci. 1, 2)	1	1
Electives	4	4
	17	17

SENIOR YEAR

Composition of Addresses, Extempore Speaking (Eng. 103, 104)	2	2
Special Meth. in Industrial Arts (Ind. Ped. 170, 171)	3	3
Machine Shop (Ind. Arts 130, 131)	3	3
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
Electives	8	8
	17	17

DEPARTMENTS OF INSTRUCTION

SCHOOL OF AGRICULTURE

AGRONOMY

Professor Scudder
Assistant Professor Hyslop
Assistant Professor Powers
Assistant Professor McCool
Mr. Bracker
Mr. ————

Agronomy is the science of the fields and the crops of the fields. Instruction in this science is offered by the department of Agronomy in the following subjects:

(*a*) Soils: Their origin, structure, fertility, cultivation, and improvement.

(*b*) Field Crops: Their history, growth, culture, improvement and value.

(*c*) Irrigation and Drainage: The principles and methods of land drainage; the handling of land under irrigation.

(*d*) Farm Mechanics: The structures and machinery of the farm.

(*e*) Farm Management: Practical methods and systems for the operation of the farm under different conditions as a permanent money making business.

In every subject, instruction is accomplished equally through class room, laboratory, and field work; theory is checked by practice. For the latter methods of instruction, the finely equipped laboratories of this department, the various soil conditions, numerous experimental crops, and extensive structures of the Experiment

Station farm, offer excellent facilities. The large and newly equipped laboratories for the courses in Field Crops and the courses in Soils, in the new Agronomy Building, and for Farm Mechanics in the new Farm Mechanics building, are not excelled by those of any institution in the country.

The Secondary courses in Agronomy deal only with the practical application of the underlying principles of agriculture to specific conditions—aiming to give the less well prepared student as much information as possible in a short time concerning those practices most vital to successful farming—to send him back to the farm better prepared to cope with its problems. These courses serve also to prepare the student for collegiate Agriculture.

The object of the collegiate courses in this department is to give the student such mastery of all the subjects relating to the soil, field crops, rural engineering, or farm management, as will help prepare him for the highest type of practical farming, or for a successful career in professional agriculture, such as is found in the U. S. Department of Agriculture, or in the State Experiment Stations and Agricultural Colleges.

The farms of the Northwest offer even greater opportunities for men trained in knowledge of the soil, in the growing of crops and in irrigation and dry farming.

Agronomy 101 and 201 are prescribed for all collegiate agricultural students. The succeeding courses are the majors and minors offered to all upper classmen in Agriculture.

Those who elect Agronomy for their major work, may take any one of the following courses in Agronomy:

(*a*) Regular Agronomy.

(*b*) Soils (specialized course).

(*c*) Crops (specialized course).

(*d*) Irrigation Farming (specialized course).

Students majoring in Agronomy should confer with the head of the Department to arrange for taking any one of the specialized courses named. Liberal elections in other departments are permitted wherever advisable.

A. SOILS. A brief history of the origin of soils; the fertility of soils; the most valuable chemical constituents; their exhaustion and replenishment; the most important physical factors; their

deterioration or improvement. The physical components; their relative value and amounts in soil mixtures. Practice in judging the chief soil types of Oregon. The effects upon soils of tillage, manuring, crop rotation, drainage and irrigation.

The Secondary course; first year; first semester; two credits; one recitation; one laboratory period.

B. CROPS. A brief consideration of the adaptability, relative value, and best methods of growing the chief cereal, grass, legume, and succulent crops of Oregon for grain, pasture, meadow, sioling, silage, or seed purposes. Investigation of the sources of crop seed and the importance of seed purity and germinating power, with methods of testing same. Eradication of the most common weed enemies of the field crops.

The Secondary course; first year; second semester; three credits; two recitations; one laboratory period.

C. ELEMENTARY FARM MECHANICS. A study of some of the mechanical principles involved in farm operations and their application in labor saving devices for farm work. The structure and uses of the best types of farm machines. The designing and construction of barns, silos, hog houses, sheep sheds. Fencing problems; the division of fields; the location of farm buildings and lanes.

The Secondary course; second year; first semester; two credits; one recitation; one laboratory period.

Soils

101. BASIC AGRONOMY. This course is, of necessity, elementary and general in its nature—an introduction to agriculture—seeking to interest the new student in farm life through first knowledge of the fields, the crops, the mechanics of the farm; or in agriculture as a science, through the wide range of scientific study and plored; or to interest him in agriculture as a business, through its investigation it offers, the possibilities in the fields still unexprofits as a practice, and its opportunities as a profession. During the semester, instruction is given in the elementary facts concerning the origin and formation of soils; soil moisture, heat and air; common soil processes, physical and chemical; plant foods and soil

fertility; tillage, crop rotation and manuring; important soil bacterial action; the benefits derived from drainage and irrigation; common farm machines, their use and care. The course will close with a brief survey of the agriculture of the State. Instruction will be given through lectures and notes, text and recitation, laboratory, and field observations.

Freshman year; first semester; three credits; two recitations; one laboratory period.

102. SOIL PHYSICS. Advanced study of the geology of soils, with their origin, formation, physical composition, and classification. Soil moisture and moisture movements and conservation. The various physical processes of the soil—surface tension, osmosis, capillarity, diffusion, etc. The effects of the various crops and the different methods of culture upon the texture, aeration, temperature, and moisture of the soil, and the resulting alteration in crop producing power. The influence of washing, drainage, and irrigation upon soils. Work in the laboratory will consist of the determination and comparison of such physical properties in the various soil types as, specific gravity, water retention, capillarity, organic content, etc., the physical effect of mulches, rotations, and cropping; soil sampling and judging; the mechanical analysis of soils.

The courses in Agricultural Chemistry, Agronomy, Animal Husbandry, and Irrigation Engineering; junior year; second semester; five credits; three recitations; two laboratory periods.

103. SOIL PHYSICS. Elective—Similar to 102, but shorter, dealing with the more important phases of the subject. Designed as an elective for agricultural students unable to take the regular course in Soil Physics.

Elective; junior year; second semester; three credits; two recitations; one laboratory period.

104. SOIL FERTILITY. The effect of the various crops upon the fertility of the soil. The maintenance or improvement of fertility by the use of fertilizers and manures. The composition and value of the different fertilizers and manures. The effect of different rotations upon fertility. The fertility of the different types of Oregon soils; their plant food requirements and compara-

tive values; methods of improvement of each. The effects of different systems of farming. Analysis, field plot, wire basket, and pot culture investigations.

Prerequisites: Agron. 102, Chem. 503.

Elective; senior year; first semester; five credits; three recitations; two laboratory periods.

111. ADVANCED SOIL WORK. The advanced student specializing in soils 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: Agronomy 101, 102 and 104.

Elective; senior or graduate year; either semester or both; two to five credits.

Field Crops

201. CROP PRODUCTION. The study of the chief field-crop seeds of Oregon; wheat, barley, oats, corn, vetch, clover, alfalfa, grasses, etc., their vitality, germination, preservation, growth and reproduction; preliminary judging; seed bed and seeding; climate and soil; culture and rotation; weed enemies, their prevention and eradication; harvesting, marketing, and profits; distribution and value to the State; methods of crop improvement. Class room, laboratory and field work.

The course in Agriculture; freshman year; second semester; three credits; two recitations; one laboratory period.

202. CEREAL CROPS. A study of grains with special reference to those of Oregon and the varying conditions of soil and climate under which they are grown; the culture and rotation best adapted to each; the various methods of harvesting and storage; the judging of grain; grading for market; markets and uses of each crop; improvement of crop seed; plant breeding.

Junior year; first semester; five credits; three recitations; two laboratory periods.

NOTE.—In case adequate laboratory and green house room and equipment cannot be secured for this course, the laboratory work will be omitted—the lecture work only, given.

203. FORAGE CROPS. A less technical study of the legumes, grasses and succulent crops, the course being especially adapted to the needs of the students in Animal and Dairy Husbandry. The adaptability and value of each of the forage plants as pasture, hay, soiling, or silage crops, together with the practical methods of growing each and the planning of rotations that will maintain fertility, will be fully discussed.

The courses in Animal Husbandry, Dairy Husbandry and Irrigation Engineering; junior year; first semester; two credits; two recitations.

204. CROP IMPROVEMENT. A course dealing with the practical problems in the improvement of the quality and yield of the more important field crops, a knowledge of which would be necessary for the successful Oregon crop growers, especially those engaged in seed production. The different systems of breeding and the general principles of selection will be briefly discussed, and the best planting and culture methods for the breeding plots studied. The work will be largely in the laboratory and field.

Junior year; second semester; three credits; one recitation; two laboratory periods.

205. AGROSTOLOGY. A study of the grasses, legumes, and other forage crops. Methods of seeding for meadow, pasture, cover and soiling crops; maintenance of meadows and pastures; harvesting, curing, storing, baling, and using the various meadow crops; grazing, siloing, and soiling. The comparative structure of the different forage plants; as affecting growth and value adaptability to different conditions of cilmate. Examination of commercial seed for viability and purity. The identification of weed seed. The production of forage crop seed.

Elective; senior year; first semester; five credits; three recitations; two laboratory periods.

206. ADVANCED CROP BREEDING. A study of the laws, theories, and known facts concerning heredity, variation and evolution in plant life. The causes of variation, behavior of characters in transmission and the possibilities of inducing stability of character and establishing desirable types, will be discussed with special reference to field crop improvement.

Senior year; second semester; three credits; three recitations. Prerequisite: Agronomy 7.

211. ADVANCED CROP WORK. In this subject, a complete study may be made of some special crop in which the student is interested or on which information is lacking. Methods of field experimentation may be compared and carried out; or plant breeding theories and their practical use in commercial seed production may be made the subject of investigation, or preparation for expert seed testing taken up.

Aside from these phases of advanced crop study, special one-hour lecture courses are offered (to groups of not less than five students) in each of the following specific subjects: Potatoes; Sugar Beets; Hops; Legume Seed Production.

Elective; senior or graduate year; first or second semester or both; one to five credits.

Drainage and Irrigation

301. DRAINAGE AND IRRIGATION. The history of drainage and of irrigation; road, field, and sanitary drainage on the farm; the different systems of drainage and of irrigation; methods of locating, installing, operating, and maintaining drainage and irrigation conduits; cost, efficiency, and profits; the effect on crops and soil; laws governing. Lectures, notes, readings, and field work.

The courses in Agronomy, and Dairy Husbandry ; junior year; second semester; three credits; two recitations; one laboratory period.

302. IRRIGATION FARMING. Methods of obtaining, distributing, and conserving irrigation waters. Handling of different crops under irrigation. Cost and profits thereof and duty of water in various districts of Oregon. Water rights and irrigation codes. Field and laboratory studies of irrigable qualities of different soils, laying out of irrigation systems, and field examination, where possible, of some of the largest projects in the State.

The courses in Irrigation Engineering and Irrigation Farming; junior or senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisites: Agronomy 102 and 301.

303. CLIMATOLOGY. Practical meteorology; observing and recording local weather and forecasting; a study of the climate of Oregon and the effect of climate upon agriculture; class room and laboratory work.

Elective; junior or senior year; second semester; one credit; one laboratory period.

304. ADVANCED LAND DRAINAGE. A study of drainage problems and conditions in the field. The actual surveying, laying out, drafting of plans, estimation of cost, and installation of drainage systems at different points in the State, is required of students taking this course. A complete report for and of the organization of a drainage district is prepared by each class.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods.

Prerequisites: Agronomy 301 and 102, and C. E. 231 and 236.

311. ADVANCED DRAINAGE AND IRRIGATION WORK. Under this head the student who has completed the courses offered may take up further study of special problems in either subject, such as the drainage of alkali lands, drainage against seepage, study of water table fluctuations, etc., or field studies of the irrigation of a certain crop region, conservation of irrigation waters, effect of irrigation on soil moisture conditions, etc.

Prerequisites: Agronomy 102, 301, and 302 or 304, and C. E. 231 and 236.

Elective; senior or graduate students; either semester or both; two to five credits.

Farm Mechanics

401. FARM MECHANICS. A study of the principles and practice having to do with draft in farm operations. Construction and use of modern field machinery for tillage, seeding, and harvesting operations and of farm pumps, wells, windmills, and stationary engines. Largely laboratory work in examining, setting up, testing, and operation of the field machines named.

Junior year; first semester; three credits; one recitation; two laboratory periods.

402. FARM POWER MACHINERY. The construction and operation of the more complicated machines used for threshing, grinding, cutting, etc., and comparative study of the different types of farm engines. Largely laboratory work in examing, setting up, testing, efficiency, and cost of operation, will be given attention.

Junior year; second semester; three credits; one recitation; two laboratory periods.

403. FARM MOTORS AND POWER MACHINERY. Investigation of the latest improvements and possibilities of the motors and power machinery used on the modern farm. Comparative tests for cost of operation and efficiency of farm stationary and traction engines and power machines. Manufacture and use of electricity on the farm. Operation of farm irrigation pumping machinery, etc.

Prerequisites: Agronomy 8 and 9.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

404. FARM STRUCTURES. Farm buildings, fences, and roads. The design and construction of farm houses, barns, granaries, and silos; their arrangement and cost. The various kinds of fencing; cost, construction and quality. Road building and maintenance and cost of same. The laboratory will include practical work in concrete construction and the rough sketching of building plans and specifications.

Elective; junior year; first semester; two credits; one recitation; one laboratory period.

405. ORCHARD MACHINERY. The construction, proper adjustment, operation and efficiency of the machinery most commonly used in orchard work—tillage and seeding implements, gasoline engines, spray pumps, etc. Practice work also for those that require it, in plowing, methods of hitching, etc. This is a shorter course in Farm Mechanics especially adapted to the needs of horticultural students who cannot take the regular courses in Farm Mechanics. The work is given altogether from the mechanical standpoint—not from the standpoint of the horticultural applications or uses of the various machines.

Elective; juniors and seniors; second semester; two credits; two laboratory periods.

411. ADVANCED FARM MECHANICS. For the student with inclinations toward mechanics, a wide field is offered in advanced work in testing the efficiency and cost of running various types of farm power machines and engines; or of becoming expert on harvesting machinery; or in the designing of a complete series of farm buildings; or in practical work on cement construction for farm purposes, etc.

Elective; senior or graduate year; either semester or both; two to five credits.

Farm Management

501. WEED ERADICATION. A course designed for those specializing in crop production, dealing with methods of extermination of the more noxious or persistent weeds common to the United States and particularly Oregon.

Elective; junior or senior year; first semester; one credit; one recitation.

502. DRY FARMING. A study of the principles of moisture conservation. Special tillage methods and machinery. Dry farming crops and rotations. Occurrence and phases of the industry in Oregon and field excursions to the dry farming section.

Prerequisite: Agronomy 4.

Elective; junior or senior year; second semester; three credits; two recitations; one laboratory period.

503. SEMINAR. The preparation and discussion of papers or demonstrations on subjects of especial Agronomic interest. Inquiry into the development of different phases of the science at home and abroad. Joint fortnightly meetings open to all agricultural students.

Junior year; second semester; one credit; one recitation.

504. SEMINAR. Senior year; second semester; one credit; one recitation.

505. FARM MANAGEMENT. A study of the various systems of extensive, intensive, and mixed farming, and the conditions under which each prospers or fails; methods of successful farmers; the application of business methods to farm operations; farm capital; farm labor; economic management of fields, stock, structures, crops, and machines; markets and marketing; relation of farming to other industries.

Elective; senior year; second semester; three credits; three recitations.

511. ADVANCED FARM MANAGEMENT. There is a rapidly growing demand for men of special knowledge in the management of farms or of farming areas of distinct types where ordinary methods of crop production, crop rotations, and profit making do not suffice. In this course advanced study is made of different farming systems or the management of special types of farming, such as dry land or irrigated areas, swamp or dyked lands, etc.

Elective; senior or graduate year; either semester or both; two to five credits.

ANIMAL HUSBANDRY

Professor Withycombe
Professor Potter
Mr. Samson
Mr. ————————
Mr. ————————

The object of the course in Animal Husbandry is to fit the student for the actual rearing of live stock on the farm so that he may raise the highest grade of stock in the most economical manner. The student is thoroughly grounded in the underlying principles so that he may successfully continue his study after he leaves school, but the practical details are thoroughly discussed and a special effort is made to keep the student in close touch with the financial phases of the live stock industry. Students who take this work as their specialty are not expected to devote their entire time to live stock, but are to familiarize themselves with the production of the common farm crops, maintenance of the fertility of the soil, and the handling of farm machinery and like topics; so that when they graduate, they will be equipped for practical farm work.

Scientists and practical farmers are agreed that the fertility of the soil cannot be maintained economically, if at all, without live stock. The rearing of live stock requires more skill and knowledge than grain or hay farming; and while the profits are much larger

when the business is properly handled, there is also more danger of a loss due to improper management or ignorance; hence the necessity of a thorough training before embarking in this line of work.

The following courses are offered:

A. STOCK JUDGING. A study of animal form by score practice and comparative judging. The student is given an understanding of various points to be considered in judging cattle, sheep, swine, and horses. The work consists almost exclusively of actual practice with the animals at the college barns.

The Secondary course; first year; first semester; two credits; two laboratory periods.

C. PRACTICAL STOCK FEEDING. A study of the elementary principles of stock feeding. The various feed stuffs obtainable in Oregon are discussed and compared as to their value for the different kinds of stock. Some time is devoted to the different methods of preparing the feed and the various systems of feeding. This course is offered not only in the Secondary Course in Agriculture, but is recommended as an elective for special students who are not in a position to take Animal Husbandry 7 and 21.

The Secondary Course; second year; second semester; three credits; three recitations.

1. STOCK JUDGING. The various types of farm animals are studied by the score card method and by comparative judging. Practically the entire time is devoted to studying the animals at the barns. The student is made familiar with the desirable types of cattle, sheep, swine, and horses.

Freshman year; second semester; two credits; two laboratory periods.

2. LIVE STOCK MANAGEMENT. A careful study of the practical details of the care and management of live stock; stabling; grooming; sanitation; practical feeding, and kindred details of live stock farming.

Sophomore year; second semester; two credits; one recitation; one laboratory period.

3. BREEDS OF STOCK. The study of the history of the various breeds of cattle and sheep, their origin and characteristics. Each

breed is taken up and studied separately from its early history. The environment under which they were produced, the original stock, and the men who were instrumental in establishing the breed are given careful consideration, as well as the present status of the breed and the work of present day breeders. The leading families or strains and the most prominent animals are discussed in detail. The lecture work is accompanied by comparative judging in which special attention is given to breed type and to the differences in conformation of the various breeds.

Prerequisite: A. H. 1.

Junior year; first semester; four credits; two recitations; two laboratory periods.

4. BREEDS OF STOCK. The study of the breeds of horses and swine. A continuation of A. H. 3.

Prerequisite: A. H. 1.

Junior year; second semester; four credits; two recitations; two laboratory periods.

5. LIVE STOCK MARKETING. The study of the various problems of marketing live stock; preparation of stock for market; shipping; market grades and classes; market terms and reports; together with a detailed study of the leading markets open to the farmers of Oregon.

Prerequisite: A. H. 1.

Junior year; first semester; three credits; three recitations.

6. PRINCIPLES OF BREEDING. The study of the principles of breeding as related to the development of our domestic animals. Among the topics discussed are variation, transmission of variations and modifications, fecundity, in-breeding, crossing, and like topics. Some time is devoted to the study of pedigrees and to the methods of registration employed by the various breeds associations.

Prerequisite: At least one semester of Zoology.

Senior year; first semester; three credits; three recitations.

7. PRINCIPLES OF STOCK FEEDING. The study of the chemical and physiological principles of animal nutrition including digestion, assimilation, metabolism and also the composition of feed stuffs and the function of the various classes of compounds found in feed

stuffs in the animal body. Special attention is devoted to the study of nutritive ratios, feeding standards, compounding rations, and the general significance of the chemical composition of the feeds.

Prerequisites: Chemistry 500 and 501.

Senior year; first semester; two credits; two recitations.

13. RESEARCH WORK. In this course the student is expected to select some line for individual investigation either by library methods or otherwise. The object is partly to allow the student to study some particular line in which he is especially interested and partly to give him training in studying out problems for himself as he will have to do after leaving school. This course is open only to those who are taking Animal Husbandry as their major or who have taken practically all of the regular courses in Animal Husbandry.

Elective; senior year; second semester; credits according to arrangement.

16. ADVANCED STOCK JUDGING. This course consists of practical judging of all kinds of live stock with occasional trips to fairs and stock farms. Judging teams for the Pacific International Stock Show will be chosen from the class.

Prerequisites: At least two semesters of stock judging. Senior year; first semester; two credits; two laboratory periods.

17. ADVANCED STOCK JUDGING. A continuation of course 16.

Senior year; second semester; two credits, two laboratory periods.

18. SEMINAR. Semi-monthly meetings are held in which papers on Animal Husbandry subjects are read and discussed. These papers are prepared under the supervision of the department, although considerable latitude is allowed in the selection of subjects and the manner of presentation.

Elective in junior and senior years; first semester; one credit.

19. SEMINAR. This is a continuation of course 18.

Second semester; one credit.

21. FEEDS AND FEEDING. An advanced course in the feeding of horses, beef cattle, sheep, and swine. In this course the students are given a thorough training in the most approved methods of stock

feeding. An especial study is made of the practices of the best stockmen and of the investigations carried on by the various experiment stations. This course follows Animal Husbandry 7 and will be open only to students who have completed that course. Students desiring to take only such parts of the course as relate to certain lines of live stock will be permitted to do so by arrangement with the head of the department.

Prerequisite: Animal Husbandry 7.

Senior year; second semester; five credits; five recitations.

23. FEEDS AND FEEDING. This is a condensed course intended for those students who do not have the time necessary for courses 7 and 21. The feeding of beef cattle, sheep, hogs, and horses is studied with reference to both principles of nutrition and farm practice. While brief, the work is complete in itself and does not depend upon any other course.

Elective to seniors in all agricultural courses except Animal Husbandry; second semester; three credits; three recitations.

25. LIVE STOCK PRACTICE. This is a course in the details of live stock management, taking up the subject in a more advanced form than in Animal Husbandry 2. The laboratory hour will be devoted to such work as dipping, dehorning, hoof trimming, shearing, horse training, and other common operations of the stock farm.

Elective to Junior Animal Husbandry students; second semester; two credits; one lecture, one laboratory.

DAIRY HUSBANDRY

Professor ————
Mr. Simpson
Mr. Stockwell

With increase in values of land, comes a need for more intensive methods of agriculture. Dairying is one of the few industries that can be made profitable on high priced lands. The more valuable the lands to be utilized for dairy purposes, the greater the need for the application of scientific principles, both in milk production and dairy manufacturing lines.

In order to meet the needs of the industry and the demand for information, the department offers the following courses:

(*a*) The four-year course, designed to qualify students for agricultural college and experiment station work, for inspectors of dairy products and dairy establishments in city, state, or government service, or as managers of creameries or large dairy farms.

(*b*) A half-year course extending through the first semester, designed to fit students to become operators of creameries, cheese factories, and dairy farms. Students entering this course must be not less than eighteen years of age, and have a knowledge of English and Mathematics equal to eighth grade public school requirements.

(*c*) A winter short course of four weeks, giving special attention to the subject of milk production.

(*d*) A winter short course of one week for experienced factory men.

Besides these courses, dairy instruction will form a portion of the work offered to students in the Secondary Course in Agriculture, and to students in Domestic Science and Art.

The laboratories and class rooms for the technical work in dairying are located in the new three-story Dairy Building, completed in 1912. The building is well equipped for giving instruction along all lines of dairy manufactures, except milk condensing. Milk and cream are handled on a commercial scale, thus enabling the student to approach closely the conditions existing in actual creamery practice. Various kinds of appliances are available for the different operations, thus giving the student an opportunity to judge at first hand the respective merits of such appliances.

The Dairy Herd, which is used for experimental and demonstration purposes, consists of typical representative animals of the leading dairy breeds, including the Jersey, Guernsey, Holstein and Ayrshire.

One of the largest commercial creameries in the State is located in Corvallis, an opportunity thus being afforded for the study of manufacturing problems as they exist under every-day-creamery conditions.

The following courses are offered:

A. PRINCIPLES OF DAIRYING. A general study of the secretion and composition of milk; care of milk and cream on the farm; methods of separation and testing for fat; butter making on the farm.

The secondary course; second year; first semester; two credits; one recitation; one laboratory period.

B. DAIRY METHODS. The secretion and composition of milk; Babcock test for milk and milk products; separation; ripening and churning cream; preparation of starters; creamery management.

The one semester course; daily lectures and recitations. Five credits.

C. DAIRY PRACTICE. Laboratory exercises in the use of the Babcock test, as applied to milk and milk products; acidity, salt, and moisture tests; separating, ripening, and churning cream, with special reference to factors affecting "overrun", starters and pasteurization.

The one semester course; two to four hours per day, four days per week. Four credits.

1. FARM DAIRYING. Composition of milk; application of the Babcock test to milk and milk products; selection of the dairy breed; farm dairy appliances; disposal of the product; churning, packing, and marketing butter; farm cheese making; utilization of dairy by-products.

Sophomore year; second semester; three credits; two recitations; one laboratory period.

2. DAIRY INSPECTION. Application of the Babcock test; use of the lactometer in detecting adulterations; rapid tests for various preservatives and adulterations; the score card system of dairy inspection; score card judging of butter, cheese and other dairy products.

Prerequisite: D. H. 1.

Required of students electing Dairy Husbandry as a major; junior year; first semester; two credits; one recitation; one laboratory period.

3. BREEDS OF DAIRY CATTLE. Origin, characteristics, and adaptability of the various breeds of Dairy Cattle. Judging representa-

tive animals of the various breeds according to official standards. Comparative judging within the breeds. Consideration of prominent individuals and families in each breed.

Prerequisite: An. H. 1, 2; D. H. 1.

Required in the course in Milk Production; junior year; first semester; three credits; two recitations; one laboratory period.

4. DAIRY FARM EQUIPMENT. Plans and specifications for dairy barns, milk houses, and other farm dairy buildings. Kind and number of animals for a given area. Dairy machinery and appliances required, and installation of same.

Prerequisite: D. H. 1.

Required in course in Milk Production; junior year; second semester; three credits; three recitations.

5. CITY MILK SUPPLY. Problems concerning the production and distribution of milk for town and city retail trade. Production of "certified milk." Pasteurization as applied to market milk.

Prerequisites: D. H. 1; Bacteriology 401.

Required in the course in Milk Production; senior year; second semester; two credits; two recitations.

6. SEMINAR. The study of new experiment station bulletins, books, and general dairy periodicals. Problems of milk production as related to dairy manufactures.

Prerequisite: D. H. 1.

Required in Dairy Husbandry courses; senior year; second semester; one credit.

7. DAIRY HERD MANAGEMENT. Best methods of feeding for milk production; principles governing the construction of stables, stalls, and ties; systems of keeping, feeding, breeding, and milk production records; manner of disposal of milk produced; rearing the dairy calf; selection and care of bulls.

Prerequisites: D. H. 1; Chemistry 500, 501.

Required of students in Dairy Husbandry. Elective for students in Animal Husbandry and Agronomy. Senior year; second semester; three credits; three recitations.

9. THESIS. Original work on some dairy subject may be worked out in co-operation with the departments of Chemistry, Bacteriology, or Animal Husbandry. Students should consult the head of the

Dairy Department concerning Thesis subject not later than the beginning of their senior year.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits.

10. ADVANCED BUTTER MAKING. A study of the physical and chemical properties, composition and separation of milk; effect of different degrees of acidity of cream upon the resulting butter; the principles of churning, packing and marketing butter; and the operation of churns and separators.

Prerequisites: D. H. 1; Chemistry 500, 501.

Required in the course in Dairy Manufactures; junior year; first semester; five credits; three recitations; two laboratory periods.

11. CHEESE MAKING. A study of the importance of quality and composition of milk in the manufacture of Cheddar cheese; the principles involved in setting, cutting, heating, milling, etc.; special shapes and sizes; the construction and ventilation of curing rooms.

Prerequisites: D. H. 1; Chemistry 500, 501.

Required of students in the course of Dairy Manufactures; junior year; second semester; three credits; two recitations; one laboratory period.

12. DAIRY MACHINERY. Theory and construction of steam boilers and engines; refrigerating machinery; separators, ripeners and pasteurizers. Some practice in Engineering shops.

Prerequisites: D. H. 1, 10.

Required in course in Dairy Manufactures; senior year; first semester; two credits; one recitation; one laboratory period.

13. FACTORY MANAGEMENT. Consists of location, organization, construction, drainage, and ventilation of creameries and cheese factories; creamery refrigeration, and general management. The object of this course is to fit the student to superintend or manage large factories or other dairy establishments.

Prerequisites: D. H. 1, 10.

Required in course in Dairy Manufactures; senior year; first semester; three credits; three recitations; inspection of dairy establishments.

14. TECHNOLOGY OF MILK. A study of the utilization of milk and its products, such as the preparation of condensed, certified,

modified, and hygienic milk, milk sugar, casein; the food value of milk and its products.

Prerequisites: D. H. 1, 2; Chemistry 500, 501.

Required in the course in Dairy Manufactures; senior year; second semester; two credits; two recitations.

15. ICE CREAM AND ICES. A study of the preparation of ice cream, sherbets, and ices, made on a private or commercial scale.

Prerequisite: D. H. 1.

Elective; senior year; second semester; one credit; one recitation or laboratory.

16. HOME DAIRYING. A study of the secretion, composition, and characteristics of milk; methods of separation; care of milk and cream; preparation of ice cream and ices.

Elective in the course in Domestic Science and Art, after the freshman year; second semester; two credits; recitations and laboratory.

HORTICULTURE

Professor Lewis
Associate Professor Gardner
Associate Professor Peck
Assistant Professor Bouquet
Assistant Professor Kraus
Mr. Brown
Mr. Bradford
Mr. Speidel
Mr. Lafky
Mr. Masterton

The scope of work in Horticulture is very broad, giving instruction in Pomology, Olericulture, Floriculture, Landscape Gardening, and School Gardening. In these courses the student is first thoroughly grounded in the fundamentals and is then allowed to specialize as he may desire. Thus, he may fit himself for station or government work, or enter the many lines in business open to

him, such as furit growing, truck gardening, floriculture, or landscape gardening; for in all these lines are splendid opportunities throughout the Pacific Northwest. At the present time there are openings for young men to become managers of orchards or to develop fruit lands for outside investors; those having a taste for teaching, can find a broad field in college or rural work or as supervisors of horticulture. The required work for students electing horticulture covers a wide range, giving the student a thorough training, not only in plant propagation and the general principles of orchard management and vegetable growing, but in floriculture and landscape gardening as well, thus broadening his views and interesting him in the aesthetic and all that pertains to more beautiful sourroundings.

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 phases as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and spraying.

The Horticultural Building contains modern laboratories for spraying, plant propagation, fruit packing, systematic pomology and vegetable preparation. There are special classrooms, large drafting rooms, museum, and research laboratories. A new floriculture building and range of greenhouses assist materially in the work. The department is also establishing young orchards and vegetable gardens and has at its desposal a large campus upon which are planted many species of trees and shrubs. Large additions have been made recently to the library.

A. ELEMENTARY ORCHARD PRACTICE. A course dealing with the first principles of fruit growing, in which the practical phases are emphasized, stress being laid on such phases of orcharding as harvesting, packing, pruning, spraying, establishing of orchards, and the essentials of small fruit culture.

The Scondary course; first year; first semester; two credits; one recitation; one laboratory period.

B. ELEMENTARY ORCHARD PRACTICE AND VEGETABLE GARDENING. In this course the requirments of the secondary student are kept in mind, the work leading up to more advanced courses in the freshman and sophomore years. The propagation of the common plants used in horticulture is studied and practical laboratory exercises are given in the planting of seed, making of cuttings, and the ordinary methods of budding and grafting. The last part of the semester is devoted to a study of the first principles of vegetable gardening.

The Secondary course; first year; second semester; three credits; two lectures; one laboratory period.

1. PLANT PROPAGATION. This course consists of a very thorough study of the propagation of plants used in horticulture, including study of soils used in nursery and seed bed; seeding and transplanting; multiplying of plants by separation and division, soft and hard wood cuttings, layerings, and many forms of budding and grafting. The greenhouses, laboratories, orchards, and campus offer splendid opportunities and furnish abundant material for practical work.

Sophomore year; second semester; two credits; one recitation; one laboratory period.

2. ORCHARD AND GARDEN PRACTICE. Problems concerning the home orchard and garden are dealt with in this course, the aim being to give those students who cannot further pursue a horticultural course the necessary training to develop ideal home orchards and gardens; at the same time the work is fundamental for students desiring to pursue horticultural studies further. The common orchard and garden problems such as selecting a site, setting and cultivating the orchard and graden, pruning, spraying, and choosing varieties are considered.

Sophomore year; first semester; three credits; two recitations; one laboratory period.

3. FLORICULTURE. An elementary course in the cultivation of greenhouse and home plants and of the common annuals and perennials used in outdoor work. The course is designed to broaden the views of those students who are unable to take advanced courses in Floriculture, and to make them more useful citizens.

Required of Agricultural juniors electing Horticulture as a major; first semester; two credits; one recitation, one laboratory period.

4. LANSCAPE GARDENING. All students should be interested in everything that pertains to the decoration of the home, the improvement of school grounds, the beautifying of streets, and the establishment of recreation grounds and parks. In the course in landscape gardening the general principles of this art are so treated as to apply to the upbuilding of the aesthetic in everyday life.

Required of Agricultural juniors electing Horticulture as a major; second semester; two credits; one recitation; one laboratory period.

Pomology.

11. PRACTICAL POMOLOGY. Especially offered for those students desiring training in commercial orcharding; deals largely with problems connected with the growing and handling of our leading fruits. Such problems as choice of soil, cultivation, irrigation, use of cover crops, thinning, proper varieties, and best methods of orchard management, will be thoroughly studied. This is purely a lecture course, the laboratory work being offered in courses 12 and 13.

Required of juniors electing Pomology as a major; first semester; three credits; three recitations.

12. ORCHARD PRACTICE. A Saturday morning course, dealing only with the practical phases of orchard management. The various orchard problems, such as harvesting, packing, pruning, spraying, and the handling of small fruits, are taken up according to season. Every student beginning this work is required to become familiar with furit packing to the extent that he can put up a first-class box of fruit. Students especially proficient will be allowed to take up outside work for remuneration under departmental supervision.

This course is open only to juniors and seniors electing Horticulture, Botany, and Entomology as a major.

Required of students majoring in Pomology; first semester; two credits; two laboratory periods.

13. ORCHARD PRACTICE. This is a continuation of course 12.

Required of students majoring in Pomology; second semester.

15. GRAPE GROWING. A special course in Viticulture devoted to the best methods of growing, harvesting, and packing the American and European types of grapes. Such phases as exposure, elevation, soils, use of resistant stock, pruning, harvesting, packing, shipping, and storing are included. The manufacture of byproducts will also be treated.

Elective; junior year; second semester;two credits; two recitations.

16. SMALL FRUIT CULTURE. In this course a study is made of the problems concerned with the growing and marketing of such fruits as the strawberry, currant, gooseberry, raspberry, blackberry, loganberry, and cranberry. A large collection of small fruits in the college orchard aids materially in the study.

Elective; junior year; second semester; two credits, one recitation; one laboratory period.

17. NUT CULTURE. Nut culture is becoming a very important branch of Horticulture. In this course a special study will be made of the culture of such nuts as the walnut, filbert, almond, pecan, and peanut. Instruction is very largely by lectures on the special adaptability of the Pacific Coast to nut culture. Laboratory periods will be given on most successful methods of grafting nuts.

Elective; junior year; second semester; two credits; one recitation; one laboratory period.

18. SYSTEMATIC POMOLOGY. The description, nomenclature, and classification of native and sub-tropical fruits and nuts is studied. In addition, training is given in judging and displaying fruits. Special stress will be laid on the variation of fruits caused by soil, elevation, etc. For this study fruits will be collected from the various parts of the State.

Required of seniors electing Pomology as a major; senior year; first semester; four credits; two recitations; two laboratory periods.

19. COMMERCIAL POMOLOGY. This course deals with the problems of marketing fruits, methods of packing, transportation. and storage, the building of packing and storage houses. A study of associations as a factor in the handling of fruit, of market

requirements, and of the handling of by-products, makes this course decidedly valuable.

Required of seniors electing Pomology as a major; senior year; second semester; two credits; two recitations.

20. SEMINAR. This is a course especially arranged for senior and graduate students in Horticulture. A study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, as well as station and government publications, are reviewed. A course of lectures and class drill is given in outlining and conducting experiments and ivestigations.

Required of Agricultural seniors and advanced students having their major in Horticulture; senior year; first semester; one credit; one recitation.

21. SEMINAR. Required of Agricultural seniors and advanced students having their major in Horticulture.

Required of seniors electing Pomology as a major; senior year; second semester; one credit; one recitation.

22. HISTORY AND LITERATURE OF HORTICULTURE. A study is made of the literature and history of Horticulture from the time of the Egyptians to modern times.

Required of seniors electing Pomology as a major; senior year; first semester; two credits; two recitations.

23. PLANT BREEDING. This course embraces a study of the theories as related to plant breeding and their application to the practical aspects of the work, such as cultivation, selection, acclimatization, hybridizing, and pollination. Lectures, reference reading, and practical problems given in laboratory and field. Juniors electing this course begin orchard and garden investigation and plant breeding that can be continued during the senior year.

Elective; junior and senior year; first semester; three credits; two recitations; one laboratory period.

24. ADVANCED PLANT BREEDING. Largely a laboratory course in greenhouses, orchards and gardens. Open only to students who have completed Horticulture 23. Practical problems of plant breeding studied in course 23 will be continued in this course.

Senior year; second semester; three credits; one recitation; two laboratory periods.

25. SUB-TROPICAL POMOLOGY. A study of the culture of such sub-tropical fruits as oranges, figs, and olives.

Elective; senior year; first semester; two credits; two recitations.

26. ADVANCED POMOLOGY. This is in the nature of a finishing course in Pomology. It will include a series of examinations covering the subject of Pomology, to test the student's knowledge of this subject.

Horticultural topics that have not been treated fully in previous classes will be taken up for special consideration in this course. The latter part of the course will deal purely with the study of orchard economics, including cost of development and maintenance of orchards, and the cost of selling the crop.

Elective; senior year; second semester; three credits; three recitations.

Vegetable Gardening.

Students taking their major in this course are required to take Horticulture 3, 4.

31. PRINCIPLES OF VEGETABLE GARDENING. In this course a study is made of the history and botanical relationship of vegetables, problems of vegetable soils and locations, tillage, crop successions, and rotations, irrigation, application of manures, and commercial fertilizers, seeds and seed sowing, transplanting, construction and operation of hot-beds, implements, captial and labor and other vital problems connected with the handling of a vegetable garden.

Required of juniors electing Vegetable Gardening as a major; junior year; first semester; three credits; two recitations; one laboratory period.

32. FORCING VEGETABLES. A course dealing with the problems connected with forcing of such vegetables as lettuce, cucumbers, tomatoes, rhubarb, and melons, in cold frames, hot-beds, and greenhouses. Lectures and exercises in the greenhouses.

Required of seniors electing vegetable gardening as a major; senior year; second semester; two credits; one recitation; one laboratory period.

33. FORCING VEGETABLES. Continuation of course 32.

Required of seniors electing vegetable gradening as a major; senior year; first semester; two credits; one recitation; one laboratory period.

34. SYSTEMATIC OLERICULTURE. Description, nomenclature, and classification of vegetables. Exercises are given in displaying and judging vegetables.

Required of senior students electing Vegetable Gardening as a major; senior year; first semester; one credit; one laboratory period.

35. TRUCK GARDENING. Only the purely commercial aspects of vegetable gardening are offered in this course. Such phases as capital, labor, rotation, tools, harvesting, and storing will be considered, as well as other problems involved in the growing of vegetables on an extensive scale for market or cannery. Attention is also paid to a study of vegetable markets and methods of marketing.

Required of senior students electing Vegetable Gardening as a major; senior year; first semester; three credits; two recitations; one laboratory period.

36. COMMERCIAL TRUCK GARDENING. A continuation of course 35.

Required of senior students electing Vegetable Gardening as a major; three credits; two recitations; one laboratory period.

37. PRACTICAL VEGETABLE GROWING. This course is especially designed for those who are specializing in vegetable growing and for those who wish to obtain knowledge concerning the most practical methods of growing all the important market garden crops. The work will consist largely of practicums in field and greenhouse, supplemented by lectures; and all commercial garden crops will be handled, from seed time onward, in such a way as to give the student a thorough working knowledge of growing leading vegetable crops.

Required of juniors electing Vegetable Gardening as a major; three credits; two lectures; one laboratory period.

Landscape Gardening

39. TREE SURGERY. The principles of tree surgery are presented and put into execution in the laboratory.

All the varying cuts, cavities, fillings, bracing, and cultivating will be worked out in a practical manner.

Elective; junior year; first semester; one credit; one laboratory period.

40. TREE SURGERY. A continuation of course 39.

Elective; junior year; second semester; one credit; one laboratory period.

43. PLANT MATERIALS. To create satisfactory landscape effects, one must have a broad knowledge of the materials with which landscape architects must work. A thorough study is given to trees, both evergreen and diciduous, shrubs, vines, perennial herbaceous plants, biennials and annuals, with a view to bringing out their characteristics, such as foliage, color, form, adaptation, hardiness and artistic effect.

Prerequisite: Horticulture 4.

Elective; junior year; first semester; three credits; one recitation; two laboratory periods.

44. PLANT MATERIALS. A continuation of course 43.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods.

45. THEORY AND DESIGN. This course includes a study of the best works of prominent landscape architects, together with a wide range of collateral reading bearing upon the various problems. Private estates, public parks and play grounds, boulevards, and cemeteries will be carefully studied. Reports, such as those of park boards and landscape architects will also be studied.

Prerequisites: Horticulture 4, 43, 44.

Elective; senior year; first semester; two credits; two laboratory periods.

46. THEORY AND DESIGN. A continuation of course 45, in which a large portion of the time will be devoted to the preparation of planting plans. Outside time will be required for collateral reading.

Prerequisites: Horticulture 4, 43, 44, 45.

Elective; senior year; second semester; three credits; three laboratory periods.

47. FIELD PRACTICE. A course in practical problems brought in from the field of practice. The student is required to make the surveys, do the engineering work incidental to the solving of the problem, make general plans, planting plans, grading plans, details, and, in short, perform all the duties ordinarily met with in the landscape architect's office.

Prerequisites: Horticulture 4, 43, 44, Civil Engineering required in freshman and sophomore year.

Elective; senior year; first semester; three credits; three laboratory periods.

48. FIELD PRACTICE. A continuation of course 47.

Prerequisites: Horticulture 4, 43, 44, Civil Engineering required in freshman and sophomore year.

Elective; senior year; second semester; three credits; three laboratory periods.

49. HISTORY AND LITERATURE OF LANDSCAPE ARCHITECTURE. A course designed to give the student a good idea of the development of the art and to bring him into close touch with the literature, past and current, that is related to the subject.

Elective; senior year; second semester; two credits; two recitations.

50. TOWN PLANNING. This course is offered in order that the student may understand, in a general way, the underlying ideas of municipal, town, and village improvement. Literature and reports are studied, town problems disscussed, and methods of procedure in town improvement worked out.

Elective; senior year; first semester; three credits; two recitations; one laboratory period.

Floriculture

Students taking their major in Floriculture are required to take Horticulture 3, 4.

51. GREENHOUSE CONSTRUCTION. A course especially adapted for students specializing in Floriculture and Truck Gardening.

The problems connected with the building of greenhouses, hot-beds, and cold frames are dealt with; also, selection of materials; the various systems of heating and ventilating, and the value of the various types of buildings. Lectures and laboratory exercises in greenhouse and drafting room are conducted.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods.

52. FORCING FLOWERS. In this course are studied the propagation, and problems of culture, such as soils, ventilation, and heat, connected with the forcing of plants used in the florist's trade.

Prerequisite: Horticulture 3.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

53. FORCING FLOWERS. This is a continuation of Horticulture 52.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods.

54. FLORICULTURE. Instruction is given in various subjects; such as proper soils, planting of seed, transplanting, making of cuttings, cultivation, principles of heating and ventilating, control of insect pests and diseases, connected with the cultivation of the common household and dooryard flowers. In addition, such problems as the grouping and arranging of flowers, so as to obtain the best color harmonies and most pleasing effects while growing, as well as for decoration purposes, are included. The lectures are supplemented by reference readings and laboratory periods in the greenhouse and garden.

Course in Domestic Science and Art; junior year; first semester; two credits; one recitation; one laboratory period.

55. LANDSCAPE GARDENING. The general principles of Landscape Gardening are taught, the aim being to give the student sufficient foundation to understand landscape gardening as applied to home decoration, to interest the student in the home beautiful, the improvement of our public school grounds and city and village streets. A study is made of photographs, and of famous landscape paintings, showing good taste and design in various phases of Landscape Gardening. Lectures and reference readings are supplemented by field exercises.

Course in Domestic Science and Art; second semester; two credits; one recitation; one laboratory period.

56. VEGETABLE GARDENING AND SMALL FRUIT CULTURE. In this course such problems as care of soil, seeding, rotation, fertilizing, and the selection of the best varieties of vegetables and small fruits for use in the home garden are considered. Lectures, laboratory and field exercises.

Course in Domestic Science and Art; second semester; three credits; two recitations; one laboratory period.

By-Products

61. HORTICULTURAL BY-PRODUCTS. This course embraces a general study of horticultural by-products, including a study of the growth and development of this important industry in this country and abroad, but more especially in the Pacific Northwest. It will deal with the establishment of plants, their operation, and the fundamental principles connected with canning, evaporating, drying, and the manufacture of fruit juices.

Elective; junior or senior year; first semester; one credit; one recitation.

62. DRIED PRODUCTS. This course will take up a detailed study of the evaporation and drying of fruits and vegetables. It will include a study of the types of buildings now used, and of the machinery and apparatus needed in the successful operation of the various types of driers. This course will also deal with the technique connected with the evaporation and drying and processing of such products as apples, pears, peaches, apricots, berries, and vegetables.

Elective; junior or senior year; first semester; three credits; one recitation; two laboratory periods. Not offered in 1913-14

63. CANNING. This course embraces a study of the establishment, management, and operation of canneries, including a study of necessary buildings and machinery, and successful operation of canneries. It will also include a detailed study of the various methods used in canning, and in the manufacture of syrups, jellies, etc.

Elective; junior or senior year; second semester; three credits; one recitation; two laboratory periods. Not offered in 1913-14.

64. FRUIT JUICES. This course will embrace a study of the manufacture of cider, vinegars, and juices of such fruits as the apple, grape, and loganberry. A study will be made of various types of buildings and machinery suitable for the manufacture of such jucies, together with a study of the best methods embraced in the manufacture of fruit syrups and juices.

Elective; junior or senior year; first semester; three credits; one recitation; two laboratory periods. Not offered in 1913-14.

Research

The Division of Horticulture is unusually well equipped for offering research work. In addition to the laobratory facilities, there are the greenhouses, experimental plots, and a splendid research library well supplied with scientific books and periodicals, all of which combine to give the student unsurpassed facilities.

71. RESEARCH WORK FOR SENIORS. This course is offered for those seniors who are contemplating following college, experiment station, or government work as a life work, or for those students who desire to have some special training in research technique. Problems will be assigned to the students which will give them experience in the laboratory, greenhouse, field, and library.

Elective; senior year; first semester; three credits.

72. RESEARCH WORK FOR SENIORS. A continuation of course 71.

Elective; senior year; second semester; three credits.

73. ADVANCED THESIS AND RESEARCH WORK. This is a course offered only for graduate students. Such students will be allowed to select problems in pomology, vegetable gardening, landscape gardening, floriculture, plant breeding, and similar subjects.

Elective; for graduate students only; first semester; from 10 to 20 credits.

74. ADVANCED THESIS AND RESEARCH WORK. Continuation of course 73, second semester.

75. METHODS OF RESEARCH. This course is offered to graduate or senior students interested in research work. It will be conducted as a research round table. Special drill will be given in the making of briefs and outlines of research problems, in methods of procedure in conducting investigative work and in the preparation of bulletins and reports. The study of research problems conducted by the Division of Horticulture will be taken up and a close study made of the research work which is presented in bulletins from other institutions.

Elective; senior or graduate year; first semester; one credit.

76. METHODS OF RESEARCH. Continuation of course 75.

Elective; senior or graduate year; second semester; one credit.

POULTRY HUSBANDRY

Professor Dryden
Assistant Professor Lunn
Mr.———————

In recognition of the importance of the poultry industry, and to meet the demands of young men who aim to give special attention to this industry after leaving college, a department of Poultry Husbandry was established. Poultry-keeping is a part of every well regulated system of diversified farming, and at the same time offers opportunities for profit-making as a special business under special conditions. The plant at the College gives exceptional opportunities for study of the practical, as well as the theoretical, side of the poultry industry.

1. POULTRY HUSBANDRY. Includes a study of breeds of domestic poultry, their history and classification. Laying and market qualities of different breeds will be emphasized. Breeding fowls for different purposes will be considered, as will the location and construction of the poultry plant and its equipment. Laboratory work consists of practic in judging, preparing poultry products for market, constructing houses, coops, poultry plant equipment, and drawing of plans.

Required of all juniors in Poultry Husbandry; junior year; first semester; four credits; two recitations; two laboratory periods.

2. POULTRY HUSBANDRY. A continuation of course 1, but may be taken separately. Includes a study of poultry feeds and feeding with reference to egg and meat production. Reproduction by natural and artificial methods. Markets and marketing. Laboratory work consists of a study of poultry food stuffs and rations. Students will be given practice in preparing different rations. Practice will also be given in hatching and brooding. Each student will have charge of a pen of fowls, and during his period of management will do all the feeding and keeping of records.

Required of all juniors in Poultry Husbandry; junior year; second semester; four credits; two recitations; two laboratory periods.

3. ADVANCED POULTRY HUSBANDRY. For students specializing in Poultry Husbandry advanced work will be given in the senior year. The work of this course consists of a study of Poultry literature, conducting experiments, and writing up results.

Prerequisites: Courses 1, 2.

Required of all seniors in Poultry Husbandry; senior year; first semester; four credits.

4. ADVANCED POULTRY HUSBANDRY. A continuation of course 3 together with assignments of special and original problems. Successfully to complete the advanced work will mean that the student has demonstrated his ability to lay out and manage a poultry farm; or to fill a college or station position in Poultry Husbandry. There is a growing demand for specialists along these lines.

Prerequisites: Courses 1, 2, 3.

Required of all seniors in Poultry Husbandry; senior year, second semester; nine credits.

6. PRACTICAL POULTRY KEEPING. A course arranged to meet the demands of students who desire a knowledge of practical poultry-keeping but who are unable to elect a full year's course. The course includes the selection of stock; breeding farm poultry; poultry house and equipment; methods of reproducing the flock; feeds and feeding; as well as markets and preparation of poultry products for market.

Elective; first or second semester; two credits; two lectures or recitations.

7. MARKETS AND MARKETING. Arranged for advanced study of poultry market conditions and the marketing of poultry and poultry products. Lectures or recitations consist of a study of available data and reports on original work. The laboratory course will supplement the work taken up in lecture and recitations. Students are required to do practical work such as preparing poultry products for market, fattening, killing, dressing and marketing fowls; and when possible will be in charge of actual marketing.

Elective; required of all juniors in Poultry Husbandry; first semester; two credits; one recitation or lecture; one laboratory period.

10. FEEDS AND FEEDING. A study of feeds and feeding related to the different branches of poultry-keeping. Lectures or recitations consist of a study of food stuff, their composition, etc., use in poultry feeding; also methods of feeding chickens of different ages and the feeding of chickens for different purposes. Laboratory work consists of a study of the various food mixtures and practice in mixing various rations.

Elective; required of all juniors in Poultry Husbandry; second semester; two credits; one lecture or recitation; one laboratory period.

11. POULTRY DISEASES. During the year 1913-14 this course will be given as Bacteriology 701.

Prerequisite: Bacteriology 101, 102, or equivalent.

Elective; required of all seniors in Poultry Husbandry; three credits; one lecture or recitation; two laboratory periods.

VETERINARY SCIENCE

Dr. Hollis

The object of the course in Veterinary Science is to enable the student to prevent disease, diagnose existing pathological conditions, arrest outbreaks of contagious and infectious diseases among domestic animals, give medical attention in emergency cases, and take care of the sick.

The course is given during the junior and senior years. Comparative Anatomy and Veterinary Physiology—the fundamental branches of medicine—are taught during the junior year; Comparative Medicine, Surgery, Obstetrics, Pathology and Materia Medica will be given in the senior year. The students of this department will be expected to be present at all the clinics—medical and surgical —and will have an opportunity to diagnose various diseases and assist in the surgical operations. Special attention will be given to lameness and obstetrics and the student will be called upon to perform obstetrical operations under the supervision of the veterinary surgeon in charge.

The following courses are offered:

B. ELEMENTARY VETERINARY SCIENCE. A study of the treatment and prevention of the common diseases of farm live stock. Special attention is given to sanitation and the prevention of diseases.

The Secondary course; second year; second semester; two credits; two recitations.

1. COMPARATIVE ANATOMY. Anatomy is taught in the most practical manner possible. Special attention is given to the digestive tract and also to the muscles of locomotion. The lectures are illustrated by fresh dissections, models, plates, blackboard drawings, etc. Anatomy, being the foundation of all medical knowledge, is fully explained in its relation to medicine and surgery. The course includes lectures, dissecting, recitations and quizzes.

Junior year; first semester; three credits; one recitation; two laboratory periods.

2. VETERINARY PHYSIOLOGY. This course embraces the study of chemical constituents of the body. The composition and functions of the blood, the functions of the liver, pancreas and the other glands that assist in digestion, absorption, nutrition, the production of animal heat, the locomotor apparatus, generation and development are fully discussed. The composition of the saliva, gastric juice, pancreatic juice, and other digestive secretions and their digestive actions are studied.

Junior year; second semester; three credits; two recitations; one laboratory period.

3. MATERIA MEDICA AND COMPARATIVE MEDICINE. The first half of the semester is devoted to the study of Materia Medica. The student is taught the terms employed in the science, the mode of action of the more common drugs in use and their method of administration. Each student will be required to make tinctures, liquors, blisters, liniments, plasters, compounds, etc. The United States Pharmacopoeia is used as a guide. The last half of the semester is devoted to the study of Comparative Medicine. This course includes clinics, lectures on diagnosis, hygiene and general sanitation, also the control of infectious diseases. In clinics the students are given an opportunity to use the drugs, etc., which were compounded in the course in Materia Medica.

Senior year; first semester; three credits; two recitations; one laboratory period.

4. SURGERY. In this course the apparatus used in surgery, and methods of restraint are studied, together with their practical application. The use of anesthetics and antiseptics is discussed, also the general principles in closing wounds, controlling hemorrhage, bandaging, massage, etc. Lectures on soundness, lameness, shoeing, dentistry and obstetrics will also be given.

Prerequisite: Course 1.

Senior year; second semester; three credits; one recitation; two laboratory periods.

5. HISTOLOGY. In this course the student is taught the normal microscopical structure of the fundamental tissues of the body, together with their location and development.

Prerequisite: Course 2.

Elective. Credits by arrangement.

6. GENERAL PATHOLOGY. This course in General Pathology treats of the history of pathology, predisposition, immunity, congenital and inherited disease; causes, course and termination of disease; circulatory disturbances—cardiac hyperaemia, hemorrhage, dropsy, oedema, thrombosis, embolism, and alternation of the blood; disturbances of metabolism—fever, necrosis, atrophy, cloudy swelling, fatty changes, calcification and concrement formation; the process of repair, new formations and functional disturbances.

Prerequisite: Course 5.

Elective: Credits by arrangement.

BACTERIOLOGY

Professor Beckwith
Mr. Vass
Mr. ————
M. Copson

The relationships of the comparatively new science of Bacteriology to everyday life in the various industries have increased so largely in numbers and intimacy that it is necessary for any student properly equipped in Dairying, Agriculture, Agronomy, Pharmacy, Domestic Science, etc., to have a working knowledge of the subject.

As in any well rounded subject, effort is in two directions which are closely associated, theory and practice. It is impossible for a student intelligently to carry out operations unless he understands the fundamental theories underlying.

The courses are so arranged in the Department of Bacteriology that a student may take thorough preparation in the subject in specific lines such as Pharmacy, Domestic Science, Agronomy, Sanitation, etc. This in turn, if desired, may be followed by special research problems and advanced work.

A. BACTERIOLOGY. This course deals with the most elementary questions of Bacteriology as applied to everyday life, such as the prevalence of bacteria and other micro-organisms and their activities, including the bacteriology of clean milk, pure water, filth disposal, curing of cheese, decay of manure, nodule formation on leguminous plants, vinegar production. Demonstrations and recitations.

The Secondary course in Agriculture; second year; second semester; two credits; two lectures and recitations.

101. ELEMENTARY BACTERIOLOGY. This course consists of a series of lectures and laboratory demonstrations to familiarize students with the underlying principles of bacteriology as applied to everyday life, and as an introduction to the more advanced courses in the subject.

The course in Agriculture; sophomore year; first semester; three credits; two lectures or recitations; one demonstration or laboratory period.

102. ELEMENTARY LABORATORY BACTERIOLOGY. This is a course given for the purpose of supplementing the lecture and demonstration work of bacteriology 101, to those who care to take it.

Prerequisite: Bact. 101.

Elective; junior year; second semester; two credits; two laboratory periods.

111. GENERAL BACTERIOLOGY. Beginning with the first semester of the junior year, a student may take bacteriology through the two semesters of that year, then continue advanced work through the two semesters of the senior year.

Elective; junior year; first semester; five credits; lectures and laboratory work.

112. ADVANCED BACTERIOLOGY. A continuation of course 111, the laboratory work familiarizing the student with special bacteriological apparatus and its use, then gradually proceeding into advanced work involving questions of pure science as well as the application of bacteriology to the professions and industries.

Elective; junior year; second semester; five credits; laboratory work and lectures.

116. RESEARCH IN BACTERIOLOGY. A thesis may be selected in this subject, beginning with the first semester, junior year, major bacteriology, and continuing through four semesters. The laboratory is especially equipped for work in agricultural bacteriology. However, ample facilities for research along veterinary, domestic science, or pharmaceutical bacteriology are at hand. Work for the master's degree either as a major or minor in the department may also be selected. The investigations are all outlined and conducted by the student in co-operation with the head of the department.

Elective; senior year. Credits to be arranged.

201. PHARMACY BACTERIOLOGY. This is the regular required course in Bacteriology for Pharmacy students, consisting of lectures and laboratory work tending to deal with the medical aspects of pharmacy.

The course in Pharmacy; senior year; first semester; four credits; two lectures or recitations; two laboratory periods.

202. PHARMACY BACTERIOLOGY. Continuation of Pharmacy Bacteriology 201, elementary clinical diagnosis, classification of bacteria, qualitative and quantitative determinations.

Prerequisite: Course 201.

The course in Pharmacy; senior year; second semester; three credits; one recitation; two laboratory periods.

203. CLINICAL BACTERIOLOGY. This course, intended primarily for students in pharmacy, deals with practice work in the ordinary methods of clinical diagnosis in use. Typhoid, diphtheria, tuberculosis, various pus formations, bacteriological examination of urine and feces, blood counting and differentiation into its elements, and dark ground illumination are some of the subjects treated.

Prerequisites: Courses 201, 202.

Elective; senior year; second semester; two credits; two laboratory periods.

204. CLINICAL BACTERIOLOGY. A continuation of the outline presented in course 203.

Prerequisites: Courses 201, 202, 203.

Elective; seniors; second semester; two credits; two laboratory periods.

205. IMMUNITY AND VACCINE THERAPY. This course includes a study of the standard methods in vogue in the various immunity and therapeutic reactions such as antitoxin formation, preparation of vaccines, the precipitin technique and standardization.

Prerequisites: Courses 201, 202 or equivalents.

Elective; senior or graduate year; credits to be arranged.

300. DOMESTIC SCIENCE BACTERIOLOGY. This course deals with bacteriology in its relations to home life; an introduction to the subject is made, therefore, along theoretical lines, with application to sanitation as concerns the house, covering such subjects as water supply, action of septic tanks, house sanitation, control and prevention of specific diseases, vinegar making, etc.

Course in Domestic Science and Art; sophomore year (1912-13); senior year; second semester; four credits; two lectures or recitations; two laboratory periods.

301. SANITARY BACTERIOLOGY. This course is primarily for Domestic Science and Art students in continuation of Bacteriology

300. This course deals with methods of sanitary bacterial examination in vogue for water, milk, butter, cheese, meat, air, etc. Certain simple clinical methods are also taught. Use and action of antiseptics and germicides and the methods of efficient fumigation are given proper attention.

Prerequisite: Course 300 or equivalent.

Elective for students in Domestic Science and Art or for others of equivalent preparation; junior or senior year; three credits; one lecture or recitation; two laboratory periods.

302. ZYMOLOGY. This course is intended as an elective for those of the course in Domestic Science and Art who desire a post graduate course dealing with technical yeast methods. The subjects include the microscopic structure of the yeast plant, the preparation and manipulation of special media designed for the growth of yeasts, pure culture methods used in zymology, methods of laboratory testing of commercial yeasts both for use in bread making and alcohol production, the bacteriology of salt-rising bread.

Prerequisites: Bacteriology 203, 204 or equivalents.

Elective; two credits; two laboratory periods.

401. DAIRY BACTERIOLOGY. This course is devoted exclusively to milk and dairy products. It considers the source of bacteria in dairy products, methods of control, usefulness of certain varieties, special media for milk, etc., examination, methods for milk examination.

Prerequisite: Course 101.

Senior year; first semester; three credits; two lectures or recitations; one laboratory period.

402. DAIRY BACTERIOLOGY. This course treats of the economic use of pure cultures of micro-organisms in buttermaking; methods of perpetuating pure cultures for starters; controlling flavor of cheese by use of pure cultures of selected organisms; enzyme activities; laboratory exercises in demonstrating pathogenic bacteria in milk, butter and cheese, leucocyte determinations.

Prerequisites: Courses 101, 401.

Elective; senior year; second semester; two credits; two laboratory periods.

403. DAIRY HALF YEAR COURSE. This is designed for those following the half year course in the Dairy Department and is intended to be an intensely practical treatment of dairy work from bacteriological considerations. The subjects of methods of milk contamination and methods of prevention, use and propagation of starters, milk inspection, the flavor and the curing of cheese of various kinds are among the more important subjects presented.

First semester; three credits; one lecture and demonstration; two laboratory periods.

501. AGRICULTURAL BACTERIOLOGY. A course consisting of lectures and laboratory work relating to micro-organic life in the soil in its various activities such as destruction of organic matter, humus formation, and the various nitrogen changes, but more especially with nitrogen fixation by legume bacteria. The technique of soil inoculation is also emphasized. Other phases of purely agricultural bacteriology are also considered.

Prerequisite: Course 101.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

502. AGRICULTURAL BACTERIOLOGY. A continuation of the above and dealing with consideration of special soil changes such as ammonification, denitrification, non-symbiotic nitrogen fixation, sulphur combinations, the effects of various methods of tilth on bacterial soil activities.

Prerequisites: Courses 101, 501.

Elective; senior year; second semester; four credits; one recitation; three laboratory periods.

600. WATER AND SEWAGE BACTERIOLOGY. A course especially adapted to the needs of civil engineers and devoted to the bacteriology of water supplies, sewage and sewage disposal according to the standards and methods of the American Public Health Association.

Elective; seniors in Civil Engineering or of equivalent preparation; two credits; two lectures.

701. POULTRY DISEASE BACTERIOLOGY. This course is intended to deal with the bacterial consideration of the more common diseases of poultry and in it will be considered, chicken tuberculosis, chicken typhoid, white diarrhœa, roup, and avian diphtheria, soil contamination, and other methods of disease transportation.

Prerequisites: Bact. 101, 102 or equivalent.

Junior or senior year; first semester; three credits; one lecture or recitation; two laboratory periods.

BOTANY AND PLANT PATHOLOGY

Professor Jackson
Assistant Professor Barss
Mr. Lawrence
Mr. Bailey
Mr. Walls
Mr. Owens

The courses offered in the department of Botany and Plant Pathology aim not only to give the student a broad knowledge of plants, their structure, activities and relationships, but to show wherein the science of Botany is related to the problems of everyday life and the home, and to the practice of Agriculture, Pharmacy, Forestry, and Domestic Science and Art.

In the arrangement of work in the courses offered, the point of view of the several groups of students is kept constantly in mind and the work adapted to their needs. In order to make this possible in courses taken by students pursuing different lines of work, separate sections are provided.

The work of the department is carried on by means of recitations, lectures, and laboratory work. Texts and reference books are used mainly as an aid in correlating the facts brought out in the study of the plants in the laboratory. Living plants are used wherever possible. Drawing is made an important feature of the laboratory work, because the student, in order to draw accurately, must have observed clearly.

Particular attention is given to students desiring to take their major work in this department. Exceptional opportunities are offered to students who wish to prepare themselves for teaching Nature Study and Botany in the public schools and to those who wish to specialize in Botany and Plant Pathology preparatory for teaching or investigation work in Agricultural Colleges and Experiment Stations.

The following courses are offered:

A. ESSENTIALS OF BOTANY. This course provides an introduction to Plant Life and deals with the nature of plants; their structure; how plants grow and are propagated; how plants absorb and manufacture food; their relation to each other and to their environment; kinds of plants, etc.

Throughout the course the relations of Botanical Science to every day life, to household science, home gardening, etc., will be emphasized.

The Secondary course in Domestic Science and Art; second year; first semester; three credits; one recitation; two laboratory periods.

20. PRINCIPLES OF BOTANY. This course aims to present in a broad laboratory course the fundamental principles of Botany. The higher plants are first traced in their development from the seed to flower, special effort being made to correlate the study of morphology, histology, and physiology of the various parts. The morphology, evolution, and classification of plants will then be traced from lower to higher forms. Finally, the relation of plants to their environment and their use in nature and to man will be studied. Thoroughout the course the economic relations of botanical study will be emphasized. The work will be adapted in the several sections to meet the needs of the several groups of students.

The courses in Agriculture, Forestry, Pharmacy, and Domestic Science and Art; freshman year; first semester; three credits; one recitation; two laboratory periods.

21. PRINCIPLES OF BOTANY. A continuation of Botany 20. The courses in Agriculture, Forestry, Pharmacy, Domestic Science and Art; freshman year; second semester; three credits; one recitation; two laboratory periods.

NOTE.—Botany 20 and 21 or their equivalent are required as prerequisites for all the following courses except Botany 60.

30. FOREST BOTANY. This course is provided for the purpose of giving Forestry students a special training in the branches of Botany concerning which the Forester needs special knowledge. Particular attention will be given to microscopic structure of wood and to the morphology of Gymnosperms and Angiosperms. Practice will also be given in the identification of trees and other plants of interest to the Forester.

The course in Forestry; sophomore year; first semester; three credits; one lecture; two laboratory periods.

31. FOREST BOTANY. A continuation of course 30.

The course in Forestry; sophomore year; second semester; three credits; one lecture; two laboratory periods.

41. AGRICULTURAL BOTANY. This course presents to Agricultural students the fundamental botanical principles underlying Agricultural Practice and serves as an introduction to advanced work in Plant Physiology, Plant Breeding, Systematic Pomology and Olericulture, Agrostology, etc. The laboratory work will consist largely of a morphological and taxonomic study of agricultural plants.

The course in Agriculture; sophomore year; second semester; three credits; three laboratory periods.

45. TAXONOMIC STUDY OF FARM WEEDS AND GRASSES. This course aims to familiarize the students with the structure and classification of farm weeds and grasses. A detailed study will be made of well-selected types. The student will make a collection and identify as many specimens as time will permit.

Elective; junior or senior year; second semester; two credits; two laboratory periods.

50. PLANT PHYSIOLOGY. An advanced course in Experimental Plant Physiology. The student is taught by lectures and actual experiments the physiology of crop production. The discussion and experiments cover such topics as absorption, photosy thesis, digestion, respiration, translocation, growth, reproduction, irrigation, etc.

Designed to meet the needs of students in Agriculture; elective; junior or senior year; required of seniors in Pomology; first semester; three credits; one recitation; two laboratory periods.

51. PLANT PHYSIOLOGY. A continuation of course 50.

Elective; junior or senior year; required of seniors in Pomology; second semester; three credits; one recitation; two laboratory periods.

60. COMMERCIAL BOTANY. An elementary course arranged to meet the needs of students in Commerce. The commercial plants of the world will receive special attention.

Required of sophomores in Commerce; first semester; three credits; one recitation; two laboratory periods.

70. PHARMACEUTICAL BOTANY. This course is designed for Pharmacy students. Particular attention will be given to a study of Plant Histology. A study of the cell, cell contents, and types of tissues will be made, leading to more advanced work in the microscopic identification of drugs and of drug adulterations.

The course in Pharmacy; sophomore year; first semester; three credits; one recitation; two laboratory periods.

71. PHARMACEUTICAL BOTANY. A continuation of course 70. A special study of structural Botany and classification of drug producing plants will be made.

The course in Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods.

80. SEMINAR. Required of all major or graduate students in Botany and Plant Pathology. The work will consist of reports on advanced studies and abstracts of articles appearing in Experiment Station literature, scientific journals, or the agricultural press.

First semester; one credit will be allowed students who attend meetings regularly and who make satisfactory reports. Hours to be arranged.

81. SEMINAR. A continuation of course 80.

Second semester; one credit.

82. RESEARCH AND THESIS. Opportunity will be given students who desire to specialize in Botany and Plant Pathology to take up work not given in the regular courses, or to take up the investigation of special problems.

Senior year; first semester; one to five credits. At least three credits will be required in the senior year of all major students in Botany or Plant Pathology.

83. RESEARCH AND THESIS. A continuation of course 82.

Senior year; second semester; one to five credits. At least three credits will be required in the senior year of all major students in Botany or Plant Pathology. Credits to be arranged.

100. PRINCPLES OF PLANT PATHOLOGY. The following are some of the topics to which attention is given in this course: the cause of disease in plants; the principles of plant disease control; fungicides and their use; dissemination and geographical distribution of plant diseases; their economic importance; disease resistance; methods of culture of parasitic fungi and bacteria, etc. In the laboratory, opportunity will be given for the study of plant disease producting organisms and their botanical relationship, methods of inoculaton, etc.

Required in the course in Pomology; senior year; elective in other courses in Agriculture, junior or senior year; first semester; three credits; one lecture; two laboratory periods.

NOTE.—Preparatory for, and required as a prerequisite to, Botany 102, 104, 110, 112, 115.

102. DISEASES OF TREE AND SMALL FRUITS. A detailed study will be made of the cause and control of all the important fungous, bacterial, and physiological diseases. Particular attention will be given to the diseases of those tree and small fruit crops of importance in the Northwest. The laboratory work will include a careful study of the gross appearance and the effect on the host of various diseases as well as a microscopic study of the organisms causing the trouble and their relation to the tissues of the host.

Required in the course in Pomology; senior year; second semester; three credits; two lectures; one laboratory period.

104. DISEASES OF VEGETABLE CROPS. This course is similar in general to Botany 102, but deals with diseases of vegetable and field crops.

Elective; junior or senior year; second semester; three credits; two lectures; one laboratory period.

106. FOREST PATHOLOGY. Designed to meet the need of a special course in Phytopathology for Forestry students. A study of the fungi and bacteria causing diseases of forest crops will be taken up together with the principles of control. Decay of structural timber and the methods of avoiding this will also be studied.

Required of juniors in Forestry; first semester; four credits; two lectures; two laboratory periods.

110. PHYTOPATHOLOGICAL TECHNIQUE. A course in methods of investigations in Plant Pathology, which includes methods of keeping records; care of collections; culture work; inoculation; infection; and photography.

Required of students specializing in Plant Pathology; junior year; second semester; three credits; one lecture; two laboratory periods.

112. PHYTOPATHOLOGICAL HISTOLOGY. In this course a study will be made of histological modifications of plant tissues resulting from disease.

Required of all students specializing in Plant Pathology; senior year; second semester; three credits; one lecture; two laboratory periods.

115. ADVANCED TAXONOMY OF PARASITIC FUNGI. More advanced work on the Taxonomy and Phylogeny of plant disease producing organisms will be taken up in this course than is given in Botany 100. Practice in the identification of unknown forms will be given. A collection properly prepared for an herbarium will be required.

Required of students specializing in Plant Pathology; senior year; first semester; three credits; three laboratory periods.

NOTE.—Any of the courses outlined above except A, 20, 21, and 60, may be taken as a minor elective by junior or senior students in any course upon consultation with the head of the department; provided the course to be elected is not regularly required in the course of study in which the student is registered.

Opportunity will be given students to elect work in Economic Botany or Plant Pathology not offered in the above mentioned courses by registering in Botany 82, either as a major or minor subject. Students who elect Botany as a major study must have completed the work required in the freshman and sophomore years of the Agricultural courses or their equivalent.

ZOOLOGY, ENTOMOLOGY AND PHYSIOLOGY

Professor Cordley
Assistant Professor Wilson
Assistant Professor Safro
Mr. Sykes
Miss Edwards
Mr. Ewing
Mr. Lovett
Mr. ———————

The insrtuction in this department is designed to give a general survey of the field of Zoology. It aims to develop an interest in the study of native birds, insects, and animals, their relations to the plant world, to each other and to man's welfare. By means of lectures, laboratory work, and field observations, the student becomes familiar with the structure and habits of a few representative forms, learns something of their relationships and of the relative economic importance of the various groups and of the biological laws which govern their development. The work is adapted so far as possible to the particular needs of students in Agriculture, Forestry, Pharmacy, and Domestic Science and Art. Exceptional opportunities are offered to those who desire to teach Zoology, Physiology, or Nature Study in the public schools. In connection with the course in Pharmacy, the required work forms a valuable pre-medical course.

The instruction in General and Economic Entomology is intended to provide the student with sufficient training to enable him to identify the common insect pests, understand their habits, and life-histories, and to apply the most approved methods for their control.

Advanced students in Entomology are provided with excellent opportunities for special instruction and research work.

The department occupies nine rooms on the third floor of Agricultural Hall and is well supplied with apparatus, reference books, bulletins, periodicals and collections.

The following courses are offered:

101. ZOOLOGY. A general study of vertebrate animals introductory to advanced courses in the department; also designed for those who, without intending to pursue the subject further, desire a general view of Zoological work and its problems. The work consists of laboratory study and lectures, supplemented by investigations in the field, beginning with the simplest animal forms; since it is believed that the student can thus best gain the desired conception of the orign and activities of the more complex animals. The aim is to give the student a general knowledge of the different animal forms, their distribution and habits, with special reference to their beneficial or injurious effects, to the end that he may get some insight into the more far-reaching significance of animal life.

The course in Forestry; sophomore year; the course in Pharmacy; freshman year; first semester; three credits; one lecture; two laboratory periods.

For requirements in the course in Agriculture see Zoology 108.

102. ZOOLOGY. A continuation of course 101, but dealing with such vertebrate types as amphixus, lampreys, fishes, frogs, snakes, birds and mammals. Furthermore, this course aims to give an introduction to laboratory methods of dissection and experiment, to afford a general view of the structure and function of animals, and to present an outline of the more important biological theories, such as selection, adaptation, and heredity. Together with course 101, it is designed to give the student a general idea of the animal kingdom as a whole, and of the relative economic importance of the various groups.

The course in Forestry; sophomore year; the course in Pharmacy; freshman year; second semester; three credits; one lecture; two laboratory periods.

For requirments in the course in Agriculture see Zoology 109.

103. ZOOLOGY. A brief course designed to give the students in Domestic Science and Art some conception of the structure and physiological activities of animals, as a basis for the work in Physiology. The work consists of a general survey of the forms and activities of living organisms with general reference to the human organism.

The course in Domestic Science and Art, sophomore year; first semester; three credits; two lectures; one laboratory period.

104. EMBRYOLOGY AND HISTOLOGY. A consideration of the origin and development of the individual body; the elementary structures of the adult organs and tissues. The work consists of the study of such typical vertebrates as the chick and the pig with reference to other domestic ainmals and man. It involves practice in micro-technique, such as killing, fixing, imbedding, sectioning, and reconstruction from serial sections; and it is adapted to the requirements of general students as well as those intending to study Veterinary Science or medicine.

Prerequisites: Zoology 101, 102, or equivalent.

Elective in the courses in Agriculture and Pharmacy, junior or senior year; first semester; three credits; one lecture; two laboratory periods.

105. EMBRYOLOGY AND HISTOLOGY. A continuation of course 104.

Elective in the courses in Agriculture and Pharmacy; second semester; three credits; one lecture; two laboratory periods.

106. GAME PROPAGATION. A laboratory and reading course supplemented by field work in the propagation of food animals of the sea, streams and forests. Special attention will be given to the problems and methods of "sea-farming"; i.e., hatching and rearing of fish, crabs, crayfish, and lobsters; the planting and care of oyster-beds, etc.; the breeding and protection of game birds and mammals, together with a comparative study of the laws of various states regarding game.

Elective for students of Agriculture and Forestry; first semester; two credits; one lecture; one laboratory period.

107. ORNITHOLOGY. A lecture and field study of the common birds of Oregon; the course aims to develop an interest in the native birds, their habits and haunts, with particular reference to their usefulness.

Elective; second semester; two credits; one lecture; one laboratory period. Hours to be arranged.

108. PRINCIPLES OF ECONOMIC ZOOLOGY. A course which, like 101, aims to give the student a general knowledge of the different animal forms, their distribution and habits, but dealing more

extensively with facts and conditions which render animal life an important factor in the economic problems of life. The lectures and laboratory work will be supplemented by a considerable amount of collateral reading.

Required of Agricultural sophomores; five credits; two lectures; three laboratory periods.

109. PRINCIPLES OF ECONOMIC ZOOLOGY. Like 102, this course aims to give an introduction to the methods that obtain in laboratory investigations, to afford a general view of the structure and functions of the animal body and to present an outline of the different biological theories; but it particularly aims to show how the general laws and principles of animal life may be applied to present economic conditions.

Required of Agricultural sophomores; four credits; one lecture; three laboratory periods.

110. ANIMAL PARASITES. An advanced course for the study of such parasitic forms as flukes, tapeworms, nematodes, fish "lice", cattle ticks, etc., that affect the health of man, domestic and food animals; the study will be primarily ecological; the object being to obtain a more exact knowledge of the conditions which produce parasitism, to the end that by intelligent control, diseases and economic losses may be rendered less liable, and preventive measures productive of more permanent results.

Elective to students in Agriculture, Forestry, Pharmacy, junior or senior year; first semester two credits; two laboratory periods.

111. PROTOZOOLOGY. An advanced course for the study of microscopic animals with a view of their relation, beneficially or injuriously, to man; particular attention being paid to such pathogenic forms as blood spores and enteric parasites with some reference to soil protozoans.

Elective for students in Agriculture and Pharmacy; junior or senior year; second semester; two credits; two laboratory periods.

112. RESEARCH AND THESIS. Opportunity will be given students who desire to specialize in Zoology and Physiology to take up work not given in the regular courses, or to take up the investigation of special economic problems.

Senior year; first semester; one to five credits.

113. RESEARCH AND THESIS. A continuation of 112.

Senior year; second semester; one to five credits.

201. PHYSIOLOGY AND ANATOMY. This course is intended not only for the general student but also for those students particularly interested in this branch of Zoology and for those who expect to study medicine. It includes a study of the structure, significance, and function of the human body with reference to the animal body in general. As a foundation for the study of function, the laboratory course includes some work upon the gross anatomy and the histology of the various tissues and organs of a typical mammal. It also includes experiments and demonstrations with foods, the study of blood, nerve-muscle, reactions, etc.

Prerequisites: Zoology 101, 102.

The course in Pharmacy; sophomore year; first semester; three credits; one lecture; two laboratory periods. Elective for other students.

202. PHYSIOLOGY AND ANATOMY. A continuation of course 201, especially valuable to those who expect to teach Physiology in the public schools. In connection with the work in Pharmacy it forms a valuable pre-medical course. Required course for Pharmacy sophomores; elective for other students.

Prerequisites: Zoology 101, 102, 201.

The course in Pharmacy; sophomore year; second semester; three credits; one lecture; two laboratory periods.

203. PHYSIOLOGY. A study of the chief functions of the human body, and of the laws of human health falling naturally within its province. The laboratory work will include experimental work in digestion, and the consideration of blood and muscles. In addition, such study of anatomy, and the histology of tissues, will be made as is essential as a foundation for the understanding of function.

Prerequisites: Zoology 103.

The course in Domestic Science; junior year; first semester; four credits; two lectures; two laboratory periods.

204. PHYSIOLOGY AND HYGIENE. A general course in Physiology designed primarily to give the Commerce students a practical knowledge of the functions and care of the human body in everyday

life. The laboratory work will include experimental work and demonstrations, also a study of the gross anatomy and histology of the various tissues and organs of mammals.

The course in Commerce; sophomore year; second semester; three credits; two lectures; one laboratory period.

205. ADVANCED PHYSIOLOGY. A course designed for students desiring additional knowledge of the subject. Particular attention will be given to the processes of digestion, absorption, nutrition and excretion.

Prerequisites: Zoology 202, and General Chemistry.

Elective in the course in Domestic Science; junior or senior year; first semester; three credits; one recitation; two laboratory periods.

301. INTRODUCTORY ENTOMOLOGY. An introduction to the study of insects by lectures, laboratory and field exercises. The laboratory work consists of a preliminary study of the anatomy of the grasshopper with comparative work upon other types. Sufficient field work in collecting, and laboratory work in properly mounting and classifying insects, is provided to make the student familiar with the principal orders of insects. In this and succeeding courses in Entomology, the rearing of economic and other forms is carried on parallel with other work to gain familiarity with the development and habits of insects. Each student is required to familiarize himself with the life-history, habits, and means of controlling some insect of economic importance.

Prerequisites: Zoology 101, 102, and a collection of insects consisting of at least 250 specimens.

Required in the courses in Horticulture, Forestry, Plant Pathology and Entomology. Elective in other courses; junior year; first semester; three credits; one lecture; two laboratory periods.

302. ENTOMOLOGY OF ORCHARD AND SMALL FRUITS. An intensive study of the more important insect enemies of the apple, pear, prune, cherry, plum, currant, gooseberry, bramble fruits and strawberry, and the critical examination of the methods to be employed in combating them. Each important pest will be studied in the field and laboratory, with a view to becoming thoroughly

familiar with the appearance of the insect and its work in all its stages of development.

Prerequisite: Zoology 301.

Required in the courses in Pomology, Plant Pathology and Entomology. Elective in other courses; junior year; second semester; three credits; one lecture; two laboratory periods.

303. ENTOMOLOGY OF TRUCK CROPS. A course similar to 302 with special emphasis put on the intensive study of the insect enemies of celery, onion, beet, cabbage, kale, clover, vetch, potato, hop, corn, wheat and oats.

Prerequisite: Zoology 301.

Required in the course in Vegetable Gardening; junior or senior year; second semester; three credits; one lecture; two laboratory periods. Will be given to a class of not less than five students.

304. FOREST ENTOMOLOGY. A study of the insects destructive to forest trees and forest products, the insect enemies of reforestation and the measures by which the injuries may be avoided or reduced.

Prerequisite: Zoology 301.

The course in Forestry; junior year; second semester; three credits; one lecture; two laboratory periods. Will be given only to a class of not less than five students.

305. ADVANCED ENTOMOLOGY. This course is designed for those who desire to specialize in Entomology. The instruction includes lectures and reference reading upon the biology of the principal families of insects, supplemented by laboratory studies of typical life-histories. Considerable time is devoted to studying the habits of insects, particularly injurious species in the field; to collecting, rearing, mounting, and classifying them; and to becoming familiar with Entomological methods and literature.

Required in the course in Entomology, elective in the courses in Agriculture; junior year; second semester; five credits; two lectures; three laboratory periods.

306. ADVANCED ENTOMOLOGY. A continuation of course 305. Required in the course in Entomology; elective in the courses in Agriculture; senior year; first semester; five credits; two lectures; three laboratory periods.

307. ADVANCED ENTOMOLOGY. A continuation of courses 305 and 306.

Required in the course in Entomology, elective in the courses in Agriculture; senior year; second semester; five credits; two lectures; three laboratory periods.

In connection with courses 305, 306 and 307, the student will be required to present a thesis detailing the results of a systematic study of some restricted group of insects or of the biology of some particular species or group of species.

309. BEEKEEPING. A course in the theory and practice of keeping bees for profit and in relation to fertilization of orchard trees.

The College has an apiary in which students will be able to become fully acquainted with modern apicultural methods.

Elective in the courses in Agriculture and Domestic Science and Art. Second semester; one credit; one laboratory period.

310. SEMINAR. Senior and graduate students in Entomology. Reading, discussing, and abstracting the leading articles on Entomology as they appear in the scientific journals, horticultural press, current magazines, and experiment station literature.

Senior year; first semester; one credit.

311. SEMINAR. A continuation of course 310.

Senior year; second semester; one credit.

*312. PROBLEMS IN FOREST ENTOMOLOGY. This course will include the study and application of methods of forest insect investigations. Each student will be assigned a practical problem in Forest Entomology to work out under direction.

Prerequisite: Zoology 315.

Credits to be arranged.

*313. PROBLEMS IN FOREST ENTOMOLOGY. A continuation of course 312.

Prerequisite: Zoology 304.

Credits to be arranged.

315. ENTOMOLOGY OF FIELD CROPS. Similar to 303, but devoted to a discussion of the insect enemies of field crops and their control.

*By special arrangement, credits may be allowed for satisfactory work done during the summer vacation.

Required in the course in Agronomy. Elective in other courses; junior year; second semester; two credits; two lectures or recitations.

Any of the above courses may be elected as a major upon consultation with the instructor. Students electing major work for a degree in this department will be required to take courses 101, 102, and to carry an equivalent of five credits throughout the junior and senior years. Graduate courses leading to a master's degree may be arranged for upon consultation with the head of the department and the Committee on Advanced Degrees.

FORESTRY

Professor Peavy
Mr. Newins

The purpose of the College in giving instruction in Forestry is to train young men to practice that profession, adapting the work as far as practicable to fit the peculiar forestry conditions existing in Oregon and in the Northwest generally. It is realized fully that European forestry methods are not applicable at the present stage of economic development in this region, and that they will not be for many years to come. Scientific forestry practices in vogue abroad are studied only as they apply to the fundamental principles of forestry and for the purpose of adding to the general professional knowledge of the student.

The College is located in the heart of a timbered region, offering exceptional opportunities for the study of forestry conditions in the woods, in the camps, and in the mills. Mature and second growth stands are easily accessible. Logging operations can readily be reached from Corvallis, while mills in the city afford an opportunity for studying milling methods. Practical work in timber cruising, map making, and planning logging operations may be done by the student with little extra expense. Wood distillation plants, creosote works and factories for the production of finished wood products can easily be reached in a few hours' travel. The watershed which

supplies the city of Corvallis is at the disposal of the Forestry Department for the demonstration of scientific forestry methods.

The following courses are offered:

A. ELEMENTARY FORESTRY. Covering in an elementary way the fundamental principles of forestry; the forest as a resource; the influence of a forest cover on soil and climate and stream flow; the aesthetic value of the forest; an elementary discussion of the development of forestry in Europe; the forestry movement in the United States.

The Secondary course; first year; first semester; four credits; three recitations; one laboratory period.

B. ELEMENTARY FORESTRY. A continuation of course A.

The Secondary course; second year; second semester; four credits; four recitations.

C. ELEMENTARY SILVICULTURE. The conditions favoring forest growth; the reproduction of the forests naturally and artificially; the collection of forest tree seeds; seed sowing; seed storage; general nursery practice; field planting. The natural extension of the forest.

The Secondary course; second year; first semester; two credits; one recitation; one laboratory period.

D. ELEMENTARY SILVICULTURE. A continuation of course C.

The Secondary course; second year; second semester; two credits; two recitations.

101. GENERAL FORESTRY. A study of economic causes leading to the development of scientific forestry in Europe. Conditions in the United States pointing to the necessity for the application of improved methods; the natural forest; the forest improved by man; the forest regions of the United States; the national, state and private forests; the economic importance of forestry with special reference to American conditions. Special discussion of forest conditions in Oregon; farm forestry.

Freshman year; first semester; three credits; three recitations.

102. GENERAL FORESTRY. A continuation of course 1.

Freshman year; second semester; three credits; three recitations.

201. SILVICULTURE. The life-history of trees, their influences, modification and growth, and development; the soil, climate and

other factors of site; the development, modification and improvement of types; theoretical silvicultural systems of management, the application of the clear cutting, selection, shelter wood, coppice group and strip systems to American conditions; methods of thinning, for the improvement of growth. Protection of forests as related to Silviculture, laying emphasis upon methods of fire protection in the Northwest. Silvical studies.

Sophomore year; first semester; two credits; two recitations; one laboratory period.

202. SILVICULTURE. Artificial and natural regeneration; tree seeds, their structure, form, distribution; seed collection; seed testing; storage; generation periods; nursery practice; forest planting, planting plans, costs of planting.

Sophomore year; second semester; three credits; two recitations; one laboratory period.

203. ADVANCED SILVICULTURE. In this course the forest regions of the United State are subdivided into silvicultural divisions. In each subdivided unit a study is made of forest physiography, prevailing forest types, silvicultural management, problems of protection, market relations and a review of the silvical habits of trees important from standpoint of management. The study of the divisions in the West embraces all the national forests of the six federal districts and their location.

Junior year; first semester; two credits; two laboratory periods.

204. ADVANCED SILVICULTURE. Silvical literature. Each student will be required to make a detailed silvical study of some definite forest tract, and present a thesis covering the work. Investigation of special silvical problems. The working out of problems of management under special conditions.

Junior year; second semester; two credits; one recitation; one laboratory period.

301. FOREST MENSURATION. The determination of the contents of logs in cubic feet and in board measure; the study of log rules; methods of scaling timber; methods of computing the contents of entire felled trees; height measurements; volume tables; form factors; estimating the contents of entire stands; the growth rate of individual trees and of the forest; yield tables. Each

student will be required to estimate, map and describe a given stand of timber.

Junior year; first semester; three credits; two recitations; one laboratory period.

302. FOREST MENSURATION. A continuation of course 301.

Junior year; second semester; three credits; two recitations; one laboratory period.

303. FOREST SURVEYING AND MAPPING. Rough topographic and plane surveying of timbered areas; use of plane table and army sketching board; mapping field data; drill in lettering and in use of conventional signs.

Junior year; second semester; three credits; one recitation; two laboratory periods.

401. MANAGEMENT. The business of administering the forest; the policy of Federal, State, and private owners; a review of forest mensuration, including methods of determining the volume of single trees and of stands; the costs of forest products; the present value of the future crop; the value of young growth; the preparation of a working plan for a given area of timbered land, including a valuation survey, map, and forest description; the protection of the forest from fire, insect attacks and other injuries; the organization of the forest force for effective work.

Senior year; first semester; five credits; three recitations; two laboratory periods.

402. MANAGEMENT. A continuation of course 401.

Senior year; second semester; five credits; three recitations; two laboratory periods.

403. UTILIZATION. The use of the secondary wood products; the chemical products of wood; wood distillation; the utilization of waste; the tanbark industry; the manufacture of cooperage stock, shingle, lath, matches, veneer, shipping crates, charcoal, etc.

Senior year; first semester; two credits; one recitation; one laboratory period.

404. LUMBERING. The history of the lumber industry, including a study of the methods used in different regions; special attention to lumbering operations in the Northwest; the transportation of logs from the woods to the mill; the use of steam machinery

in skidding and hauling; driving; the methods of milling; seasoning and grading; the cost of logging and milling with reference to some definite operation. During the course each student will be required to prepare a thesis from data collected by personal study of some extensive logging and milling business.

Senior year; second semester; five credits; two recitations; three laboratory periods.

405. NATIONAL FOREST ADMINISTRATION. A study of the methods of adminstering the Federal forests; the organization of the administrative force on the forest; fire patrol; timber sales; grazing; the forest homestead law; special uses of forest resources; permanent improvement.

Senior year; second semester; three credits; three recitations.

406. FIELD WORK. Between the junior and senior years each student will be required to devote eight weeks to actual work in the field. This period will be given to the practical work required of foresters, as estimating, mapping, and preparing forest descriptions; rough topographic and plane surveying; examination of logging problems; study of site conditions in relation to forest types; camping and packing.

An equivalent amount of field work may be offered as a substitute for this course. Four credits.

501. DENDROLOGY. Classification and identification of forest trees; silvical characteristics of commercial species; forest regions of the United States; relative importance of timber species; life history and requirements of trees.

Senior year; first semester; five credits; three recitations; two laboratory periods.

502. WOOD TECHNOLOGY. Microscopic structure of wood; defects due to knots, decay, and checks; structural changes due to seasoning; identification and classification of commercial woods; experimental study of the strength of timbers; the relation between moisture content and strength; chemical properties of wood.

Senior year; second semester; three credits; one recitation; two laboratory periods.

503. WOOD PRESERVATION. Primary causes of decay; the relation of moisture content to durability; surface application of preservatives; the preservation of wood through impregnation with preserv-

atives; the open tank method of treating timbers; economic effects.

Senior year; first semester; two credits; one recitation; one laboratory period.

504. DENDROLOGY. A study of the characteristics of the commercial timber trees of the Pacific Northwest. Designed to enable the student to identify tree species in the woods.

Sophomore year; first semester; two credits; one recitation and one laboratory period.

505. FOREST PROTECTION. This course makes a study of the methods of dealing with forest fires under the peculiar conditions existing in the Northwest. State and Federal fire laws. Roads, trails, telephone lines, fire lines. Organization of a patrol system. Costs. Insect control.

Sophomore year; second semester; two credits; two recitations.

601. LOGGING RAILROADS. A study of the special problems connected with the construction of logging railroads. Grades, curves, cuts, fills, switch-backs. Lectures and discussion, followed by field study on some extensive logging operation.

Junior year; first semester; three credits.

602. HYDRAULICS. A course dealing with the uses of water in transporting logs. Units of measurement. Splash dams, flumes.

Junior year; first semester; two credits.

603. BRIDGE CONSTRUCTION. This course deals with the construction of the peculiar types of bridges used in logging operations. Factor of safety. Costs. Preliminary laboratory exercises, followed by studies on logging operations.

Senior year; second semester; three credits.

604. LOGGING ENGINES. A study of the construction and operation of engines used in logging operations. Laboratory and field work.

Senior year; first semester; four credits; two recitations and two laboratory periods.

605. LOGGING MANAGEMENT. This course deals with the business problems connected with logging. Organization of the working crews. Cost of operations. Cost keeping systems. Improved methods. Experts in logging will deal with special phases of the subject.

Senior year; second semester; three credits; three recitations.

606. LOGGING DEVICES AND EQUIPMENT. This course will include the following: Bridge, flume and chute construction. Methods of slinging rigging. Types of cars. Skidding and loading devices. Electrical machines used in logging. Detailed investigation of costs and makes of equipment. Special reports accompanied by photographs, maps and drawings, will be required. At least three weeks of each semester must be devoted to study of some up-to-date logging operation.

Senior year; first semester; five credits; two recitations; three laboratory periods.

607. LOGGING DEVICES AND EQUIPMENT. A continuation of course 606.

Senior year; second semester; five credits; two recitations; three laboratory periods.

608. SPECIAL SUBJECTS. This course will include camp sanitation, use of explosives, discussion of current logging literature, laws relating to lumbering operations. During the semester lectures will be given by practical loggers.

Senior year; second semester; three credits; three recitations.

SCHOOL OF DOMESTIC SCIENCE AND ART

DOMESTIC SCIENCE

Professor Calvin
Assistant Professor Milam
Mrs. Dolman
Miss Smith
Miss Lewis
Miss McCall
Miss ————————

The following courses are offered:

A. SIMPLE FOOD PREPARATION. This course is planned to approximate the first year's work in Domestic Science offered in secondary schools. The aim of the course is to give the students as thorough a knowledge of the composition, nutritive value, and preparation of food materials as is possible without a study of the fundamental sciences. Laboratory work will consist of practice in the best methods of cooking vegetables, meats, and other food which will familiarize students with the principles of cookery.

First year; first semester; three credits; one recitation; two laboratory periods.

B. SIMPLE FOOD PREPARATION. A continuation of course A.

First year; second semester; three credits; one recitation; two laboratory periods.

C. FOOD PREPARATION. In addition to further practice in cookery, with the preparation of foods requiring more skill than in course A, such as bread, cakes and pastry, the matter of good food combinations in menus is emphasized, together with a study of table arrangement and serving. Students are enabled by practice to understand the principles of food economy, including the buying of meat at the market, home canning of fruits and vegetables, and care of food supplies in the home.

Second year; first semester; three credits; one recitation; two laboratory periods.

D. FOOD PREPARATION. A continuation of course C. A number of special subjects are considered during this semester, such as a brief study of invalid diet, and the planning and serving of refreshments for certain occasions, as picnics and afternoon teas.

Second year; second semester; three credits; one recitation; two laboratory periods.

E. LAUNDERING. This course deals with the principles of laundering through practical application, together with a study of cleansing materials; choice of starch, bluing and soap, and the treatment of hard water. The cleansing process for all types of materials, methods of removing stains, folding and care of clothing are considered.

Second year; second semester; one credit; one laboratory period.

101. FOOD PREPARATION. This course introduces the subject of foods in their scientific and economic aspect. The laboratory work consists of preparation of food, with a study of the changes brought about by the applications of heat, experiments being made to illustrate the principles involved. The classes prepare all of the common foods in many ways, serve simple meals and study suitable food combinations.

Sophomore year; first semester; three credits; one recitation; two laboratory periods.

102. FOOD PREPARATION. A continuation of course 101.

Sophomore year; second semester; three credits; one recitation; two laboratory periods.

103. FOOD PREPARATION. A survey course of 101 and 102 for graduates of secondary schools with training in Domestic Science.

Sophomore year; first semester; three credits; one recitation; two laboratory periods.

104. FOOD PREPARATION. This course elaborates the principles taught in Food Preparation 101 and 102, and introduces more advanced work. An application of the knowledge of Science is made by canning, preserving fruits, and making jellies. Bread, cake, other flour mixtures, and the preparation of vegetables and meats are also studied until the student has mastered the subject.

The lectures are devoted to questions of nutrition and the economic purchase and use of food.

Junior year; first semester; three credits; one recitation; two laboratory periods.

105. FOOD PREPARATION. A continuation of course 104. The preparation and service of meals is the chief laboratory work of the second semester.

Junior year; second semester; three credits; one recitation; two laboratory periods.

180. FOOD PREPARATION. For women desiring knowledge of home cookery. A study of typical foods and their preparation in attractive forms, with the planning and serving of meals.

One evening lesson per week. A term of twelve lessons.

Either semester; hours to be arranged.

190. CAMP COOKERY. This course is planned to teach various ways of combining into palatable and nutritious products such food materials as are available for use in camps. The making of different kinds of breads, as well as mulligans, griddle-cakes, and other camp dishes, is emphasized, practice being given during the latter part of the course in preparing food out of doors by means of Dutch ovens, reflectors, and improvised cooking utensils.

Elective; junior or senior year; first and second semester; one credit; one laboratory period.

201. DIETETICS. This course includes a scientific study of food materials in their relation to the daily dietary of families under various conditions of health and environment, a study of the dietary standards and the metabolism of carbohydrates, fats and proteins. A comparison of the nutritive values of the common foods is made by computing, preparing, and serving dietaries of specific costs, furnishing specific nutrients.

Senior year; first semester; five credits; two recitations; three laboratory periods.

202. DIETETICS. A continuation of course 201. During the second semester special stress is placed on invalid diets, and diseases as affected by food.

Senior year; second semester; five credits; two recitations; three laboratory periods.

301. HOUSE SANITATION. This course deals with the house as a factor in health. It includes a study of the following topics: Situation, surroundings, ventilation, heating, drainage, plumbing, lighting, and furnishing. Investigation will be made of general sanitary conditions from a practical and scientific standpoint with special reference to the needs of the community, the household, and the school.

Junior year; first semester for D. A. students, and second semester for D. S. students. Two credits; two recitations.

401. LAUNDERING. This course presupposes a knowledge of general inorganic chemistry, and is a careful study of the underlying principles of the process of laundering, including the chemistry of cleaning. Experimental work showing the composition of various kinds of soaps, bluings, and starches and their effects on fabrics, enables students to select the best and most economical cleansing agents. Practical application is made in a series of lessons devoted to the removal of stains, to washing, ironing, and folding clothing, and to the care and equipment of the home laundry.

Freshman year; second semester; one credit; one laboratory period.

501. HOUSEHOLD ADMINISTRATION. This course will consider the order and administration of the house, with a view to the proper division of the income and the maintenance of suitable standards. It will include a study of the domestic service problem.

Senior year; second semester; two credits; two recitations.

511. HOME NURSING. This course consists of the study of the scientific care of the patient under home conditions, including the furnishings, temperature, and ventilation of the room, bathing, dressing, and administering food and medicine to the patient; and also a study of the other duties of the home nurse in aiding the physician intelligently to add to the comfort of the sick. This means the ability to recognize and correctly report symptoms, to relieve pain, to disinfect, and to treat wounds, burns, and sprains, as well as to meet successfully emergencies that may arise in the home.

Freshman year; second semester; two credits; two recitations.

540. EVOLUTION OF THE HOUSE. (*a*) The development of the modern house from primitive conditions.

(*b*) The evolution of the house from the artistic point of view. Elective; junior year; first semester; two credits; two recitations.

550. MODERN PROBLEMS IN HOUSEHOLD ADMINISTRATION. The topics assigned for research will be chemical, physiological, bacteriological, economical, or sociological according to the preferences and training of the individual students.

Graduate year; first semester; credits to be arranged.

551. MODERN PROBLEMS IN HOUSEHOLD ADMINISTRATION. A continuation of the research work commenced in course 550.

Graduate year; second semester; credits to be arranged.

701. SPECIAL RESEARCH IN COOKERY. In assigning research problems for graduate students both the previous training and the students' preferences are considered. Assignment of problems to be worked upon during the year is made by the professor in charge.

Graduate year; first semester; credits to be arranged.

702. SPECIAL RESEARCH IN COOKERY. Continuation of research work commenced in course 701.

Graduate year; second semester; credits to be arranged.

DOMESTIC ART

Professor Brooks
Miss Hitchcock
Miss Robinson
Miss Raber
Miss Moore
Miss ————

The following courses are offered:

A. SEWING. This course consists of hand sewing to give the student a knowledge of the principles of construction and execution; training in neatness, accuracy, and economy of materials. Discussion as to suitability of materials to use with regard to household linens and furnishings.

The textile work is a study of the development of the textile industries, spinning and weaving.

First year; first semester; three credits; one recitation and two laboratory periods.

B. SEWING. A continuation of Course A. The problems considered are the making of underwear; mending and darning of clothing, and care of clothing. The study of cotton as basis for the appreciation of materials being used.

First year; second semester; three credits; one recitation and two laboratory periods.

C. SEWING. This course will give the student practice in machine work applied to the making of cookery costume and kimono; hand work applied in embroidering dresser cover and crocheting bed slippers. Textile work will be the study of wool and silk.

Second year; first semester; three credits; one recitation; two laboratory periods.

D. SEWING. Continuation of Course C, with practice in care of clothing, removal of spots, making of night gowns and wash dresses. Textile work will be the study of linen.

Second year; second semester; three credits; one recitation; two laboratory periods.

101. SEWING. The course consists of the fundamental principles of hand and machine sewing applied to household linens and undergarments. Darning, patching, and care of clothing will be considered.

The study of the development of the textile industries will give a deep appreciation for fabrics, and the responsibility for thoughtful purchasing.

Freshman year; first semester; three credits; one recitation; two laboratory periods.

102. GARMENT MAKING. Continuation of Course 101 in which drafting and making of undergarments will be presented. Simple embroidery stitches will be taught where such is applicable. The study of cotton will give an added value to the garments being made.

Prerequisite: Domestic Art 101.

Freshman year; second semester; three credits; one recitation; two laboratory periods.

103. GARMENT MAKING. This course is designed for graduates of approved high schools with Domestic Art training.

Freshman year; second semester; three credits; one recitation; two laboratory periods.

201. DRESSMAKING. The fundamental principles of dressmaking, the drafting, making, and adjusting patterns to measurements, the making of shirt waists, tailored skirts, and a simple cotton dress will be considered.

The textile work will be a study of linen.

Prerequisites: Domestic Art 101, 102.

Junior year; first semester; three credits; three laboratory periods.

202. DRESSMAKING. Continuation of Course 201.

The textile work will be a study of silk and wool.

Prerequisites: Domestic Art 201.

Junior year; second semester; three credits; three laboratory periods.

203. TAILORING. This course has for its problem the making of a cloth jacket suit. Careful drafting of the patterns and excellence of construction and finish will be required.

Prerevuisites: Domestic Art 202.

Senior year; first semester; three credits; one recitation; two laboratory periods.

204. ADVANCED DRESSMAKING. Drafting and making of elaborate gowns. Emphasis will be put on color combinations, technique, suitability of design for material used and for purpose intended.

Prerevuisites: Domestic Art 202.

Senior year; second semester; three credits; one recitation; two laboratory periods.

301. MILLINERY. This course includes designing and constructing buckram and wire frames. Making and placing of trimmings, renovation of materials, straw sewing, bow making, and the construction of a hat from foundation to completion.

Senior year; second semester; two credits; two laboratory periods.

401. BASKETRY. A form of decorative art which involves careful consideration of form, color and design; these principles will be considered in the making of rugs, reed baskets, stools, etc.

Elective; junior year; first semester; two credits; two laboratory periods.

402. BASKETRY. Continuation of Course 401 in which the raffia stitches will be considered. The work required will be the completion of baskets in which the emphasis will be put on technique, form, and color combinations.

Elective; junior year; second semester; two credits; two laboratory periods.

404. HANDWORK AND WEAVING. This course involves the construction of articles in simple weaving, and making and applying stencil patterns; using principal embroidery stitches on runners, pillows, gowns, etc.

Elective; senior year; first semester; two credits; two laboratory periods.

405. HANDWORK AND WEAVING. Continuation of Course 404, with practice in Florentine, French ribbon work, fine embroidery, and weaving on large loom.

Elective; senior year; second semester; two credits; two laboratory periods.

501. HOUSE CONSTRUCTION. A study of the location and surroundings of the house, house plans, details and comparative values of various building materials, types of house architecture, architect's specifications, heating, lighting, and ventilation, private and public disposal of waste supplies, and practical work in the making of house plans.

Elective; junior year; first semester; two credits; two laboratory periods.

502. HOUSEHOLD DECORATION. This is a practical course in decoration and furnishing of the entire home. The problems of artistic and economic furnishings will be considered.

Elective; junior year; second semester; two credits; two laboratory periods.

601. TEXTILES. This course takes up the study of fabrics, the study of the evolution of spinning and weaving; the manufacture of fabrics, and the manufacturing conditions that affect the value of materials; tests for adulterations; estimates for the clothing of

children and adults according to various conditions; visits to stores to consider values.

Senior year; first semester; two credits; one recitation; one laboratory period.

701. COSTUME DESIGN. This course in designing and sketching of costume aims to give emphasis to the artistic side of dressmaking and millinery and provides design for reproduction in materials in Domestic Art, 204 and 301. A study in the principles of design, theory of color, and art in relation to modern dress, is included.

Elective; senior year; first semester; two credits; one recitation; one laboratory period.

SCHOOL OF ENGINEERING AND MECHANIC ARTS

CIVIL ENGINEERING

Professor Skelton
Assistant Professor ————
Mr. Dolan
Mr. Edgecomb

The following courses are offered:

101. MECHANICAL DRAWING. The use of instruments and the elementary principles of mechanical drawing are taught by a graded series of plates, including simple practice sheets, geometric constructions, principles of orthographic projection, shading, and finally the complete development of a working blue-print of some simple device from sketches. Particular attention is given to free-hand lettering, general neatness, and accuracy.

Civil Engineering; freshman year; first semester; three credits; three laboratory periods.

103. ENGINEERING DRAWING. A continuation and extension of the previous work in drawing with special reference to application in Civil Engineering. Practice in tracing and in blue and black process printing will be given.

Prerequisites: C. E. 101; Art 1.

Sophomore year; first semester; two credits; two laboratory periods.

104. ENGINEERING DRAWING. This course is a continuation of course 103.

Prerequisite: C. E. 103.

Sophomore year; second semester; two credits; two laboratory periods.

201. PLANE SURVEYING. This course includes recitations, lectures, field and office work in the theory and practice of plane

surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Forms of field notes, methods of balancing and plotting surveys, computing areas and like work, will have due consideration. Proper emphasis will be placed upon chain surveying. Surveys will be made of assigned plats, and descriptions prepared. Resurveys will be made where more than ordinary difficulty is encountered in the interpretation of descriptions and existing evidence.

Prerequisites: Math. 11 and C. E. 101.

The courses in Civil Engineering, Mining Engineering, and Forestry; freshman year; second semester; five credits; two recitations; three laboratory periods.

203. PLANE SURVEYING. This course is a condensation of course 201, and is designed for students in the courses in Agriculture and Mechanical or Electrical Engineering. The greater part of the time is spent by the student in the field with the various instruments. Exercises relating to farm surveying, drainage, irrigation, and road construction, occupy most of the time. Areas are computed, profiles are constructed, and estimates formed.

Prerequisite: Math. 11.

Elective; second semester; three credits; three laboratory periods, in the field or office with assigned lectures.

204. TOPOGRAPHIC SURVEYING. This course will include the execution of a complete topographic survey of an assigned tract, including base line measurement, transit, stadia, and plane table work, platting and finishing the map.

Prerequisites: C. E. 201; C. E. 101; Art 1.

The course in Civil Engineering; sophomore year; first semester; five credits; five laboratory periods.

205. TOPOGRAPHIC SURVEYING. A condensation of course 204 and in addition requires a rough topographic survey of a forested section.

Prerequisite: C. E. 201.

Sophomore year; first semester; Forestry course; five credits; five laboratory periods.

206. CITY ENGINEERING. A study of the necessary precision; a survey of a portion of the city, also of a new addition, including the preparation of plats, establishment of grades, etc.; survey and office work of the preparation of the plans for a street improvement; preparation of estimates, etc.

Prerequisites: C. E. 201, 204.

Senior year; first semester; four credits; one recitation; three laboratory periods.

207. PRECISE SURVEYING AND GEODESY. A study of the precise methods of surveying and leveling, base line measurement, precise triangulation, determination of true meridian and latitude.

Prerequisites: C. E. 201, 204, 206.

Senior year; second semester; three credits; one recitation; two laboratory periods.

211. RAILROAD SURVEYING. This course will include a study of the simple, compound and vertical curves and of earthwork. Students will solve many problems both in the class room and in the field, and will make a complete survey of a railway line a mile or more in length, including a reconnoissance, preliminary survey, location survey, and estimates of earthwork. A limited time will be devoted to the railroad spiral.

Prerequisite: C. E. 201, 204.

Sophomore year; second semester; five credits; two recitations; three laboratory periods.

212. RAILWAY ENGINEERING. Study of the methods of railway construction and maintenance, standard structures, trestles, tunnels, culverts, minor bridges, ballast, rails and rail supports and fastenings, yards and terminals. This course will be preceded by a brief review of the simple and compound curve and the railroad spiral.

Senior year; first semester; three credits; two recitations; one laboratory period.

213. RAILWAY ENGINEERING. Continuation of course 212.

Senior year; second semester; three credits; two recitations; one laboratory period.

301. SANITARY ENGINEERING. Drainage systems of populous districts, including chemical and bacterial purification of sewage;

collection and disposal of garbage; street cleaning; separate and combined water carriage systems; surveys, plans, and specifications; law of flow and determination of size and capacity; brick, terra cotta, cement, and concrete sewers.

Prerequisite: M. E. 202.

Senior year; first semester; three credits; two recitations; one laboratory period.

231. LEVELING. This course is designed principally for Agricultural students and consists of problems in chaining, elementary transit work and in leveling. Most emphasis will be put upon the leveling and its application to drainage and general irrigation work. Problems will be given in profile and contour work as applied to farm drainage, road construction, and irrigation.

Prerequisite: Math. 11.

Sophomore year; second semester; Agricultural course. Three laboratory periods with assigned lectures.

236. TOPOGRAPHIC SURVEYING. This course is designed especially for those taking the Irrigation Farming course and is an enlargement on C. E. 231. A complete topographic survey and map of an assigned area will be made. Special emphasis will be put on the study of the relation of surface topography to methods of water distribution, drainage, etc., as illustrated by the assigned survey and map. Methods of locating ditches and of making estimates on grading for the same will be studied from the contour map.

Prerequisite: C. E. 231.

Junior year; first semester; three credits; three laboratory periods with assigned lectures where required.

302. WATER SUPPLY ENGINEERING. Water supply for populous districts; gravity and pumping systems; pumping machinery, stand-pipes, reservoirs, and purification works; the preparation of plans, specifications, and contracts.

Prerequisite: M. E. 202.

Senior year; first semester; four credits; three recitations; one laboratory period, designing and computing room.

303. IRRIGATION ENGINEERING. Precipitation, run-off, and stream-flow; measurements of flow in open channels; distribution

systems, headworks and storage reservoirs, and other like topics. Study of a typical project including the preparation of plans and specifications.

Senior year; second semester; four credits; three recitations; one laboratory period.

351. HYDRAULICS. This course is a practical application of the principles of hydraulics to irrigation farming. It includes the study of the measurement of water by means of weirs, orifices, and current meters; the study of losses of head in pipe lines and effect on flow.

Senior year; first semester; three credits; division between laboratory and recitation to be adjusted.

401. ROADS AND PAVEMENTS. A study of the fundamental principles of location, construction and maintenance of roads, as well as a thorough study of the materials used in road and street building. Asphalt, brick, wood block, stone, concrete and other forms of street pavements are carefully studied. This course is given in connection with a laboratory course, Exp. Eng. 131.

Junior year; first semester; three credits; three recitations.

402. HIGHWAY ENGINEERING. Economic grades and proper location for different soils and surfacing materials. Surface and sub-surface drainage. Culvert design and construction. Construction and maintenance of earth, sand clay, oiled earth, gravel, and macadam roads. Dust preventives and road binders. Preliminary surveys and estimates. Specifications.

Senior year; first semester; three credits; three recitations.

403. HIGHWAY IMPROVEMENT. A condensed course in Highway Construction and Maintenance for Agricultural students. Special attention will be given to the care of earth roads.

Elective; second semester; three credits; three recitations.

404. ECONOMICS OF HIGHWAY CONSTRUCTION. Economic and social advantages of improved roads. The traffic census. Local and centralized systems of control. Highway laws of different states. Organization of construction and engineering forces. Cost data. Methods of handling work. Forms of contract—lump sum, unit price, percentage and cost plus fixed sum.

Senior year; second semester; three credits; three recitations.

501. MASONRY AND FOUNDATIONS. A study of the properties of stone, brick, lime, cement, and concrete as building materials and of their uses in foundations, retaining walls, piers, and dams; the theory of the masonry arch, retaining wall and dam. Recitations, lectures and work in drafting and computing room.

Junior year; second semester; four credits; four recitations.

503. ROOFS AND BRIDGES. Both analytical and graphical methods will be applied to the determination of the stresses in roof trusses under static and wind loads and in simple bridge trusses under static and moving, concentrated, and distributed loads.

Prerequisites: M. E. 200 and 201.

Senior year; first semester; four credits; two recitations; two laboratory periods.

504. ROOFS AND BRIDGES. This course is a continuation of course 503. Draw-bridges, cantilever and suspension bridges.

Senior year; second semester; three credits; one recitation; two laboratory periods.

505. STRUCTURAL ENGINEERING. Continuation of courses 503 and 504. This course will include the original design, with the strain sheets, plans, and working drawings for a roof truss, plate girder, pin-connected bridge and steel arch.

Senior year; first semester; two credits; two laboratory periods.

506. STRUCTURAL ENGINEERING. Continuation of course 505.

Senior year; second semester; three credits; three laboratory periods.

508. DESIGN OF IRRIGATION STRUCTURES. Design of dams, headworks, flumes, pipe lines, reservoirs and other structures connected with irrigation projects. Investigation of stability of important dams now in use in government and private irrigation projects. A complete problem will be worked out in which the structures incident to the construction of an assigned project will be designed and drawings made of the same.

Senior year; second semester; five credits; five laboratory periods.

509. REINFORCED CONCRETE. A study of the principles of concrete design as applied to beams, columns, arches and retaining walls.

Prerequisites: M. E. 201, C. E. 501.

Senior year; first semester; three credits; one recitation; two laboratory periods. This course must be accompanied by Exp. Eng. 124.

601. ENGINEERING SEMINAR. The members of the senior class in the course in Civil Engineering, and the professors and instructors, constitute the Civil Engineering Seminar which meets once a week. The purpose of this seminar is to bring the student in touch with engineering literature and practice. To this end, a number of journal reviews and papers on engineering subjects will be presented and freely criticised each week. The work will follow a previously arranged program.

Senior year; first semester; one credit.

602. ENGINEERING SEMINAR. See course 601.

Senior year; second semester; one credit.

603. CONTRACTS AND SPECIFICATIONS. A study of the general principles and laws of contracts as applied to engineering, including the preparation and study of specifications and contracts based upon engineering structures designed by the individual student.

Senior year; second semester; two credits; two recitations.

ELECTRICAL ENGINEERING

Professor Hillebrand
Assistant Professor Shepard
Mr. Wooster

The following courses are offered.

101. PRINCIPLES OF APPLIED ELECTRICITY. Study of the sine wave and periodic alternating quantity; harmonic analysis; laws governing the flow of current and energy; the magnetic and electrostatic circuit, production of rotating field by means of polyphase alternating currents in a distributed winding; losses in electric circuits; elementary theory of transmission lines.

Open only to juniors in Electrical Engineering. Course 101 must be taken concurrently with 201, and 102 concurrently with 202.

Junior year; first semester; four credits; four recitations.

102. PRINCIPLES OF APPLIED ELECTRICITY. Continuation of course 101.

Junior year; second semester; three credits; three recitations.

103. ALTERNATING CURRENT MACHINERY. Theory of commutation; the alternator; synchronous motor and converter; transformer; induction motor; series and repulsion motors; polarity in alternating current circuits.

Course 103 may only be taken concurrently with laboratory course 203.

Prerequisites: Courses 101, 102, 201, 202.

Senior year; first semester; three credits; three recitations.

105. PROBLEMS IN DESIGN. Stress is laid upon methods of calculating dimensions or predetermining characteristics. Study of the choke coil, electro magnet, static transformer, one rotating machine. Problems on the synchronous and induction motor, transmission and distribution of energy. Parallels course 103.

Prerequisites: Courses 101, 102, 201, 202.

Senior year; first semester; two credits; two laboratory preiods.

106. PROBLEMS IN DESIGN. Continuation of Course 105.

Senior year; second semester; two credits; two laboratory periods.

108. POWER PLANTS, TRANSMISSION AND DISTRIBUTING SYSTEMS. A study of the equipment of power plants, transmission lines, and distributing systems, and of the technical and economic problems connected with the generation, transmission and distribution of electrical energy.

In connection with this course inspection trips are made to the neighboring properties of the Oregon Power Company and of the Portland Ry. Light and Power Company. The expense of these trips will approximate twenty dollars and should be anticipated by every Electrical Engineering student in his senior year.

Prerequisite: Course 103.

Senior year; second semester; three credits; three recitations.

110. ELECTRICAL CONTRACTING. Study of applicances handled

by electrical supply dealers, the National Electrical Code, plans and specifications for interior wiring, systems of cost keeping and economic features of the supply business.

Prerequisite: Course 103.

Elective only to Seniors in Electrical Engineering who plan to engage in the electrical supply business, who may take it in lieu of course 108.

Senior year; second semester; three credits; three recitations.

121. Survey of Electrical Industries. Lectures and assigned reading on the applications of electricity in intelligence transmission, illumination, transportation, and the industries.

Elective to Freshmen in Electrical Engineering.

Freshman year; first semester; one credit; lecture on alternate weeks, assigned reading and one conference per month.

122. Survey of Electrical Industries. Continuation of course 121.

Freshman year; second semester; one credit; lecture on alternate weeks, assigned reading and one conference per month.

201. Electrical Engineering Laboratory. Open only to juniors in Electrical Engineering and must be taken concurrently with 101, which it parallels. Study of electrical instruments; wave form and polarity of alternating currents; current, electromotive force and power relations in circuits involving resistance, inductance and capacity; principles of operation of direct current dynamos and motors.

Consists of one laboratory period a week. Student is required to submit a preliminary report before performing experiment and a final report upon its completion.

Junior year; first semester; three credits; one laboratory period.

202. Electrical Engineering Laboratory. Continuation of course 201. Must be taken concurrently with course 102. Study of hysteresis and eddy current losses in magnetic circuits, electromotive force and energy losses in electrical circuits; the separation of losses in direct current machinery; efficiency and loading tests of direct current machinery; properties of insulating materials.

Junior year; second semester; three credits; one laboratory period.

203. ELECTRICAL ENGINEERING LABORATORY. Characteristic performance of alternating current machinery, including alternator, synchronous and induction motor, synchronous converter and static transformer with parallel operation and pump back tests.

Preliminary and final reports are required.

Prerequisites: Courses 101, 102, 201, 202.

Senior year; first semester; four credits; one laboratory period.

204. ADVANCED ELECTRICAL ENGINEERING LABORATORY. Elective, by permission only, to a limited number of students of proved ability, in the senior year. Experiments to be performed will be selected by students after consultation with instructor. Outline and method of test will be prepared by students.

Prerequisite: Course 203.

Senior year; second semester; two credits, one laboratory period.

301. STUDY OF CURRENT PERIODICAL LITERATURE. Presentation of abstracts and discussion of current articles in electrical periodicals. Special emphasis will be laid upon English, address, and manner of presentation.

Elective to seniors in Electrical Engineering.

Senior year; first semester; two credits; two recitations.

This course and 302 will not be given unless elected by at least four students.

302. STUDY OF CURRENT PERIODICAL LITERATURE. A continuation of course 301.

Senior year; second semester; two credits; two recitations.

304. STORAGE BATTERIES. Theory and operation of commercial types of storage battery; engineering application as a power plant auxiliary.

Elective to seniors in Electrical Engineering.

Senior year; second semester; one credit; one lecture.

306. THESIS. Elective, by permission, to seniors in Electrical Engineering. Only those whose past record indicates ability successfully to complete a satisfactory thesis, will be permitted to make this election.

Senior year; second semester; two credits.

308. ELECTRIC RAILWAYS. A general study of the application of electricity to street and interurban railways, and of electric railway equipment.

Elective to seniors in Electrical Engineering.

Senior year; second semester; three credits; three recitations.

402. STUDY OF ELECTRICAL MACHINERY. Open to non-electrical students in the school of Engineering. A practical course designed to meet the needs of Civil, Mechanical, and Mining Engineers. Class room and laboratory study of electrical instruments, current, electromotive force and power relations; the operation, care, and management of familiar types of dynamos, motors, both alternating and direct current, and transformers.

Required of seniors in Mechanical and Mining Engineering and of certain groups in Civil Engineering.

Prerequisites: Elementary Chemistry, Physics, Calculus, Mechanics.

Senior year; second semester; four credits; two recitations and one laboratory.

Courses in illumination and wireless telegraphy are offered by the department of Phyisics.

MECHANICAL ENGINEERING

Professor Covell
Associate Professor Phillips
Assistant Professor Jackson
Assistant Professor Graf
Mr. Rosencrants
Mr. Porter
Mr. Knopf
Mr. Ridenour
Mr. McComb
Mr. Wiltshire
Mr. Yoder
Mr. Thayer

The following courses are offered:

100. MECHANICAL DRAWING. The use of instruments and the elementary principles of mechanical drawing are taught by a graded

series of plates, including simple practice sheets, geometric constructions, principles of orthographic projection, shading, the helix with its application to screw-threads, and finally the complete development of a working blue-print of some simple device from sketches. Particular attention is given to freehand lettering, general neatness, and accuracy.

The courses in Electrical, Mechanical and Mining Engineering; freshman year; first semester; three credits; three laboratory periods.

101. MECHANICAL DRAWING. This is a briefer course than the preceding and is intended to give students who are not taking engineering courses some knowldege of the use of instruments and the elements of mechanical drawing.

The course in Forestry; freshman year; first semester; two credits; two laboratory periods.

103. MECHANICAL DRAWING. A continuation of course 100, including mechanical lettering, line shading, isometric and oblique projection, gear curves and their application to spur, bevel, and worm gearing. Following this is the preparation of a typical set of working drawings, tracings, and blue-prints of a complete machine. Rapid and business-like execution of work is insisted upon at all times.

The courses in Electrical and Mechanical Engineering; sophomore year; first semester; four credits; four laboratory periods.

102. DESCRIPTIVE GEOMETRY. This work consists in the graphical solution of problems involving the projection of lines, surfaces, and solids.

All courses in Engineering; freshman year; second semester; three credits; two recitations and one laboratory period.

120. MECHANISM. A study of mechanical movements, including velocity ratios; transmission of motion by linkwork, gearing, cams, and belting.

The courses in Electrical and Mechanical Engineering; sophomore year; second semester; four credits; two recitations; two laboratory periods.

124. MATERIAL OF ENGINEERING. This is largely a lecture course dealing with the materials used in engineering structures.

Iron, steel, brick, cement, timber, and stone are discussed with reference to their physical properties and adaptability to the purposes of engineering construction.

The courses in Civil and Mechanical Engineering; junior year; first semester; two credits; two recitations.

125. MACHINE DESIGN. This course consists largely in applying the principles discussed in mechanism and in the mechanics to the design of machine parts. The work includes among other things the study of screws, fastenings, shafting, belting, fly wheels, wheels, gearing, and machine frames.

Senior year; first semester; four credits; four recitations.

126. MACHINE DESIGN. This course supplements and is directly dependent upon the recitation work of course 125.

The work is taken up from a practical point of view and applies such theory as is consistent with the approved methods of design. Designs and complete working drawings are made of machines.

Senior year; second semester; four credits; four laboratory periods.

127. STEAM POWER PLANT DESIGN. The work in this course includes the design and working drawings of steam power plant problems. Among other things considered, are the location of plants; the selection of engines, boilers, pumps, and heaters; the general arrangement of parts, including the connections, piping, and auxiliaries.

The course in Mechanical Engineering; senior year; second semester; two credits; two laboratory periods.

200. STATICS AND DYNAMICS. This course treats of the action of forces upon bodies at rest or in motion. Many original problems are worked, and the practical applications pointed out.

All courses in Engineering; junior year; first semester; four credits; four recitations.

Prerequisite: Math. 51 and 52.

201. STRENGTH OF MATERIALS. A study of the strength of materials with special reference to their use in such engineering structures as beams, trusses, girders, and shafting.

All courses in Engineering; junior year; second semester; two credits; two recitations. First half semester.

202. HYDRAULICS. This course deals with theoretical hydraulics, including statical pressure, immersion, flotation, and steady flow through pipes and orifices as well as over wires and in open channels. Bernoulli's theorem is taken as the basis for calculation of flow in pipes and through orifices, with such modifications as are required to allow for frictional and other resistances.

All courses in Engineering; junior year; second semester; two credits; two recitations. Second half semester.

204. HYDRAULIC MOTORS. The application of the principles of theoretical hydraulics and mechanics to the development of power by means of water wheels, is discussed. The different types of turbines and impulse wheels are considered with reference to their forms and adaptability.

The courses in Mechanical and Civil Engineering; senior year; first semester; two credits; two recitations.

300. ELEMENTARY STEAM ENGINEERING. This course deals with the principles of steam engineering in a very elementary manner. Its purpose is to familiarize the student with the type of steam machinery largely used in the logging industry, such as donkey engines, and logging locomotives.

A portion of the time will be spent in the class-room studying the principles of steam formation and power development. A part of the time will be devoted to laboratory work, involving the care and management of the engines and boilers, as well as the use of the steam engine indicator in valve setting and power measurement.

The course in Logging Engineering; junior year; second semester; two credits; one recitation; one laboratory period.

302. ROAD MACHINERY. This course is designed to familiarize the student with the purpose, care, and manipulation of the different forms of power driven road machinery, both steam and gas, as exemplified in modern road construction.

The course in Civil Engineering, group II; senior year; first semester; two credits; one recitation; one laboratory period.

305. THEORY AND PRACTICE OF STEAM ENGINEERING. This course includes a study of the elementary thermodynamic laws of gases and vapors with reference to their application to engineer-

ing practice, and aims to fulfill the essential thermodynamic requirements of the gas and steam engineer. The work will be supplemented throughout with problems.

Prerequisite: Math. 51 and 52.

The courses in Mechanical and Electrical Engineering; junior year; second semester; three credits; three recitations.

306. ADVANCED STEAM ENGINEERING. A continuation of course 305 in which more time is spent on the application of the principles of thermodynamics to power plant machinery and to a study of the inter-relation of power plant apparatus, including steam prime movers and boilers and their auxiliaries.

The courses in Mechanical and Electrical Engineering; senior year; first semester; three credits; three recitations.

308. COMPRESSED AIR AND REFRIGERATION. A course devoted to the theory, design, and operation of air compressors, fans, and blowers, the first part of the semester, and to the study of the theory and operation of commercial refrigeration systems the latter part.

Prerequisite: Course 305.

Elective in the senior year of the Mechanical and Electrical Engineering courses; first semester; two credits; two recitations.

312. STEAM TURBINES. The steam turbine has taken its place as one of the important factors in transforming energy into work. Hence, the principles involved in its construction and operation should be well understood by engineering students. This course considers the flow of steam through pipes and nozzles and its action on turbine buckets. The effects of superheating are noted and some attention is given to steam turbine design.

Senior year; second semester; two credits; two recitations.

315. INTERNAL COMBUSTION MOTORS. In this course the application of thermodynamics to the internal combustion engine cycles, is studied with reference to the economy of operation. The theory of the combustion of gases and of the gasification of the liquid and solid fuels commonly met with in internal combustion engine practice, is discussed. The remainder of the time is devoted to a study of details, auxiliaries, and operation.

Prerequisite: Courses 305, 306.

Course in Mechanical Engineering; senior year; second semester; two credits; two recitations.

320. HEATING AND VENTILATION. Study of modern methods for the heating and ventilation of buildings. An outline of the work includes a study of several approved systems of heating by means of steam, hot water, or air; methods of computing radiating surface; effective methods of ventilation; general design, construction, and operation of plant.

Elective in the course in Mechanical Engineering; senior year; first semester; two credits; two recitations. Hours to be arranged.

EXPERIMENTAL ENGINEERING

105. ELEMENTARY MECHANICS LABORATORY. A study of experimental investigation; reduction of data; mechanical calculating devices; the preparation of neat and accurate reports. The calibration of various measuring instruments follows, after which are made transverse, tensile, compressive, torsion, and other standard tests of the common materials of construction.

Courses in Mechanical and Mining Engineering (Ceramic and Chemical groups); junior year; Electrical Engineering, senior year; first semester; two credits; two laboratory periods.

106. ELEMENTARY POWER LABORATORY. A continuation of the preceding, including tests of lubricants, calorific power of fuels, flue gas analysis, steam calorimetry, and indicator practice in valve setting. Efficiency tests of steam engine and boiler, gas engine, pumps, water wheel, etc.

Prerequisite: Course 101.

Courses in Mechanical and Mining Engineering (Ceramic and Chemical groups), junior year; Electrical Engineering, senior year; second semester; two credits; two laboratory periods.

107. ADVANCED MECHANICS LABORATORY. A course in experimental work dealing with more advanced studies of materials, fuels, lubricants, bearing metals, belting, etc., with special reference to the application of the results to conditions of actual practice. The work which consists largely of special investigations as assigned, is varied from year to year to suit conditions.

The course in Mechanical Engineering; senior year; first semester; two credits; two laboratory periods.

Elective to seniors in other courses and to graduate students who have completed courses 101 and 102, or an equivalent.

108. ADVANCED POWER LABORATORY. A course similar in nature to the preceding, but dealing with power and hydraulic machinery, heating, refrigeration, and similar studies.

The course in Mechanical Engineering; senior year; second semester; two credits; two laboratory periods.

Elective to seniors in other courses and to graduate students who have completed the preceding.

113. GENERAL ENGINEERING LABORATORY. (Abridged Course). A course intended primarily for students in Mining Engineering electing the Metal Mining group. The group is abridged from courses 101 and 102, and embraces tests on materials, hydraulic equipment and steam and gas engines. One test is made each week and complete reports are required.

Required of students electing the Metal Mining group in Mining Engineering; second semester; senior year; two credits; two laboratory periods.

Students in other courses desiring a short general course in Experimental Engineering will be allowed to elect this course providing they show suitable preparation.

123. STRUCTURAL MATERIALS LABORATORY. Standard tests of timber, iron, steel, brick, stone, etc., with special reference to the specifications and methods adopted by the American Society for Testing Materials and other national engineering organizations. Following the general tests, some time is devoted to work on plain and reinforced concrete.

The course in Civil Engineering; junior year; second semester; two credits; two laboratory periods.

124. ADVANCED STRUCTURAL LABORATORY. This is an advanced laboratory course intended to accompany the work in "Reinforced Concrete," C. E. 509. Tests will be made on plain and reinforced beams and columns to study methods of reinforcing, and to determine in a general way the relative value of the various materials available. Some tests will also be made on the permiability of dif-

ferent mixtures, both plain and when treated with various waterproofing processes.

Required of Civil Engineering seniors electing the Structural or Railway groups.

First semester; one credit; one laboratory period.

125. GENERAL MATERIALS LABORATORY. A condensed course designed especially for students in Architecture. The work begins with elementary tests: Tension, compression, shear, bending, and torsion on specimens selected to best illustrate the action of the different stresses on the various materials. The standard methods of testing Portland cement, stone, brick, and other building materials are studied, and some time is also spent in making tests on plain and reinforced concrete.

Junior year; second semester; two credits; two laboratory periods.

Elective to students with suitable preparation who may desire an abridged course in testing materials.

126. CEMENT TESTING. An experimental study of Portland cement and materials for concrete aggregates. Sampling, study of apparatus, preparation of reports, problems to determine the various properties of the materials, effects of different conditions, comparison of methods; and finally, a complete commercial test.

Required in all groups in Civil Engineering; junior year; first semester; one credit; one laboratory period.

127. TIMBER TESTING. A special course designed to meet the needs of the students in Forestry. Cross-bending, compression, shearing, and other standard tests of timber; a study of the effect of moisture content on strength; comparison of static and impact loads; and, if time is available, some special tests such as holding power of spikes, etc. All formulas necessary for the reduction of the test data will be explained; complete reports will be required on all tests. In general, the methods and bulletins of the U. S. Forest Service will be used as a guide in the work.

Course in Forestry; senior year; second semester; one credit; one laboratory period.

128. LOGGING MATERIALS. A special course designed for the students in Logging Engineering. The work will consist partly

of class work on the strength and general properties of materials, and partly of laboratory work. In the laboratory the necessary general tests will be made to illustrate the behavior of the various materials under different stresses. After this preliminary work, a number of tests will be made on materials of particular interest to the logging engineer, as for example, bending tests on full size timbers, tension tests of cable, rope, and wrought iron tie rods, etc.

Course in Logging Engineering; junior year; second semester; three credits; one lecture; two laboratory periods.

131. ROAD AND PAVING MATERIALS. This course parallels the text book work in Highway Construction, and is conducted mainly on the demonstration plan; it includes the mechanical analysis of sands and aggregates; determination of voids, and a study of mixtures; abrasion, hardness, toughness, recementing, and other tests on macadam rock; tests on paving brick; and standard tests on bituminous compounds.

Required in all groups in Civil Engineering; junior year; first semester; one credit; one laboratory period.

134. ADVANCED HIGHWAY LABORATORY. An advanced course following course 131. Designed particularly for those specializing in Highway Engineering. Complete tests are made on different road and paving materials and their relative value determined. A large proportion of the time will also be spent in the study of road oils and bituminous binders. Reports are required on all tests, and whenever possible results are compared to specifications in actual use.

The course in Civil Engineering, Highway group; senior year; first semester; two laboratory periods. (Not given except by special arrangement.)

141. HYDRAULIC LABORATORY. Calibration of weirs, orifices, water meters, etc. Tests on water wheel, centrifugal and other pumps, hydraulic ram, and measurement of stream flow. Full and complete reports are required.

Required of students in the Hydraulic, Structural or Railway groups in Civil Engineering; junior year; second semester; one credit; one laboratory period.

Shop Work

A. WOODWORK. Mechanic Arts Course. This course in woodwork will be divided into three parts, carried on simultaneously.

(*a*) A lecture course on methods and materials used in Mechanic Arts, including bench equipment, use and care of bench tools; carpentry and laying out work; joinery or putting work together; fastening, structure, and defects of wood; methods of cutting and seasoning; furniture construction and design; wood finishing, painting, staining, varnishing, waxing, and polishing. This will require one hour a week.

(*b*) One hour a week will be devoted to mechanical drawing and a study of drawings to enable the student to make drawings of the articles which he is called upon to make in the shop and to interpret drawings in general.

(*c*) A woodwork course, including joinery, primary construction work, furniture construction, and finishing. The purpose of this course is to instil a knowledge of the principles of joinery by teaching the use and care of woodworking tools, and to develop skill in the use of these tools by means of progressive exercises. The application of the joints is shown in the construction of finished products. All of the operations must be methodically and accurately performed, and the finished product have a neat and workmanlike appearance.

Secondary course in Mechanic Arts; first year; first semester; five credits; one recitation; four laboratory periods.

B. WOODWORK. A continuation of course A.

The secondary course in Mechanic Arts; first year; second semester; five credits; one recitation; four laboratory periods.

C. WOODWORK. Mechanic Arts Course. Those who desire to specialize in woodwork may do so by devoting the whole time allotted to industrial work to this branch. Such students will continue along the same lines as indicated in courses A and B, and during the second year will enter upon high grade cabinet work.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

D. WOODWORK. A continuation of course C.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

E. PATTERNMAKING. Mechanic Arts Course. Those who prefer patternmaking to cabinet work may devote the second year to that subject, following the plan outlined under C and D.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

F. PATTERNMAKING. A continuation of course E.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

G. WOODWORK. This course will be equivalent to the first six weeks of the Mechanic Arts course A.

It consists of six lectures on the care and use of bench tools, six lessons in mechanical drawing, and twenty-eight laboratory periods in the practical use of the various tools in the way of planing, sawing, chiseling, etc.

In this course each student is required to have a drawing board, T-square, compass, lead pencil, and three sheets of mechanical drawing paper, the cost of which will not exceed one dollar.

The Secondary course in Agriculture and Forestry; second year; first semester; two credits; two laboratory periods.

J. BLACKSMITHING. The student is taught to make and manage the forge fire, to shape iron by bending, upsetting, drawing and welding. The course also includes occasional lectures on the principles involved in managing the fire and in forging.

Elective; second year of the Secondary course in Mechanic Arts; first semester; five credits; five laboratory periods.

K. BLACKSMITHING. A continuation of course J; devoted to making useful articles and tools of iron and steel. A large part of the time is given to making and tempering steel tools. This course is also accompanied by lectures on the different grades of steel and the effects of heat treatment.

Elective; second year of Secondary course in Mechanic Arts; second semester; five credits; five laboratory periods.

L. BLACKSMITHING. After completing the preliminary exercises, the student enters upon work having direct application to

farming and forestry, such as mending of farm implements, making chains, clevises and hooks, ironing whiffletrees and neckyokes, and sharpening tools.

Required in the Secondary courses in Agriculture and Forestry; second year; second semester; two credits; two laboratory periods.

M. STEAM-FITTING AND PLUMBING. This course is intended as an aid to those who desire to follow the occupation of steam-fitting or plumbing. The practical work includes the installation of piping for stream, water, or gas; a study of the principles involved in expansion, radiation, and water hammer. The work in plumbing takes up the construction of bends, traps, and various types of wiped joints; also a study of ventilation; the proper arrangement of soil and water pipes, hot water boilers and tanks.

Elective; second year; first semester; five credits; five laboratory period.

N. STEAM-FITTING AND PLUMBING. This is a continuation of course M.

Elective; second year; second semester; five credits; five laboratory periods.

101. WOODWORK. This course, though designed for the Mechanical and Electrical Engineering students, is divided into two courses (a) and (b), because of the lack of Secondary Manual Training in Mechanic Arts in certain parts of the State.

(*a*) Students who have not had the advantage of Secondary Manual Training in Mechanic Arts will enter the class in bench work for the first semester or until they have developed sufficient skill to enter the advanced work.

(*b*) Students who have had a year or more of Secondary Manual Training in Mechanic Arts work will enter the class in wood turning preparatory to pattern work.

The course on bench work will consist of a series of exercises in planing, sawing, and chiseling, preceded by a lecture course explaining each step in advance.

The course in wood turning is taken in conjunction with lectures on the lathe, its care and management, and the care and use of turning tools.

After acquiring sufficient skill in turning between centers and chuck turning, the primary principles of patternmaking will be taken up, which is the main feature of the course.

Required in Mechanical and Electrical Engineering courses; freshman year; first semester; three credits; three laboratory periods.

102. PATTERNMAKING. The students in Engineering will take up the art of Patternmaking where they left off at the close of the first semester, beginning with simple exercises and advancing until they have made patterns for various parts of machines and other structures such as pulleys, pipe fittings, valves, gear wheels, dynamo frames, and special patterns as assigned. Much of the constructive work collaborates with the exercises required in machine design in building new machines and equipment for the various departments of the College.

The lectures explain the correct methods of constructing the more complicated work; also the principles of moulding directly related to patternmaking; the shrinkage of metals; the warping and twisting of woods; glue and metal fastenings; making cores and core boxes; methods of marking and storing patterns; estimating the weight of metal castings.

The courses of Electrical and Mechanical Engineering; freshman year; second semester; three credits; three laboratory periods.

103. PATTERNMAKING. These courses are a continuation of Patternmaking and are intended for engineering students who desire to devote further time to the subject, or for those who are engaged in construction work in the preparation of theses.

The work will consist largely in making patterns for steam and gas engines and other complicated machines.

Elective; three credits; three laboratory periods; first semester.

104. PATTERNMAKING. Continuation of course 103.

Elective; three credits; three laboratory periods; second semester.

105. WOODWORK. This course is designed for Mining Engineering and Forestry students, and consists primarily of a series of constructive exercises in carpentry and joinery accompanied by one lecture a week dealing with the care and use of bench tools; the use of the steel square in framing and laying out work.

After completing the first constructive exercises which teach the use of the various hand tools, as well as the forms of joints and ties used by good engineering practice in truss and bridge framing, the mining engineering students will take up mine timbering truss and bridge construction relating to the mine; while the forestry students will take up the practical use of the steel square.

Mining and Forestry course; freshman year; first semester; three credits; three laboratory periods.

106. WOODWORK. The purpose of this course is to give instruction in the care and use of modern woodwork benches and their equipment. Six lectures will be given in this course, each lecture followed by a practical application. Skill in the manipulation of tools cannot be obtained in this short time, but instruction and practice will be given in sharpening chisels, planes, and other edge tools; in jointing, setting, and filing hand saws.

The principal feature of this course will be the instruction and practice in the use of the steel square in brace work and rafter construction. As much stress will be placed on planing, sawing, and chiseling exercises as time will permit.

The course in Agriculture; freshman year; first or second semester; two credits; two laboratory periods.

111. WOODWORK. A continuation of course 105 for forestry students. This course will take up the construction of camp buildings; for example, bunk houses, cook camps, stables, etc.

Bridge construction of various kinds will be made a strong feature of the course.

In this, as in all other woodwork courses, the filling out of material bills and estimates of cost of material and labor will be required upon receiving or completing the design of the article to be built before the student is supplied with the required material.

Forestry course; freshman year; second semester; three credits; three laboratory periods.

112. WOODWORK. This course is designed for the architectural students and consists of a series of exercises in planing, sawing, and chiseling, preceded by a lecture, explaining each step in advance.

After a satisfactory working knowledge of the use of the carpenter tools has been accomplished, the practical use of the steel

square in brace and detailed roof construction will be taken up.

This work to be developed through the construction of miniature frames of houses, barns and roofs.

As far as possible, drawings furnished by the architectural department will be used in this work.

Architectural course; freshman year; first semester; three credits; one recitation, two and one-half laboratory periods.

113. WOODWORK. A continuation of course 112. Correct use of the steel square in laying out practical carpenter work; *e. g.*, window and door sills, bay and circular windows, steps, stairs, etc. Detailed construction of the window and door frames, sills, caps, weights, and fastenings in relation to the rough frame work and the exterior and interior finish of the building.

In like manner, the construction of cornices, gutters, brackets, columns, and newel posts will be taken up.

As soon as the students become familiar with the detailed construction of the above, they will be assigned problems involving original design and construction.

Practice in reading plans, filling out material bills, and estimating the cost of material and labor, will be a strong feature of the course.

As far as possible drawings furnished by the architectural department will be used in this work.

Elective; freshman year; second semester; three credits; one recitation; two and one-half laboratory periods.

114. WOODWORK. This course is designed as an elective and may be taken upon the completion of course 106 or its equivalent.

The object of this course is to make a study of labor saving devices and utensils about the farm, their design, construction and location; a detailed study of the parts, their construction and improvement.

115. CABINET WORK. This course will be divided into two parts: (a) Mechanical drawing and design, bringing into practice the proper use of drawing instruments in connection with practical, original, and inventive design. (b) The construction of useful articles about the farm or home; *e. g.*, gates, ladders, hay racks, wood racks, movable fences, singletrees, doubletrees, drags, sleds,

rollers, farm bridges, chicken houses, and the frame and truss work for machinery sheds, horse barns, dairy barns, and house construction.

Elective course in agriculture; sophomore year; first semester; two credits; two laboratory periods.

115. CABINET WORK. This course will be divided into three parts, carried on simultaneously: (a) A lecture course on methods and materials used in cabinet work; various tools and their proper uses, and finishing materials and their application. Equivalent to one hour per week. (b) One hour per week will be devoted to drawing, original, design, and studying of plans, etc. (c) A course giving the correct application of woodwork tools.

Upon acquiring satisfactory skill in the use of bench tools through practical joinery; primary construction work will be taken up. In this work the application of the joints will be shown in the construction of finished products. All of the operations must be methodically and accurately performed and the finished product must have a neat and workmanlike appearance.

The character of the work will be more or less individual and advanced as the student's ability develops.

Elective; freshman year; first semester; three credits; three laboratory periods.

116. CABINET WORK. Continuation of course 115. This course consists of the designing and construction of furniture according to the ability of the individual student. Mixing of stains, fillers, and various finishes, with their application, will be a strong feature of the course.

The character of the work will be a study of the design and construction of drawers and panel work, and primary upholstering.

Elective; freshman year; second semester; three credits; three laboratory periods.

120. BLACKSMITHING. The student is taught to make and manage the forge fire; to shape iron by bending, upsetting, drawing, and welding. Many useful articles are made, consisting of hooks, staples, rings, clevices and chains.

The course in Electrical Engineering; sophomore year; first semester; the course in Mechanical Engineering; sophomore year; second semester; three credits; three laboratory periods.

121. TOOLMAKING AND TEMPERING. This course is devoted to the study of the heat treatment of steel as exemplified in making and tempering tools, springs, and other articles of steel.

Prerequisite: Course 120.

The course in Mechanical Engineering; junior year; first semester; one credit; one laboratory period.

The course in Logging Engineering; junior year; second semester; one credit; one laboratory period.

122. BLACKSMITHING. A course for students in Agriculture. After completing the first exercises, the student enters upon work having direct application to farming, such as the mending of farm implements, making and mending of chains, clevices, and hooks; ironing of whiffletrees and neckyokes; sharpening of tools.

Elective; freshman year; second semester; two credits; two laboratory periods.

123. BLACKSMITHING. A continuation of course 120, for students wishing to take an entire year of blacksmithing.

Elective, sophomore year; second semester; three credits; three laboratory periods.

130. FOUNDRY PRACTICE. This course includes a study of the foundry equipment; care and management of cupolas; mixing and melting of iron; moulding in green and dry sand; preparation of cores; casting in iron and brass.

The course in Mechanical Engineering; sophomore year; first semester; three credits; three laboratory periods.

131. FOUNDRY PRACTICE. A course in all respects equivalent to course 130.

The course in Electrical Engineering; sophomore year; second semester; three credits; three laboratory periods.

200. MACHINE SHOP. The work in the machine shop includes both bench and machine work. Upon first entering the shop, the student is taught the principles of chipping, filing, and hand finishing. This occupies the first half of the semester. Machine work is then taken up through a series of exercises on lathe, shaper, planer, drill press, and milling machine. As soon as accuracy and proficiency are shown on the part of the student, he is assigned to construction work upon engines, dynamos, motors, or machine

tools. One hour of the student's time will be required each week in the class room to attend lectures, work problems, or prepare other work assigned by the instructor.

The course in Mechanical Engineering; junior year; first semester; two credits; two laboratory periods.

201. MACHINE SHOP. A course similar to course 200, designed to meet the requirements of students in Electrical Engineering.

The course in Electrical Engineering; second semester; senior year; three credits; three laboratory periods.

202. MACHINE SHOP. A continuation of course 200 devoted to machine construction and milling machine work. Special attention is paid to economical shop methods of doing work.

The course in Mechanical Engineering; junior year; second semester; two credits; two laboratory periods.

203. MACHINE SHOP. These courses are a continuation of the work outlined in the junior year, and are intended for those who desire to devote further time to this branch, or for those who are engaged upon construction work in the preparation of theses.

Elective; first semester; three credits; three laboratory periods.

204. MACHINE SHOP. Continuation of course 203.

Elective; second semester; three credits; three laboratory periods.

Industrial Arts

The equipment of the shops in the School of Engineering will be utilized wherever practicable, and instruction given by means of lectures and special assignments to keep the purpose of the constructive exercises clearly before the student.

The courses in Industrial Arts are designed primarily to meet the needs of those who are preparing to teach or supervise manual training in the elementary grades, and in the high schools of this State. They are open as electives, however, to other students having the necessary preparation to take up the work, subject to the approval of the deans.

The following courses are offered:

101. MANUAL TRAINING FOR THE ELEMENTARY GRADES. This course deals with the design and construction of exercises suitable

for pupils in the first, second, third, and fourth grades. It includes paper and cardboard construction, weaving, basket and mat work, whittling, stencil cutting, etc.

The student will be required to construct enough of these exercises to form the basis of a course in manual training for the grades mentioned. At least one credit of time will be devoted to lecture and class work showing the adaptation of this work to the general scheme of education and mind development of the child.

The course in Industrial Arts; freshman year; first semester; three credits; one recitation; two laboratory periods.

102. MANUAL TRAINING FOR THE ELEMENTARY GRADES. A continuation of course 101 dealing with the work suitable for the fifth, sixth, and seventh grades. This course includes elementary wood construction, chip carving, stencil cutting, book binding, and Venetian iron work.

The course in Industrial Arts; freshman year; second semester; three credits; one recitation; two laboratory periods.

103. ADVANCED MANUAL TRAINING. Work for the eighth and ninth grades. Wood construction and design, leading to furniture making and cabinet work. Mixing and applying various stains, fillers, shellacs, and varnishes.

The course in Industrial Arts; sophomore year; first semester; three credits; one recitation; two laboratory periods.

104. ART METAL WORK. This course consists of hand wrought metal and enamel work, including hard and soft soldering, the formation of bowls, trays, boxes, lamp shades. The design and construction of furniture fittings.

The course in Industrial Arts; sophomore year; second semester; three credits; one recitation; two laboratory periods.

105. WOOD TURNING AND PATTERNMAKING. The principles of wood turning are taken up with reference to their application to the useful arts. This leads to patternmaking, which forms the greater part of the semester's work. One hour per week of the time will be used for shop lectures and recitations upon topics of vital importance to the work, such as selection of material, fastenings and joints, shrinkage of wood, allowance for shrinkage of metal, etc.

The course in Industrial Arts; junior year; first semester; three credits; three laboratory periods.

106. PATTERNMAKING. This is a continuation of course 105 and is intended for those who desire to obtain a more detailed knowledge of the subject. The student will have opportunity to enter more fully into constructive work in patternmaking, by making patterns and core boxes for parts of machines to be built in the college shops.

Elective; junior or senior year; second semester; three credits; three laboratory periods.

120. FORGING. This course deals with the equipment of the blacksmith shop, and includes exercises in bending, shaping, upsetting, and welding iron. Some instruction is given also in hardening and tempering steel, and in brazing. The course is accompanied with lectures on the management of the fire, methods of instruction, and shop equipment.

The course in Industrial Arts; junior year; second semester; three credits; three laboratory periods.

130. MACHINE SHOP. This course begins with the hand processes of chiseling, filing, and polishing, which are followed by a detailed study of the lathe, drill press, planer, and shaper, taught by means of carefully planned exercises. The course includes one hour per week of lecture or recitation work to supplement the instruction given in the shop.

The course in Industrial Arts; senior year; first semester; three credits; three laboratory periods.

131. MACHINE SHOP. A continuation of course 130 in which the student becomes familiar with the more complicated machines such as turret lathes, and milling machines. Shop methods are studied with reference to economical production. The student, as far as possible, enters upon construction of machinery and apparatus for college equipment.

The course in Industrial Arts; senior year; second semester; three credits; three laboratory periods.

140. FOUNDRY PRACTICE. Those who take this course are instructed in green sand moulding, core making and setting, pouring castings of iron and of brass, and in the management of cupola and brass furnace.

Elective; junior or senior year; first or second semester; three credits; three laboratory periods from which one hour per week will be taken for lectures upon various phases of the work.

MINING ENGINEERING.

Professor Parks
Mr. Swartley
Mr. Goodspeed

The following courses are offered:

PHYSIOGRAPHY A. The course in physiography is designed especially for the Secondary students in Agriculture. Physiographic processes and features are treated at length, as well as their relation to life, especially to human affairs. Emphasis is placed upon the relation of earth, air, and water to man's activities and interests.

Required of second-year Secondary students in Agriculture. First semester; three credits; three recitations.

101. CRYSTALLOGRAPHY AND BLOWPIPE ANALYSIS. This course is intended as a preliminary one, and is a preparation for the work in Determinative Mineralogy, which follows. Only such portion of the subject is especially emphasized as is of practical value in the determination and proper understanding of minerals. The student is given a thorough drill in the more practical portion of the subject. The course is presented through lectures, textbooks, laboratory work, and individual quizzes. In the laboratory work, each student is required to become thoroughly familiar with crystal forms and combinations by working with the wooden crystal models, and later, with the aid of a pocket lens and contact goniometer, to determine the crystal forms of a greater number of natural crystals.

Prerequisite: Chem. 100 and 101; Math. 11, 21 and 31.

Sophomore year; first semester; five credits; two recitations; three laboratory periods.

102. DETERMINATIVE MINERALOGY. In this course about one hundred and sixty of the most important mineral species are pre-

sented by lectures, in which special emphasis is laid on the recognition of minerals by means of their physical properties and crystal forms. The course is not intended to train the student to determine any mineral whatever, but rather to recognize at sight, with the aid of a pocket lens and knife, such minerals as are likely to be met with in actual mining work. With this object in view, as thorough a drill as time will allow is given in the actual handling and determination of minerals in the laboratory. In the work, each student is expected to handle, to determine, and to be examined on, approximately twelve hundred individual specimens.

Prerequisite: Mining 101.

Sophomore year; second semester; three credits; two recitations; one laboratory period.

121. PETROLOGY. The object of this course is to drill the student on all of the more commonly occurring rocks in such a way as to render their identification reasonably accurate. The methods pursued are purely those applicable to the hand specimens without aid of microscopic sections. The subject is presented by means of lectures and textbooks, supplemented by laboratory work.

Prerequisite: Mining 101, 102, 140.

Senior year; first semester; three credits; one recitation; two laboratory periods.

131. PETROGRAPHY. This course takes up the optical properties of minerals and follows Petrology by a study of thin sections of rocks by the petrographic microscope. It is an elective course to be limited to such students as are specially qualified to take it.

Prerequisite: Mining 101, 102, 140, 121.

Senior year; first semester; four credits.

140. GENERAL GEOLOGY. This study deals with the principles of dynamical, structural, stratigraphic, and historical geology. It includes a discussion of the different agencies, such as atmospheric, aqueous, igneous, and organic, which have been instrumental in producing the earth in its present form and structure. Students make excursions to places of geological interest to verify points discussed in the class room.

Prerequisites: Math. 11, 21, and 31; Chem. 100 and 101.

Sophomore year; second semester; three credits; two recitations; one laboratory period.

141. AGRICULTURAL GEOLOGY. This course deals with the origin and nature of soils from a geological standpoint entirely. A study is first made of the main groups of rocks with reference to structure and chemical composition, and followed by a study of rock weathering and the products derived from rock decay.

Prerequisites: Chemistry 100 and 101.

Elective for Agricultural students; junior or senior year; first semester; three credits; two lectures; one laboratory period.

142. ENGINEERING GEOLOGY. This includes a discussion of the principles of dynamical and structural geology, as well as a study of the more common minerals and rocks, special emphasis being laid upon structural materials.

Prerequisites: Math. 11, 21, 31; Chem. 100 and 101.

Civil engineers; senior year; second semester; four credits; two recitations; two laboratory periods.

160. ECONOMIC GEOLOGY. This course deals with the application of the science of geology in industrial relations and operations. It requires an elementary knowledge of chemistry, mineralogy, and geology, and includes the discussion of the mode of occurrence and origin of minerals and ore bodies, especially those containing the precious metals. Attention is also given to other natural products of economic value, such as coal, iron, petroleum, and building stones.

Prerequisites: Mining 101, 102, 140, 121.

Senior year; second semester; three credits; three lecture periods.

181. GEOCHEMISTRY. A study by lectures and in the field and laboratory of silicate rock alteration and clay formation.

Prerequisites: Mining 121; Chem. 301 and 401.

Junior year; first semester; four credits; one recitation; three laboratory periods. (Not given in 1913-14.)

182. GEOCHEMISTRY. A study by lectures, field and laboratory work, of metamorphism, and ore deposition.

Prerequisite: Mining 181.

Junior year; second semester; four credits; one recitation; three laboratory periods. (Not given in 1913-14.)

185. ORE DEPOSITS. A study of economic geology from the standpoint of the Mining Engineer with special reference to deposits of the valuable metals.

Prerequisite: Mining 160.

Senior year; first semester; five credits; three lectures; two laboratory periods. (Not given in 1913-14.)

186. FIELD GEOLOGY. Study of geologic processes and results as seen in the field. Class will make trips to nearby regions of special geological interest.

Prerequisite: Mining 121.

Senior year; second semester; five credits; three lectures; two laboratory periods. (Not given in 1913-14.)

190. GEOLOGY OF OREGON. This course consists of a study of the geology of Oregon including the structural, historical, and dynamical geology of the State.

Prereuisite: Mining 121.

Senior year; second semester; three credits; three lectures. (Not given in 1913-14.)

192. HISTORICAL GEOLOGY. This is a course of lectures on historical geology and paleontology. The various plant and animal forms characteristic of different eras are described in detail.

Prerequisites: Mining 140; Botany 20 and 21; Zoology 101 and 102.

Senior year; second semester; two credits; two lectures. (Not given in 1913-14.)

199. PRACTICAL GEOLOGY. All mining students will be required to do at least two month's practical work in mines, smelters, on geological surveys, cement mills, clay works, or other industrial plants which are closely related to the course which the student is pursuing. This work will be required before the student enters upon the senior year of his college work, and evidence of the nature, quality, and sufficiency of the same will be passed upon by the department before credits will be given. While the minimum requirement is two months, the department urges that the freshman, sophomore, and junior summer vacations be entirely devoted to industrial work along the student's chosen line. This work is most important both from the standpoint of increasing the

students's insight into the technical subjects in the department and in giving him enthusiasm in this work.

201. ROCK AND EARTH EXCAVATION. This course deals with a discussion of the various methods and operations involved in opening up and operating quarries as well as tunneling and shaft sinking. Some of the more important subjects treated are: Methods of stripping, drilling, blasting, and crushing rock, and preliminary examination to determine quarry site. Close attention is paid to cost of all the different operations.

Prerequisites: Mining 140; Physics 101 and 102.

Junior year; first semester; two credits; two lectures.

202. ROCK AND EARTH EXCAVATION. Continuation of course 201.

Prerequisite: Mining 201.

Junior year; second semester; two credits; two lectures.

205. MINING METHODS. This is a study of the various methods used in securing the mineral products. The subject includes methods of timbering, methods of mining, pumping, ventilation, transportation, hoisting, mine sampling, and reporting, installation of machinery, and surface improvements. The subject is presented largely through lectures and directed reference work.

Prerequisite: Mining 202.

Senior year; first semester; three credits; three lectures.

206. MINE ECONOMICS. This course takes up in detail the cost of extracting from mines under varying conditions, gold, silver, copper, iron, and other metal ores, as well as coal.

Prerequisite: Mining 205.

Senior year; second semester; four credits; three lectures; one laboratory period.

220. MINE SURVEYING AND MINING LAW. This course supplements the course in General Surveying, taken in the Civil Engineering department. The student is taught the methods used in locating and patenting mining claims, and in underground surveying. Instruction is given in carrying the meridian into the mine, laying out the workings, keeping notes, estimating areas and tonnage, the plotting of notes, construction of maps, and many other duties which are usually assigned to the Mining Engineer. Consid-

erable time is given also to the study of the laws regulating the location, possession, and operation of mineral rights in the United States.

Prerequisite: Civil Engineering 201.

Junior year; second semester; three credits; one lecture; two laboratory periods.

249. POWER EQUIPMENT. A discussion of the sources of power, water, hydro-electric, steam, gas, and compressed air, together with their practical application to mining operations.

Prerequisites: Mechanical Engineering 200, 201, and 202.

Senior year; first semester; three credits; three lectures.

260. ORE DRESSING. A discussion of the various methods of concentration and the mechanical preparation of ores for metallurgical treatment. The subject is studied under the following main divisions: Jaw and gyratory breakers; rolls; stamps; special, and fine grinding apparatus; sizing apparatus, such as the various types of screens and classifiers; concentrating machinery, including jigs, tables, and vanners.

Prerequisites: Mining 140, 102, 301.

Junior year; second semester; four credits; two lectures; two laboratory periods.

299. PRACTICAL WORK IN MINING. For description see course 199.

301. FIRE ASSAYING. Instruction is given in the assaying of gold, silver, and lead in ores and metallurgical products by scorification and crucible methods. The student is given a thorough drill in the theory and reactions involved, supplemented largely by laboratory work, the subject being treated from a scientific and rational point of view, rather than by "rule of the thumb." Each student is required to make a large number of assays upon previously sampled pulps, which he must check within very close limits.

Prerequisites: Chemistry 301 and 401; Mining 102.

Junior year; first semester; four credits; one lecture; three laboratory periods.

321. INDUSTRIAL CALCULATIONS. This course is a study of such industrial materials as fuels, refractories, slag, etc., from a quantitative physical and chemical standpoint. Different kinds

of pyrometers and calorimeters are studied, various fuels are compared; furnace materials and designs for diverse operations are taken up in detail and enough problems are worked to enable the student to solve all ordinary problems of this nature.

Prerequisites: Physics 100 and 101; Chemistry 301 and 401.

Junior year; first semester; four credits; three lectures; one laboratory period.

325. METALLURGY OF LEAD AND COPPER. This is a study of the furnaces, appliances, operation, and materials involved in the extraction of these metals from their ores, and in refining them. The important principles underlying these operations are emphasized throughout.

Prerequisite: Mining 321.

Senior year; first semester; four credits; four lectures.

341. CYANIDATION OF ORES. This is a detailed study of the cyanide process of extracting gold and silver from ores. The chemical principles of solution and precipitation are first mastered; then the operation involved and the many mechanical devices in use are taken up minutely. Catalogues of leading manufacturers are used freely to get in mind clearly the details of the latest appliances.

Prerequisites: Chemistry 401; Mining 301.

Senior year; first semester; three credits; three lectures.

342. METALLURGICAL LABORATORY. Each student in this course by laboratory tests determines the fitness of an allotted ore for cyanide treatment and then finds the extraction by different methods, and finally by studying costs selects the process which will give the greatest net returns.

Prerequisite: Mining 341.

Senior year; second semester; three credits; three laboratory periods.

399. PRACTICAL WORK IN INDUSTRIAL CHEMISTRY. For description see course 199.

402. CLASSIFICATION AND PHYSICAL TESTING OF CLAYS. The properties of clays and other ceramic materials. Identification of varieties met in practical work.

Prerequisites: Mining 102; Physics 101 and 102; Chemistry 301 and 401.

Junior year; second semester; five credits; two lectures; three laboratory periods.

404. MINING AND PREPARATION OF CLAY. Methods, appliances, and costs of extracting and preparing clays for various uses are studied by lectures and laboratory methods.

Prerequisites: Mining 102; Physics 101 and 102; Chemistry 301 and 401.

Junior year; second semester; three credits; two lectures; one laboratory period.

421. BODYMAKING, DESIGNING, AND SHAPING. Composition of all classes of ceramic wares; physical and chemical changes produced by blending of various ceramic materials; machinery and processes employed in shaping the various products.

Prerequisites: Mining 402, 404.

Senior year; first semester; five credits; five laboratory periods.

442. DRYING AND BURNING. Methods of drying and burning clay wares; types of construction of industrial kiln plants; chemical and physical processes involved.

Prerequisites: Mining 402, 404.

Senior year; second semester; five credits; two lectures; three laboratory periods.

450. GLAZING. The production of glazes and enamels; classification; properties and defects common to each class; the effect of variation in composition; modes of application.

Prerequisites: Mining 402, 404.

Senior year; second semester; three credits; three lecture periods. (Not given 1913-14.)

462. CEMENT: MATERIALS AND MANUFACTURE. Lime, cements, plaster, and other cementing materials; composition; re-actions; methods of manufacture.

Prerequisite: Mining 402.

Senior year; second semester; four credits; one lecture; three laboratory periods.

SCHOOL OF COMMERCE

Professor Bexell
Professor Macpherson
Professor Horner
Professor Dubach
Assistant Professor Simpson
Mr. Lemon
Mr. ————————
Mr. ————————

The following courses are offered:

A. COMMERCIAL ARITHMETIC. Successful accountancy is based largely upon the ability to use figures. The student is supposed to have acquired fair ability at figures in the grades, but in this course a review of all the essential operations is given. Special stress is laid on short methods and daily drills. Rapid calculation, computations in the various phases of percentage, as applied to commercial transactions, will receive special emphasis. A great variety of commercial forms are studied in this course as a preparation for the formal work in bookkeeping.

Secondary course; first year; first semester; five credits; five recitations.

B. BOOKKEEPING. The fundamentals of bookkeeping by double and single entry. The laws of debit and credit are studied and illustrated by correspondence and office practice; exercises in checking, construction, and interpretation of balance sheets; much practice in commercial correspondence; writing bills, invoices, receipts, bills of lading, legal forms, etc.

Secondary course; first year; second semester; five credits; five recitations.

E. FARM ACCOUNTING AND BUSINESS METHODS. A thorough course in the essentials of business methods required on a well managed farm. Financial accounts and statement; cost accounts and special records; business organization, business correspondence and forms; household and personal accounts.

The Secondary course in Forestry, first year; the Secondary course in Agriculture, second year; first semester; two credits; two recitations. This course may also be taken by correspondence.

F. BUSINESS METHODS. The first part of this course is similar to course E, but in the latter part of the course the principles of accounting and business methods are applied to the shop and small factory.

Secondary course in Mechanic Arts; second year; second semester; two credits; two recitations.

K. CIVIL GOVERNMENT AND ADMINISTRATION. (*a*) *Civil Government.* Our European ancestors; origin of states and state institutions. English and American governments compared; federal and state constitutions; state and foreign service; the executive departments; federal and state power; political parties and issues.

(*b*) *Federal and State Administration.* A survey of the administrative activities of federal, state, and municipal governments; governments from the sociological point of view. The financial operations, preparation of budgets and reports, will be considered.

Secondary course; second year; first semester; three credits; three recitations.

L. ELEMENTARY COMMERCIAL LAW. An elementary course covering the law of contracts; negotiable instruments; agents; partnership; real estate, etc. Adapted for students with limited preparation. This course may also be taken by correspondence.

Secondary course, advanced; second year; Commerce, Mechanic Arts; first semester. Second year, Agriculture and Forestry; second semester; two credits; two recitations.

M. ELEMENTARY COMMERCIAL LAW. Problems and applications of the principles acquired in course B.

Secondary course in Commerce; second semester; two credits; two recitations.

R. TYPEWRITING. Elective in all courses; first semester; two credits; two laboratory periods.

S. TYPEWRITING. Continuation of Typewriting R. Elective in all courses; second semester; two credits; two laboratory periods.

U. PENMANSHIP. Students entering the first year are expected to have acquired a good hand in the grades, but considerable time is devoted during the first year to mastering the best form of business writing and lettering.

Secondary course; first year; first semester; one credit; two periods.

V. PENMANSHIP. A continuation of course U.

Second semester; one credit; two periods.

W. ADVANCED PENMANSHIP. Special emphasis is laid on rapid business writing, correct forms of business papers, lettering and designing.

Secondary course; second year; first semester; one credit; two periods.

X. ADVANCED PENMANSHIP. A continuation of course W.

Second semester; one credit; two practice periods. Required of all commercial students; elective to others.

Y. ADVANCED PENMANSHIP. A continuation of course X.

Freshman year;first semester; one credit; one period.

Z. ADVANCED PENMANSHIP. A continuation of course Y.

Freshman year; second semester; one credit; one period.

BUSINESS ADMINISTRATION

100. ACCOUNTING. A thorough course in modern accounting as practiced in the best business houses throughout the country. Accounting terminology; the laws of debit and credit; business practice in retailing, wholesaling, banking, and transportation. The student becomes familiar with a great variety of labor-saving forms used in the modern business office; the actual forms used by typical concerns in all parts of the country are studied and compared. Manifolding and labor-saving devices of all kinds are studied with constant view to secure greater accuracy and to diminish work.

Freshman and second year of Secondary course; first semester; five credits; one recitation; four laboratory periods.

101. ACCOUNTING. A continuation of course 100.

Second semester; five credits; one recitation; four laboratory periods.

102. ADVANCED ACCOUNTING. A thorough study of bank and advanced accounting and auditing. Various systems are studied and compared. Office practice and intercommunication work similar to that described under courses 100 and 101 form a part of this

course; but here the student assumes the management of the office while the routine work is done by less advanced students.

Prerequisites: Courses 100 and 101.

Sophomore year; first semester; five credits; two recitations; three laboratory periods.

103. ADVANCED ACCOUNTING. The accounts of a manufacturing corporation are opened, conducted, and closed. The corporation accounts are kept according to the most approved modern methods, with a view to furnishing accurate detailed information as to cost of products and conditions of the business. The student continues as manager of one of the laboratory offices; numerous reports and discussions.

Sophomore year; second semester; five credits; two recitations; three laboratory periods.

104. COST ACCOUNTING. This course is intended to cover the broader, economic, phases of accounting. Emphasis is laid on accounts as means of administrative control and economy of production. After a complete analysis of a system of manufacturing, cost, records, and accounts, a comparative study is made of various systems suitable for particular enterprises.

Prerequisites: Courses 100, 101, 102, 103.

Elective; senior year; first semester; three credits; two recitations and lectures; one laboratory period.

106. PUBLIC ACCOUNTING AND AUDITING. This course embraces the following subjects: (1) Analysis and interpretation of accounts and financial statements; terminology and procedure; accounting certificates and reports; designing and installing systems; organization and methods of a typical firm of public auditors; a comparative study of the C. P. A. laws of several states. (2) The discussion and solution of different problems selected from C. P. A. examinations.

Prerequisite: Course 104.

Elective; senior year; second semester; three credits, two recitations and lectures; one laboratory period.

107. GENERAL ACCOUNTING. An abridgement of Course 100. Open to all students except those who take Course 100. Either semester; three credits; three recitations.

108. SPECIAL ACCOUNTING. The student is given an opportunity to apply the principles of accounting to his special needs. Open to all students except those who take course 101.

Prerequisite: Course 107 or equivalent.

Second semester; three credits; three recitations.

110. BUSINESS MANAGEMENT. (*a*) Firms and Joint Stock Companies. A study of the internal management of a large business; the different duties of the various departments; the advantages of different methods of organization as regards economy and efficiency; value of trade-marks, patents, local interest, etc.

(*b*) Corporations: The growth of corporations; their causes and forms; the promotion, financiering, incorporation, and capitalization of corporate consolidation; their organization and securities; position and relation of stockholders and directors; receiverships and reorganizations.

(*c*) A brief discussion of parliamentary practice and procedure as applied to corporate business.

Junior year; first semester; three credits; three recitations.

111. THESES. A research course and treatise on the organization and management of a business in which the student is especially interested. The subject of the thesis must be chosen at the time of registration and a complete outline approved by the professor in charge not later than November first. When the thesis is approved, a bound (either printed or typewritten) copy must be deposited in the college library.

Prerequisite: Com. 104 and 110. Open only to seniors.

Both semesters; two credits.

112. THEORY AND PRACTICE OF ADVERTISING. A study of the fundamental principles of modern advertising. Special emphasis is given to the peculiarities of composition in newspaper and circular advertising, proof-reading, effectiveness of design, illustration, coloring, and display, follow-up systems, etc.

Junior year; second semester; three credits; three recitations.

122. HOME AND PRIVATE BUSINESS MANAGEMENT. This course is designed to cover such business methods as are met in the daily life of the average citizen. The first half of the course is given to the study of accounting as applied to the household and private

business. In connection with this work, the subjects of banking, borrowing and lending, buying and selling, and other features of private and home finance are given consideration. In the second part of the course, contracts, negotiable instruments, commercial correspondence, and commercial forms and business organizations are considered to the extent the time permits.

Domestic Science and Art; sophomore year; second semester; two credits; two recitations.

124. PHARMACY ACCOUNTING. A course in the theory and practice of accounting and business methods especially adapted to the drug business.

The course in Pharmacy; sophomore year; second semester; two credits; two recitations.

126. ADVANCED ARITHMETIC. This course is designed as an advanced course in commercial arithmetic. To do successful work in this course, the student should have a thorough knowledge of all the fundamental operations of arithmetic, including the various phases of percentage and interest. Emphasis is laid on computations of the more difficult problems connected with partnership and corporation settlements, balance sheets and statements, equation of accounts, partial payments, savings-bank accounts, compound interest, stocks and bonds, life insurance, and annuities, partly for the information obtained in the various subjects and partly for the drill afforded in the use of figures. Daily drills are given in short methods and rapid calculation.

Freshman year; first semester; three credits; three recitations.

POLITICAL ECONOMY

200. COMMERCIAL GEOGRAPHY. The main topics treated are: Natural conditions affecting commerce, human control of commerce, transportation and commercial routes; discussion of the leading countries of the world under the following heads: Climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, and such collateral topics as may be necessary to supplement the work outlined. This course presupposes a fair knowledge of mathematical and political geography, and of general history.

Freshman year; first semester; three credits; three recitations.

201. COMMERCIAL GEOGRAPHY. An abridged course adapted to Domestic Science students.

Sophomore year; first semester two credits; two recitations.

205. HISTORY OF COMMERCE — TRADE. The development in Egypt, Greece, Rome, Florence, Mediaeval Europe, etc., down to and including the commercial nations of modern times. Special attention is given to materials and machinery of commerce, to trade routes, and to the relations between commercial developments and other branches of the history of civilization. The principles of modern wholesaling and retailing are discussed, and a description given of brokerage, jobbing, the commission business, general and special stores, department stores, and mail order houses.

Freshman year; second semester; three credits; three recitations.

206. ECONOMIC HISTORY OF THE UNITED STATES. This course deals with the economic aspects of the development of the United States. The problems of transportation and commerce, agriculture and manufacturing, the labor supply, money and banking, the protective tariff, etc. A careful study will be made of colonial conditions; and the economic causes and effects of the revolution, westward expansion, slavery and the Civil War, the War of 1812, etc., will be clearly outlined.

Prerequisite: Course 200.

Sophomore year; second semester; four credits; four recitations.

210. PRINCIPLES OF ECONOMICS. A discussion of wealth; nature and requisites of production; exchange and distribution; the relation of the production of raw material to manufacturing and exchange of products; diminishing returns from natural agents; labor and its increase; efficiency of production; credit, interest, wages, prices, and rent; taxation, public debt, free trade, and protection; money and banking; the labor problem and co-operation.

Prerequisite: Course 200 or 206.

Sophomore year; first and second semesters; four credits; four recitations.

213. LABOR PROBLEMS. A study of the rise, structure, government methods and achievements of labor organizations. The ends

sought, the trade agreement, the boycott and strike, the application of the injunction in labor disputes, political activity of labor organizations, woman and child labor, irregularity of employment, immigration, conciliation and arbitration, employers' liability laws, working men's insurance, profit sharing and co-operative experiments in relation to the labor problems.

Prerequisites: Courses 210, 233.

Elective; senior year; second semester; three credits; three recitations.

214. ADVANCED ECONOMICS. This course takes up the history of economic thought with special reference to the relations which have existed between economic theories and the practical, social, industrial, and commercial policies of the leading nations. Lectures, text-book, and library work.

Senior year; first semester; three credits; three recitations.

215. ADVANCED ECONOMICS—RESEARCH COURSE. This course grows out of course 214. In the light of our historic study, an analysis will be attempted of such economic topics as have become present-day political questions. Each student will prepare a thesis embodying the results of research work done under the guidance of the professor in charge. The texts studied and topics discussed will vary from year to year.

Prerequisite: Course 214.

Senior year; second semester; three credits; three recitations.

219. RURAL ECONOMICS. The fundamental principles of production, distribution, and exchange, with special reference to rural life. The financial management of the farm receives special attention.

The course in Agriculture; sophomore year; first semester; three credits; three recitations.

This course may also be taken by correspondence.

230. MONEY AND BANKING. (*a*) *Money.* Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, colonial bills of credit, revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions and problems.

(*b*) *Banking.* Practice and legal principles of banking, methods of raising capital, modes of organizing national and state banks,

trust and finance companies, clearing houses, their practice, regulations, and importance; resources of a bank, and modes of lending them; duties of directors, president, cashier, tellers, bookkeepers, etc.; public and private examinations and audits.

Prerequisite: Course 210.

Junior year; first semester; three credits; three recitations.

233. CORPORATION AND PUBLIC FINANCE. (*a*) *Public Finance.* History of financial systems, theories of public expenditures, various methods and practices of taxation and other sources of income, public credit, relations of the Federal Treasury to our monetary system; the preparation of financial budgets and reports form an important part of this course.

(*b*) *Funding Operations and Corporation Finance.* Money, funds, and credit, obtaining funds bf inheritance, exchange, sales of commercial credit, long-time paper, etc. Funding operations by the United States Treasury; the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice of funding corporations and other large business enterprises.

(*c*) *Insurance.* Origin, purpose, development and growth of the various kinds of insurance, especially fire, life, casualty; the various plans, policies, and rates will be discussed; computation of tables, and the various phases of actuarial practice will receive attention.

Junior year; second semester; three credits; three recitations.

234. OREGON STATISTICS. This course will consist of an introduction to the theory and method of statistics, with an application of the statistical method to the study of Oregon conditions. The practical side of the course will aim to co-operate with the work of the Bureau of Statistics which is under the supervision of the School of Commerce. The Resources of the State, its Commerce and Trade, Immigration, Vital Statistics, etc., will be made subjects of theses to be worked up under the direction of the instructor in charge.

For the College Year 1913-14 this course will not be given separately, but will be taken up as part of the work of Advanced Economics.

240. TRANSPORTATION. The relation of transportation systems to industrial and commercial progress; a brief historic review of the development of systems of transportation; the organization and financing of different systems; the effects 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; government ownership in the light of European experience.

Prerequisite: Course 210.

Elective; junior or senior year; second semester; three credits; three recitations.

250. PRACTICAL SOCIOLOGY. In this course, social theory will be subordinated to the study of practical social problems. The different social and political units, such as the family, school, church, club, city, state, and nation will be discussed in their relation to the general welfare. This will necessitate an examination of the organization, purpose, and methods of each of these functional groups, involving a discussion of the training of children, employment of women and children, marriage and divorce, the labor movement as a factor in the struggle for existence, overcrowding in city slums, and its amelioration, the causes of pauperism, immorality, and crime, with modern methods of their treatment, etc. A good general text-book will be studied and the whole field covered in class discussion.

Elective; juniors or seniors who do not take Rural Sociology; second semester; three credits; three recitations.

252. RURAL SOCIOLOGY. This course will deal with the special problems of the rural family, the rural school, the rural church, rural societies and associations, and the relation of the State to the general rural welfare. This will involve an inquiry into the prevailing ideals of the rural community regarding labor and leisure; art, literature, and music; and the necessity for recreation. Recent progress in adapting education to rural needs will be discussed. City over-crowding will be examined from the rural point of view, and the lessons which the rural community can learn from the progress made by cities in solving their problems will be emphasized. The social and educational effects of the

telephone, free mail delivery, rural press, and improved methods of agricultural production and exchange will be discussed in detail. The best text-books in the field will be carefully studied, and the whole ground covered in class discussion.

Elective to juniors and seniors in Agriculture, and to such juniors and seniors in Domestic Science as may prefer this course to the one in Practical Sociology; second semester; three credits; three recitations.

260. CO-OPERATION. This course takes up the origin and development of the co-operative movement in Europe and its introduction into the United States. It sets forth the general principles underlying the economic and social activities of co-operative associations. Then, following this, the different types of organization, the methods by which they are formed, their working plans in different enterprises, and the factors which determine their success or failure, will be studied in detail. The store, the factory, the dairy and cow testing association, the credit organization, etc., will be taken up systematically, and the advantages and difficulties of co-operation will in each case receive careful analysis.

Elective for juniors and seniors who cannot take 264 and 265, and who have had considerable training in political economy. Not intended for students of agriculture. Junior or senior year; second semester; three credits; three recitations.

264. THE ECONOMIC ORGANIZATION OF AGRICULTURE. This course together with 265, is designed to give a more specialized training in the economic problems of agriculture than is possible in the general course outlined under 219.

In both courses 264 and 265, economic problems are discussed from the standpoint of the efficiency to be attained through closer organization. Existing associations of farmers both in this country and in Europe will be carefully studied by means of sample constitutions and by-laws, and also by latern-slide illustrations of the work actually being accomplished through co-operation in Europe and America. The aim is to turn out men trained to play their part in the revolution in agricultural business methods which is now sweeping over this country.

(*a*) *Economic Problems of Production and Marketing.* Old methods and their weakness are examined, and the possible savings through organized business are investigated.

(*b*) *The Purchase of Farm Supplies.* The purchasing end of the farm business is about as important as the selling of farm products. Present methods will be taken up in detail, and the possibility of eliminating waste and duplication thoroughly discussed and illustrated.

(*c*) *The Problems of Transportation as Affecting the Farmer.* The economic significance of the good roads movement will be dealt with; systems of rail and water transportation will be taken up, government control discussed, and the possibilities of eliminating waste through precautions on the part of the shippers pointed out.

Open to all who have had 219 or its equivalent; junior year; first semester; three credits; three recitations.

265. RURAL FINANCE. (*a*) *Rural Taxation.* The general principles of public finance will be taken up in so far as may be necessary to lay the foundation for an intelligent discussion of rural taxation; existing systems, as well as proposed reforms, will be examined.

(*b*) *Rural Insurance.* The basis of insurance of different kinds will be taken up, and applied to agricultural needs; old line, mutual, and fraternal organizations will be examined from the standpoints of efficiency and safety.

(*c*) *Rural Credit.* The principles of money, credit, and banking will be sufficiently studied to lay the foundation for the examination of the credit needs of rural communities and the most economical means of satisfying them. The reasons why farmers have been so poorly served by existing credit institutions will be investigated. The credit institutions of Europe will be compared with those of the United States; the development of co-operative credit in European countries will be carefully studied, and the present widespread movement to adapt co-operative credit institutions to American rural conditions will be closely followed.

Open to all who have had 219, or its equivalent.

Junior year; second semester; three credits; three recitations.

POLITICAL SCIENCE

300. ADVANCED COMMERCIAL LAW. (*a*) *Contracts in General.* Formation of contracts; offer, acceptance, form, and consideration; competence of parties, consent, and legality of subject matter; operation of contracts, including limit of obligations and assignments; interpretation, rules of evidence and construction; discharge of contracts; the agreement performance, breach of contract, etc.

(*b*) *Negotiable Instruments.* Maker's, acceptor's, drawer's, and indorser's contracts; proceedings before, upon, and after dishonor; proceedings in protesting; accommodation papers; grantor and surety; holder's position, defense, equities, agency insurance, etc.

Junior year; first semester; three credits; three recitations.

301. ADVANCED COMMERCIAL LAW. (*c*) *Partnership Law.* Formation of partnerships, essentials, liability of members, capital, profits, good will, individual and firm property; agency for partners; dissolution, winding up, priority of distribution, etc.

(*d*) *Corporation Law.* Kinds, formation, powers, liabilities, ownership, shares, subscription, calls, notice, transfers, management, officers, directors, contractional powers, dividends, dissolution, are discussed fully from the legal point of view. The Case method is used throughout the entire course. Lectures, discussions, and reports.

Junior year; second semester; three credits; three recitations.

302. INTERNATIONAL LAW. Persons concerned; rights and duties of states; territorial jurisdiction; jurisdiction on the high seas; agents of the state treaties; settlements of disputes; war and its effects; military occupation; neutrality, contraband, blockades, etc.

Elective for seniors; first semester; three credits; three recitations. Hours to be arranged.

306. COMMERCIAL LAW. A course in the laws of business, especially adapted to the students in Pharmacy.

Sophomore year; first semester; two credits; two recitations.

320. CONSTITUTIONAL LAW AND POLITICS. (*a*) *Constitutional Law.* The Constitution; rise of the American Union; distribution

and powers of the Government; powers of Congress; powers of the executive; the judicial departments; checks and balances of governments; governments of territories and colonies; admission of new states; amendments to the Constitution; civil rights and their guarantees; protection of persons accused of crimes; protection of contracts and property, etc. Lectures, readings, reports and thesis.

(*b*) *American Politics.* Origin of political parties in the United States; changes, growth and development; party platforms.

Elective for juniors and seniors; first semester; three credits; three recitations.

322. STATE AND MUNICIPAL GOVERNMENT. A study of the functions of state government; the machinery of state government; political parties in state government; special study of the government of the State of Oregon; municipal government, including county, town, and city government.

Elective for juniors and seniors; second semester; three credits; three recitations.

324. INTERNATIONAL RELATIONS. (*a*) *Commercial Treaties.* An historical and critical study of important commercial treaties; protective tariffs, and the theory of reciprocity; a survey of the chief questions connected with the history of our foreign relations from the appointment of the Committee on Foreign Relations in the Continental Congress to the present time.

(*b*) *The Consular Service.* The growth and importance of the consular service; the appointment, distribution, duties, and necessary qualifications of consuls. Studies and discussions of consular reports.

(*c*) *International Transportation.* The course deals especially with the merchant marine of the principal nations of the world. Importance of ship subsidies, inland waterways, canals, etc.

Elective; senior year; second semester; three credits; three recitations.

STENOGRAPHY

400. STENOGRAPHY AND TYPEWRITING. (*a*) *Gregg Shorthand.* After a thorough mastery of the principles of shorthand, special

drills in reading and word-building exercises are taken up, followed by a series of "principle" letters which gives the student a thorough and comprehensive review of the entire system.

(*b*) *Touch Typewriting.* By the use of a series of specially arranged exercises, the student becomes familiar with the keyboard and learns correct fingering by the touch or "sightless" method. Special attention is given to the proper care and mechanism of the machine. The various standard makes of machines are studied and compared.

Second and freshman years; first semester; five credits; five laboratory periods.

401. STENOGRAPHY AND TYPEWRITING. A continuation of course 400, with special emphasis on the application of principles. Special shorthand penmanship drills are taken up with a view to further developing the accuracy and speed of the student. Dictation covering various lines of business correspondence is given and must be transcribed on the machine. Manifolding, stencil cutting, and the use of the mimeograph, neostyle, and letterpress are learned.

Second and freshman years; second semester; five credits; five laboratory periods.

402. ADVANCED STENOGRAPHY AND TYPEWRITING. (*a*) The student must have become thoroughly grounded in the principles of shorthand and have acquired a speed of a hundred words a minute before taking up this work. Various forms of correspondence, legal documents, speeches, specifications, editorial matter, court testimony, etc., are taken up. Much time is devoted to transcribing, and great care must be given to the arrangement and neatness of the transcribed work. Each student will be called upon to serve as stenographer to different members of the faculty from four to six weeks during the last semester of his course.

(*b*) *Typewriting, Manifolding, and Filing.* An advanced course for those who specialize in stenography. In addition to the work given in Stenography 400 and 401, the student makes copies of correctly written correspondence, legal forms, etc., also machine dictation. Much time is devoted to manifolding and filing.

Sophomore year; first semester; five credits; five laboratory periods.

403. ADVANCED STENOGRAPHY AND TYPEWRITING. A continuation of Advanced Stenography 402.

Sophomore year; second semester; five credits; five laboratory periods.

404. REPORTING AND OFFICE PRACTICE. Reports of lectures. The student is required to submit not less than twenty verbatim reports of lectures and addresses during the year. The reports must be properly transcribed and submitted to the teacher for approval.

Elective; senior year; first semester; three credits.

405. REPORTING AND OFFICE PRACTICE. In this course the student is required to spend a large share of his time in the courts, and to render at least twenty verbatim reports, properly transcribed. A large amount of additional legal work will be required.

The finished work of the entire course must be passed on by the dean and the professor in charge.

Elective; senior year; second semester; three credits; three recitations.

PHARMACY

Professor McKellips
Mr. ————

The following courses are offered:

100. NOMENCLATURE. The Latin language is universally recognized as the language of science. The names of all plants and animals and of many natural objects in the material world are recorded in this language. These Latin names, in so far as they have connection with the profession of pharmacy, are made the subject of systematic study.

Sophomore year; first semester; three credits; three recitations.

101. NOMENCLATURE. This is a continuation of course 100.

Sophomore year; second semester; three credits; three recitations.

102. NOMENCLATURE. A continuation of course 101.

Elective; sophomore or junior years; first semester; three credits; three recitations.

103. NOMENCLATURE. A continuation of course 102.

Elective; sophomore or junior years; second semester; three credits; three recitations.

110. GENERAL PHARMACY. This course is a general introduction to the subject of pharmacy, given by means of series of lectures wherein the student is made familiar with the conditions which led to the origin of the practice of pharmacy as a profession separate and distinct from that of medicine. Attention is directed to the purposes of the profession, to the scientific principles underlying it, and to the proper means for comprehending these facts with a view to their intelligent application.

The drugs, chemicals, and prepared medicines of the U. S. Pharmacopoeia are made the subject of a series of recitations.

Junior year; first semester; three credits; three recitations.

111. GENERAL PHARMACY. A continuation of Pharmacy 110, to which is added the feature of laboratory practice. The student

takes up the various classes of pharmaceutical preparations and becomes familiar with the correct manner of their manufacture.

Experience has demonstrated the value of the laboratory as a factor in technical and scientific education. For this reason, the course in pharmacy as offered at this institution is one in which this feature is given unusual prominence.

From crude drugs, as barks, leaves, roots, and seeds, the student manufactures finished pharmaceuticals, such as tinctures, fluid extracts, elixirs, tablets, pills, etc.

Using the United States Pharmacopoeia as a laboratory manual, the student has the official requirements for purity and strength constantly before him, his attention thus being directed to these matters in a practical way.

Junior year; second semester; six credits; three recitations; three laboratory periods.

112. GENERAL PHARMACY. A continuation of course 111, in which the manufacture of the more difficult pharmaceuticals is taken up. Attention is given to the higher class of toilet preparations, as well as to galenicals.

Senior year; first semester; two credits; two laboratory periods.

113. GENERAL PHARMACY. A continuation of course 112.

Elective; senior year; second semester; two credits; two laboratory periods.

120. THERAPEUTICS AND DOSES. The definition of medical and therapeutical terms, the classification of medicines into groups according to their therapeutical action, and the consideration of the subject of dosage, are matters to which the attention of the student is directed at this time.

Junior year; first semester; three credits; three recitations.

130. PHARMACOGNOSY. This subject deals with the scientific classification of the plants and animals which furnish the crude drugs used in pharmacy. The relation existing between the various drugs is shown, and the student is thoroughly drilled in memorizing the classifications, and in learning from what parts of the world the drugs are obtained. He is instructed as to what particular portion of the plant or animal finds use in medicine and learns to recognize by some physical characteristic—appearance, odor, taste,

etc.—samples of all the important drugs. Extensive cabinets of sample drugs are kept for this purpose.

Junior year; first semester; three credits; three recitations.

131. PHARMACOGNOSY. This course is a continuation of course 130.

Junior year; second semester; three credits; three recitations.

140. MATERIA MEDICA AND TOXICOLOGY. As indicated by the name, this course is devoted to the study of "Medicinal Materials." All substances which find general use in medicine are here given attention. All are classified with respect to the action they have upon the human system. Crude drugs are grouped according to the plant constituents—alkaloids, glucosides, volatile oils, oleoresins, etc.—which they contain. Pharmaceutical preparations are studied with respect to composition and strength; chemicals according to solubility, medicinal activity, and incompatibility.

The student is drilled in the recognition of pharmaceutical preparations and of chemicals. The many common names, or synonyms, in use in connection with materia medica are memorized.

One hour a week is devoted to the consideration of Toxicology. The different classes of poisons—caustics, irritants, convulsants, paralysants, narcotics, asphyxiants, etc.—are taken up and studied according to the characteristic symptoms they produce, the method of counteracting and preventing their harmful effects, and the antidote peculiar to each. This course is especially designed to meet the needs of the pharmacist. Provisions of the law regulating the sale of poisons within the State are explained in detail.

Senior year; first semester; three credits; three recitations.

141. MATERIA MEDICA AND TOXICOLOGY. This is a continuation of course 140.

Senior year; second semester; three credits; three recitations.

142. MATERIA MEDICA. A continuation of course 141. Advanced work for senior students who complete course 141 during their junior year.

Elective; senior year; first semester; three credits; three recitations.

143. MATERIA MEDICA. A continuation of course 142.

Elective; senior year; second semester; three credits; three recitations.

150. PRESCRIPTION PRACTICE. This work is sometimes spoken of as "extemporaneous pharmacy," and is justly regarded as the division of the profession belonging to the expert. The ability to compound, properly, intricate formulas at a moment's notice, is an art that can be acquired only by persistent study and painstaking practice. Opportunity for practice of this nature is here given. Prescriptions written by practicing physicians in various parts of the country have been collected. These afford the student practice in reading, itself often a matter of difficulty. Prescriptions presenting various types of incompatibility are compounded, as are others which afford experience in overcoming manipulative difficulties.

Senior year; first semester; three credits; three recitations.

151. PRESCRIPTION PRACTICE. A continuation of course 150.

Senior year; second semester; six credits; three recitations; three laboratory periods.

160. COMMERCIAL PHARMACY. In this course various problems arising in the physical management of the store are considered. The selection of proper types of fixtures, correct methods of stock arrangement, and harmonious effects in show-window dressing are topics receiving attention. Instruction in the art of sign card painting, including extensive practice with the air brush, is given. At various times during the year special lectures will be delivered by successful business men of the State.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

161. A continuation of course 160.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods.

INDUSTRIAL ARTS

Professor Ressler
Mr. ————

There is a steadily increasing demand in Oregon for competent teachers of manual training. These instructors teach in both the elementary and high school grades. In fact, the up-to-date school provides for manual or constructive work of various kinds from the first grade up. The well trained teacher must therefore understand both the technique and theory of his subject as adapted to the needs of pupils.

Below the fifth grade this manual instruction for both boys and girls is given by the regular grade teachers; but the supervisor and special teacher of manual training should be able to organize this work and correlate it with the other school subjects, and particularly with the later formal course in manual arts. For the boys, this will take the form of instruction in wood working, metals, machine shop, and in some schools, vocational training in the various trades. For the girls, it will lead to the study of the several phases of home economics.

A college degree course of the same general standard as the other B. S. courses is provided, in order that the young men who specialize in this field may receive a preparation that will place them on a par with the high school teachers in other branches. The relation of industrial instruction in the elementary and secondary schools to the industries of life, is more fundamental and direct than most of the other branches taught. It has its important relations also to higher education. It therefore becomes necessary to give these instructors a training that will make them more than masters of the mechanical processes.

The properly prepared teacher of industrial arts must have an appreciative understanding of the origin and development of the

industries, their relation to economic, social, and political life, and a profound conviction of the importance and dignity of their contribution to the progress of mankind. He should also have the broad sympathies of the cultured man, in order to enable him to set before his pupils high and worthy ideals of life. The artisan, artist, or professional man is first of all a man and a citizen, and our schools must make him aware of his high privileges and responsibilities.

(The various courses in Industrial Arts, offering the mechanical foundation for this work, are taught in the School of Engineering, and are listed under the department of Mechanical Engineering.)

INDUSTRIAL PEDAGOGY

Professor Ressler
Assistant Professor ————
Mr. ————

The department of Industrial Pedagogy offers courses in the preparation of teachers in the subjects of Agriculture, Home Economics, Commerce, and Manual Training. The importance of providing special instruction in the industries for the pupils of the public schools is fully recognized in this country. The material equipment in the way of laboratories, workshops, experimental fields, etc., is easily secured. Specially trained teachers cannot be prepared overnight. There is a real danger that the public will underestimate the scientific and educational significance of the new education. The industrial branches cannot be taught from textbooks nor by teachers without technical training.

There must also be special supervisors in each of the industrial branches for the larger schools, where instruction is given to a large number of pupils under both trained and untrained teachers. Supervisors who will do some regular teaching, are also required where a number of small town and country districts are grouped for industrial instruction. In time, we may expect the grade teachers to have secured through the high and normal schools the technical training that will enable them to teach the industrial branches under direction. Until that time, most of the teaching must be done by the special instructor.

More than four hundred school districts in Oregon are offering a year or more of high school instruction to about ten thousand pupils. The larger schools, employing six to forty high school teachers each, should require from two to twelve industrial teachers. There is also a field for the industrial teacher in the smaller high schools in connection with grade pupils or grouped with each other. Supervisors for groups of rural schools are also needed. It is estimated that two hundred and fifty industrial teachers could be used to advantage in our Oregon schools today.

The Department of Industrial Pedagogy gives the professional

training and advises with the students and deans of the various schools in the selection of the technical courses. In conjunction with the other departments concerned, tentative courses of study are prepared in each of the industrial branches, adapted to the age of the pupils and the social demands on the school. This department undertakes to assist teachers in the work of instruction, by general and special suggestions through college and other publications, and by correspondence and visitation where possible. Detailed lists of equipment and apparatus, with cost, suitable for small and large schools, will be furnished on request.

Students electing this course will be registered in the school in which their distinctive subject is given. Thus those who desire to prepare to teach and supervise Agriculture in the high school and grammar grades will be registered in the School of Agriculture and will receive their degrees in Agriculture on completion of the requirements.

In the same way students, desiring to prepare to teach Home Economics and Commerce will be registered in the schools of Home Economics and Commerce. A special degree course in Industrial Arts, described under that heading, has been organized for the preparation of teachers of Manual Training.

The following courses will be offered during 1913-14:

101. GENERAL PSYCHOLOGY. A study of general psychology by lectures, recitations, and reports; a description of the facts and laws of mental activities with applications to the ordinary affairs of life; demonstrations and experiments showing the relation of mental life to the nervous system; the significance of habit in conduct and character.

Junior year; first semester; three credits; three recitations.

102. EDUCATIONAL PSYCHOLOGY. The application of the facts and principles of psychology to teaching; a study of the growth of the child mind and the relations of the various periods to educational organization; adaptation of courses of instruction, methods of teaching, discipline, and general school activities to the stages of the pupil's development; lectures, recitations, reports, and simple investigations.

Senior year; first semester; two credits; two recitations.

120. HISTORY OF EDUCATION. A general review of the growth

and development of education and its relation to the civilization of the times; particular attention given to the rise of industrial education in Europe and America, and its place in the social and political life of the country.

Sophomore year; second semester; three credits; three recitations.

130. SCHOOL MANAGEMENT. A study of the organization of the school, including the relations and duties of pupils, teachers, supervisors, and school board. The place of the special teacher in the system; questions of discipline; practical exercises in making programs, keeping records, filling out reports, and performing other duties required by the Oregon School Law.

Sophomore year; first semester; three credits; three recitations.

140. GENERAL METHOD. The principles of teaching, including method of the recitation, preparation of lesson plans, and observations of model teaching; library references to periodicals and current literature relating to public school agriculture, domestic science and art, commerce, and manual training.

Junior year; second semester; three credits; three recitations.

150. SPECIAL METHOD IN AGRICULTURE. A careful, detailed study of the public school course in Agriculture, in its various relations, including the other subjects in the curriculum, preparation for college, farming, community life, etc. Model courses for both elementary and secondary grades are constructed, with plans for all desired equipment for laboratory, library, field work, including cost. Lesson plans on typical subjects, observation of model lessons, practice teaching, and extension work with school children and adults, provide additional opportunities to enable the student to reduce theory to practice.

Senior year; first semester; three credits; three recitations.

151. SPECIAL METHOD IN AGRICULTURE. Continuation of course 150.

Senior year; second semester; three credits; one recitation; two laboratory periods.

160. SPECIAL METHOD IN HOME ECONOMICS. Same as course 150 applied to the public school course in Domestic Science and Art.

Senior year; first semester; three credits; three recitations.

161. SPECIAL METHOD IN HOME ECONOMICS. Continuation of course 160, applied to Domestic Science.

Senior year; second semester; three credits; one recitation; two laboratory periods.

162. SPECIAL METHOD IN HOME ECONOMICS. Continuation of course 160, applied to Domestic Art.

Senior year; second semester; three credits; one recitation; two laboratory periods.

170. SPECIAL METHOD IN MANUAL TRAINING. Same as course 150, applied to the public school course in Manual Training.

Senior year; first semester; three credits; three recitations.

171. SPECIAL METHOD IN MANUAL TRAINING. Continuation of course 170.

Senior year; second semester; three credits; one recitation; two laboratory periods.

180. SPECIAL METHOD IN COMMERCE. Same as course 150, applied to the public school course in Commerce.

Senior year; first semester; three credits; three recitations.

181. SPECIAL METHOD IN COMMERCE. Continuation of course 180.

Senior year; second semester; three credits; one recitation; two laboratory periods.

190. SCHOOL ADMINISTRATION. A discussion and analysis of the American system of education, with an interpretation of the purpose and spirit of each division; problems of administration and teaching in the public schools; the correlation of the industrial branches with the other subjects in the curriculum. Lectures, reading, reports, and studies on the Oregon schools.

Electives for advanced or graduate students; second semester; two credits; two recitations.

191. SCHOOL HYGIENE. A course in the health provisions requisite for the hygienic conduct of education. This includes a discussion of ventilation, heating, light, seating, physical exercise in the school room and on the playground, games, medical inspection, tests for physical defects, disinfection, quarantine, and other similar topics. Oregon laws relating to these matters will be studied and the regulations of the State Board of Health and other State and local health authorities will be explained in detail.

Advanced investigations in other states will also be presented and comparative studies made. Lectures, reports, and first hand investigations on town and country school conditions, as far as practicable.

Elective for advanced or graduate students; first semester; two credits; two recitations.

192. CHILD STUDY. This includes the physical and mental characteristics of children and youth as contrasted with those of mature men and women. The relation of physical growth and development to the unfolding of mental powers; the instincts and their relation to the development of individuality, sense of responsibility to others, moral development, etc.; abnormalities; study and treatment of children as individuals and in class groups; and discussion of the social and economic implications as well as the psychological. Lectures, reports, and simple tests and records made by visitation of schools.

Elective for advanced or graduate students; second semester; two credits; two recitations.

200. RESEARCH. Advanced or graduate students who are qualified by previous training or experience may register for extended investigation of some specific problem in industrial education. The studies may be historical, either European or American; administrative; or in the field of method. General government and state reports; publications by special commissions; reports of committees of educational organizations; contributions by departments of colleges and universities; educational and other periodicals; and original investigations into Oregon conditions, compose the material to be used. These studies will be assigned and outlined by the instructor and stated reports made from time to time by the student. Regular hours will be assigned the individual students and credit given according to the amount of work done.

Elective for advanced or graduate students; first semester; two credits.

201. RESEARCH. Continuation of course 200.

Elective for advanced or graduate students; second semester; two credits.

202. RESEARCH. As outlined in course 200.

Elective for advanced or graduate students; first semester; four credits.

203. RESEARCH. Continuation of course 202.

Elective for advanced or graduate students; second semester; four credits.

ART AND ARCHITECTURE

Professor McLouth
Mr. Dobell
Miss ————

The first aim of the course in Drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop keen observation, accurate judgment, and concentration of mind. Few among us see truly what we see, and then only what we have been educated to see. Besides the general quickening of perception and the training of the eye to accurate sight, drawing affords the means of noting the forms of objects, such as no written description can secure. It is a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that drawing is a corner stone in the foundation of not only industrial education, but of scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements. Drawing is an invaluable element in general education as a handmaid to the other branches of study; and the foremost educators advocate the study of drawing as the first step in any system of industrial education.

The instruction offered in Architecture is planned with the view to train men to become draftsmen in established offices, or to carry on the practice of architecture immediately upon graduation. It is the aim of the course, that proper attention be given to develop the cultural side of the student. No profession calls for broader training than does that of an architect. Due attention is paid to construction and a consistent amount of time is devoted to the study of the various architectural styles with special attention to present day needs. Means of expression are arrived at by well-planned courses in freehand drawing, pen, pencil, and water color rendering.

It is with training for domestic or residence work, however, with which the department is especially concerned. The large percentage of work coming to an architect's office is in the nature of residences.

Until recently, the architecture of America has had marvelous growth in all lines save this one. Today, however, the attention of everyone is directed towards civic improvement, and no one thing adds more to the attractiveness of a city than the homes of taste which it possesses. The designing of country houses, long neglected, is also becoming a source of considerable income to the practicing architect. Much attention, then, in the course offered here, is given to the problem of planning the house.

ART

A. DRAWING. The purpose of this course is to teach the student to see correctly and to judge accurately, to give him enough general knowledge of drawing to make it an aid in the pursuance of other branches of study where graphic representation is an important feature of the work; and to give him such a training as will best and most fully meet the needs of the subsequent work.

The course consists of the principles of drawing, elementary perspective and its application, line drawing in charcoal and pencil from geometric forms, block casts, and simple still life. Much attention is given to proportion and accurate outline, because in laboratory drawing, such as in Botany and Zoology, true outline is of greatest importance.

The Secondary courses; in Agriculture, Commerce, and Forestry; first year; first semester; two credits; four studio periods.

B. MACHINE SKETCHING. This course is continued throughout the second semester, but is divided with the design to meet the requirements of the several Engineering courses. A considerable proportion of the time is given to machine sketching in order to acquaint the student with the method of securing and retaining data for complete working drawings by the aid of sketches; making and reading working drawings; detailing complicated parts, and making working drawings from written descriptions of machine parts.

The conventions of practice and the method of making clear, accurately dimensioned sketches for working drawings, is given first consideration. In machine sketching, the objects from which the sketches are made are selected from approved designs of commercial machinery and electrical apparatus, to give familiarity with correct forms. This work is carried on in the machine shops.

Prerequisite: Course A, or its equivalent.

The Secondary course in Mechanic Arts; first year; second semester; three credits; six drawing periods.

C. DRAWING. This course is designed for students in Agriculture, Forestry, and Commerce, further to carry out the aims of Course A; but instead of drawing from geometric forms and block casts, more complicated casts and still life studies are used. In this course, the Agricultural students are given instruction in making working drawings from approved farm machinery.

Prerequisite. Course A or its equivalent.

The Secondary course in Agriculture, Forestry, and Commerce; first year; second semester; two credits; four studio periods.

D. DRAWING. The exact definition of all forms is expressed in its contour or outline; the character of objects also may be expressed in line.

Elementary drawing in line from casts and still life.

Secondary course in Domestic Science and Art; second year; second semester; two credits; four studio periods.

101. FREEHAND LETTERING AND TITLE DESIGN. This course is especially designed for students in Civil Engineering, and consists of freehand lettering, the construction of Gothic letters and spacing, design of lines and titles, the single line titles, the choice of style, and size of letters, how to lay out and execute the design.

The course in Civil Engineering; freshman year; first semester; two credits; two studio periods.

102. ADVANCED ART. Drawing 102 and 103 are given to equip the students in the degree course in Domestic Science and Art with a strong foundation for the applied art work following, that they may be more able to carry out the subsequent courses intelligently and to greater advantage.

The work is in simple perspective applied to line drawing from casts and still life.

The degree course in Domestic Science and Art; freshman year; first semester; two credits; four studio periods.

103. LIGHT AND SHADE. Drawing in light and shade from still life studies. Judging areas, character of surfaces, high lights and reflections, and the relative values of lights and shadows. The last six weeks of the semester are given to pencil drawing from plants. The foliage and flowers conventionalized and expressed in ink silhouettes, as suitable elements for use in design.

Prerequisite: Course 102.

The degree course in Domestic Science and Art; freshman year; second semester; two credits; four studio periods.

109. ELEMENTARY DRAWING. Drawing in charcoal from geometric and block casts and still life.

Pharmacy course; freshman year; first semester; two credits; four studio periods.

110. ELEMENTARY DRAWING. A continuation of Drawing 109.

Pharmacy course; freshman year; second semester; two credits; four studio periods.

204. STILL LIFE IN COLOR. Color plays a very important part in everyday life; not only in wearing apparel and home decoration but from the standpoint of nature appreciation. The study of color, working with color, greatly develops our ability to see and appreciate the wondrous beauty nature constantly presents to us.

Elementary color. Still life in colored chalk and pastel.

Prerequisites: Courses 102, 103.

Degree course in Domestic Science and Art; sophomore year; second semester; two credits; four studio periods.

305. DESIGN. In all of the courses in Domestic Art (Basketry, Millinery, Costume Design, etc.) and in the Industrial Arts, design is a very essential feature. The object of this course, then, is to place before the student a systematic study of the principles of design, continuing on to the more advanced work of applied design.

Prerequisites: Courses 102, 103, 104, 204 or their equivalent.

Elective in Domestic Art; junior year; first semester; two credits; two studio periods of two hours each.

306. DESIGN AND STENCIL. A continuation of course 305. Each student will design and execute patterns for application to curtains,

cushion covers, table runners, center pieces, and luncheon or tea sets. Cutting and applying stencils suitable for the materials (linen, crash, scrim, and art burlap) most available for home decoration.

Prerequisite: Course 305.

Elective in Domestic Art; junior year; second semester; two credits; two studio periods.

407. TRAINING COURSE FOR TEACHERS. Elective; first semester; three credits; one recitation; four studio periods.

408. TRAINING COURSE FOR TEACHERS. Both courses include talks on methods, the formulation of day by day lessons; their study and practice, following the best methods of public school drawing instruction.

Elective, second semester; three credits; one recitation; four studio periods.

409. ART APPRECIATION. Lectures, reading, and the study of prints and reproductions in color.

Elective in Domestic Art; senior year; first semester; two credits; two recitations.

410. ELEMENTARY DRAWING. A general knowledge of elementary darwing is necessary as a foundation for all the subsequent courses in Industrial Arts drawing. This course deals with the underlying principles of freehand drawing and the principles of freehand perspective, with their application to shop or working darwings; consists of line drawing in charcoal and pencil from the geometric forms, singly and in groups.

The course in Industrial Arts; first year; second semester; two credits; four studio periods.

411. INDUSTRIAL ARTS DARWING. Working drawings in pencil from wood joints and machine parts; machine sketching and drawing from written descriptions.

Prerequisite: Course 410.

The course in Industrial Arts; second year; first semester; two credits; four studio periods.

412. INDUSTRIAL ARTS DESIGN. A course in the principles of design suited to the industrial arts, special attention being given to line and form.

Prerequisites: Courses 410, 411.

The course in Industrial Arts; second year; second semester; two credits; two studio periods of two hours each.

413. CLAY MODELLING. Modelling or designing in clay or any plastic material, is a practical art; because it is so closely related to Architecture and many of the applied arts, such as ceramics, art tile, and the terra cottas.

In this course the student will be made familiar with the use of the various tools, modelling from geometric forms, block casts of hands, feet, heads, etc.

An elective open to all students who have successfully competed two years of drawing; first semester; two credits; two studio periods of two hours each.

414. CLAY MODELLING. A continuation of course 413 with the addition of some original design executed in low relief.

An elective open to all students who have successfully completed Clay Modelling I, course 413; second semester; two credits; two studio periods of two hours each.

205. WATER COLOR. The course in Water Color is given the better to equip the student with means of expression in the applied and industrial arts courses, design, ceramics, etc.; also a cultural study for others who may elect it.

The work of the first semester will include simple flat washes from geometric casts and flat color washes from still life objects of broad area.

Prerequisites: Courses 102, 103, 204, or 410, 411, or their equivalent.

This course is open to all special art students after the required prerequisite courses in drawing, and as an elective to regular students who have completed two years of drawing; first semester; two credits; two studio periods of two hours each.

206. WATER COLOR. In this course the work will be in more complex flat washes and color schemes such as the application of color to design. Some still life will be taken up.

Prerequisites: Courses 102, 103, 204, 205, or 410, 411 and 204.

An elective open to all students who have completed two years of drawing and Water Color I, course 205; second semester; two credits; two studio periods of two hours each.

ARCHITECTURE

501. ARCHITECTURAL DRAWING. In this course the student is first introduced to strictly architectural work. It familiarizes him with the use of the T-square and triangle, the architect's scale and drawing instruments. Beginning with simple problems in direct projection, the course progresses to practical work drawings.

Much attention is given to lettering, neatness, and style. Twenty or more plates are prepared, and work is carried on in much the same manner as in an architect's office.

Freshman year; first semester; four credits; four drawing room periods.

502. ORDERS. A continuation of course 501, is in reality the first course in design. A thorough study of the proportions of the classic orders of architecture. Recitations will take up the study of the proportions of the various orders upon which the class will be closely quizzed, and there will be frequent talks on the historical development and meaning of the classic styles, and their relations to present day needs. Drawing room plates of the Orders on Whatman's paper will be made. One problem in original design will conclude the semester's work.

Prerequisites: Architecture 501, and Drawing A.

Freshman year; second semester; four credits; one recitation; three Drawing room periods.

503. PEN AND PENCIL RENDERING. The beginning course in the study of methods and means of architectural expression. The work is designed to give to the student the first insight into the handling of the pen and the pencil. Freehand sketches of still-life groups in the drawing room, followed by sketching of details of buildings on the cmpus; a study of the manners of portraying different building materials, such as brick, stone, terra cotta, stucco, etc.

Freshman year; first semester; two credits; two studio periods.

504. PEN AND PENCIL RENDERING. A continuation of course 503.

Freshman year; second semester; two credits; two studio periods.

505. WATER COLOR RENDERING. A collateral study with pen

and pencil rendering, training the student to handle the brush and color and to lay architectural washes.

Freshman year; first semester; one credit; two studio periods.

506. WATER COLOR RENDERING. A continuation of course 505.

Freshman year; second semester; one credit; two studio periods.

507. WOOD CONSTRUCTION. With Kidder's Building Construction, Part 2, Carpentry, as a text-book, a survey is made of the best methods of frame construction. The properties of woods with methods current in manufacturing, working and finishing them, and their constructive use in building are carefully studied, and a number of drawing room plates are prepared by each student, together with detailed freehand sketches from buildings in process of construction.

Sophomore year; first semester; four credits; one recitation; three drawing room periods.

508. METAL AND MASONRY. A continuation of the study of construction begun the preceeding semester. Kidder's Building Construction and Superintendence is used as text. All types of foundations—brick, stone, concrete and pile—are studied, with detailed inquiry into the use, defects, and qualities, modes of preparation, finish, and efficiency of each; the manufacture, design and use of terra cotta, and a complete study of modern steel and fireproof construction.

The drawing room plates will consist of drawings of typical details of masonry and metal construction.

Sophomore year; second semester; four credits; one recitation; three studio periods.

509. SHADES AND SHADOWS. Approved methods of casting shadows for rendered drawings are studied in the drawing room.

Sophomore year; first semester; one credit; one drawing room period.

510. THE ELEMENTS OF DESIGN. A systematic study of the various elements which enter into design work. Problems in design worked out in the studio.

Sophomore year; first semester; three credits.

511. THE ELEMENTS OF DESIGN. Practical problems in design. It is the purpose of this course not to carry monumental design

work beyond the limit of practicality and no problems will be assigned which would not be met in an efficient architect's office.

Sophomore year; second semester; four credits.

512. EIGHT HOUR PROBLEMS. One Saturday in each month, a problem will be assigned to be worked out "en loge" by the student. This will partake somewhat of the nature of a competition.

Sophomore year; first semester; one credit; eight hours; "en loge."

513. EIGHT HOUR PROBLEMS. A continuation of course 512.

Sophomore year; second semester; one credit; eight hours; "en loge."

514. HISTORY OF ARCHITECTURE. With the aid of the stereopticon, the story of the rise, glory, and decline of the various styles of architecture is told. During the first semester the Egyptian, Assyrian, Greek, and Roman styles are studied. In the second semester's work the early Christian, Byzantine, Romanesque, Gothic, Renaissance, and Modern styles are studied. Contemporary work is closely noted in the study of the modern styles, since it is to meet the needs of a present generation that the student is trained.

Elective; first semester; four credits; four recitations.

515. HISTORY OF ARCHITECTURE. A continuation of course 514.

Second semester; four credits; four recitations.

516. DOMESTIC PLANNING. The problem of the house is one upon which the architect is largely dependent for his practice. It seems very profitable to begin early in the course with a consideration of domestic planning and design.

The use, importance, placing, and relation of each room to the other parts of the house, the materials of construction and their effective use, the house and its site are all taken up in this study of domestic architecture.

Elective; three credits; three laboratory periods.

520. Architectural Design. A continuation of course 519 of the first semester. This course takes up advanced work in design.

Junior year; second semester, eight credits; eight drawing room periods.

522. Historic Ornament. A study of architectural ornament by means of measured drawings and water color rendering and color.

Junior year; second semester; two credits; two studio periods.

518. Perspective. A study of mechanical perspective drawing. Line drawings will be required as directed.

Sophomore year; second semester; one credit; one drawing room period.

portions and of multiple proportions, the Law of Boyle, and the Law of Charles. The student attains skill in the manipulation of apparatus, and in the management of equipment in general. From this elementary work he proceeds to qualitative analysis, in the study of which he is taught to separate and identify the different elements composing the mass, and, in the case of metals, to learn of their properties, their use, the different methods of obtaining them from their ores, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quantitative analysis, which is the determination of the amounts of the ingredients. He is taught both methods of analysis, volumetric, or the method by solution, and the gravimetric, or the method by precipitation and weighing. On completing these courses, the student is fairly well prepared to take up advanced chemistry, which treats of the analysis of soils, manures, cattle foods, dairy products, etc., or he can take up the subject from the inorganic side in the analysis of minerals, fuels, oils, gas, etc., or he can view it from the pharmacist's standpoint, in analyzing drugs.

520. Architectural Desig
tinuation of course 519 of +
semester.

CHEMISTRY

Professor Fulton
Assistant Professor Tartar
Mr. Harding
Mr. Brodie
Mr. Daughters
Mr. Rowland
Miss Miller
Mr. _____

The beginner's courses, Chemistry 100, 101 and 102, consist essentially of the proof of some of the well known chemical laws, such as the law of conservation of matter, the law of definite proportions and of multiple proportions, the Law of Boyle, and the Law of Charles. The student attains skill in the manipulation of apparatus, and in the management of equipment in general. From this elementary work he proceeds to qualitative analysis, in the study of which he is taught to separate and identify the different elements composing the mass, and, in the case of metals, to learn of their properties, their use, the different methods of obtaining them from their ores, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quantitative analysis, which is the determination of the amounts of the ingredients. He is taught both methods of analysis, volumetric, or the method by solution, and the gravimetric, or the method by precipitation and weighing. On completing these courses, the student is fairly well prepared to take up advanced chemistry, which treats of the analysis of soils, manures, cattle foods, dairy products, etc., or he can take up the subject from the inorganic side in the analysis of minerals, fuels, oils, gas, etc., or he can view it from the pharmacist's standpoint, in analyzing drugs.

Finally, as a graduate student, he may proceed intelligently along original lines of study and research.

The following courses are offered:

100. GENERAL CHEMISTRY. This course deals with the general principles of the science, and extends through the divisions known as the non-metals.

All degree courses except Domestic Science and Art; freshman year; first semester; four credits; two recitations; two laboratory periods.

101. GENERAL CHEMISTRY. Descriptive. A continuation of course 100.

All degree courses except Domestic Science and Art; freshman year; second semester; four credits; two recitations; two laboratory periods.

102. GENERAL CHEMISTRY. This course is arranged especially for the students of the Department of Domestic Science and Art.

The course in Domestic Science and Art; freshman year; first semester; four credits; two recitations; two laboratory periods.

103. GENERAL CHEMISTRY. A continuation of 102.

The course in Domestic Science and Art; freshman year; second semester; four credits; two recitations; two laboratory periods.

200. ELEMENTARY ORGANIC CHEMISTRY. This is a brief course in Organic Chemistry, and is provided for the students of Domestic Science and Art.

Sophomore year; first semester; four credits; two recitations; two laboratory periods.

201. ORGANIC CHEMISTRY. This course consists of the study of the more typical and simple organic compounds and is designed for Pharmacy, and such students of Agriculture as desire to take up Physiological Chemistry, and Veterinary Science.

Sophomore year; second semester; four credits; two recitations; two laboratory periods.

202. CHEMISTRY OF FOODS. An advanced course for the students of the School of Domestic Science and Art, consisting of practice in the best methods as applied in food analysis, and in detection of common adulterants. Opportunities for research work will be given if desired.

~~203~~. TEXTILE CHEMISTRY. This course is designed for the students in Domestic Art, and consists of the study of the fibres commonly known as the "textile fibres" and the action—chemical and physical—of the substances known as the "dyes" on the fibres.

Junior year; first semester; three credits; one recitation; two laboratory periods.

300. QUALITATIVE ANALYSIS. This course consists largely of laboratory practice in the ordinary processes of separating and identifying ions.

The course in Pharmacy and Highway Engineering; sophomore year; first semester; four credits; one recitation; three laboratory periods; junior year.

301. QUALITATIVE ANALYSIS. A course provided for mining students.

Sophomore year; first semester; five credits; one recitation; four laboratory periods.

400. QUANTITATIVE ANALYSIS. This is a course designed for students in Pharmacy, and consists of instruction in both gravimetric and volumetric analysis of pharmaceutical products.

Junior year; first semester; four credits; four laboratory periods.

401. QUANTITATIVE ANALYSIS. This is a course in analysis for Mining students, and consists of gravimetric analysis of limestones, iron, lead, zinc, arsenic and antimony ores, coal, and as much other work as time will permit.

The courses in Mining Engineering; sophomore year; second semester; five credits; five laboratory periods.

The course in Domestic Science and Art; sophomore year; second semester; four credits; one recitation; three laboratory periods.

403. CHEMISTRY OF WATER. This course is designed especially for the students in Civil Engineering, and consists of the examination, both physically and chemically, of waters for domestic purposes, such as well waters, but more particularly that supplied to cities, whether under municipal control or that of private corporations. At the close of the chemical examinations, bacteriological tests will be made under the auspices of the Department of Bacteriology.

The course in Civil Engineering; junior year; second semester; two credits; two laboratory periods.

Prerequisites: Chemistry 100 and 101.

404. PHARMACEUTICAL ANALYSIS. This is an extension of Quantitative Analysis 400, and consists of the chemical examination of alkaloidal drugs and galenicals, and of the examination of urine.

The course in Pharmacy; junior year; second semester; four credits; four laboratory periods.

405. CHEMISTRY OF HIGHWAY MATERIALS. This course is designed for students in Highway Engineering, and consists of the study of such materials as cement, asphalt, bitumen, mineral oils, tar, and tar products.

The course in Civil Engineering; junior year; second semester; two credits; two laboratory periods.

406. ELECTRO CHEMISTRY. This is a course for advanced Mining students, and consists of the application of the electric current to solutions of the different metals in metallurgical analysis.

Elective; junior or senior year; first semester; two credits; two laboratory periods.

407. CHEMISTRY FOR ENGINEERS. This course is particularly for students in Mechanical and Electrical Engineering. It consists of the analysis of coal, oil, gas, and of their calorific powers; also the technical analysis of flue gases.

Elective; junior or senior year; second semester; two credits; two laboratory periods.

409. PHYSIOLOGICAL CHEMISTRY. This course is primarily for students in Pharmacy but is open to any one interested in the subject.

Prerequisite: Chemistry 200.

Junior year; second semester; four credits; four laboratory periods.

410. CLINICAL CHEMISTRY.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

413. TOXICO CHEMISTRY.

Elective; seniors; second semester; three credits; one recitation; two laboratory periods.

500. AGRICULTURAL CHEMISTRY. A course consisting of lectures, recitations, and laboratory work, dealing with the more important phases of Chemistry as related to Agriculture.

The course in Agriculture; sophomore year; first semester; four credits; two recitations; two laboratory periods.

501. AGRICULTURAL CHEMISTRY. A continuation of course 500.

The course in Agriculture; sophomore year; second semester; four credits; two recitations; two laboratory periods.

502. DAIRY CHEMISTRY. This consists of the study of the chemistry of milk and its products and includes both qualitative and quantitative determination of adulterants and preservatives.

Prerequisites: Chemistry 201 and 500.

The course in Dairy Husbandry; junior year; second semester; three credits; three laboratory periods.

503. SOIL CHEMISTRY. This is a lecture and laboratory course on the methods of soil analysis, as used by the different experiment stations.

Prerequisites: Chemistry 201 and 500.

Junior year; first semester; two or four credits; two or four laboratory periods.

504. SOIL CHEMISTRY. A continuation of course 503.

Junior year; second semester; two or four credits; two or four laboratory periods.

505. AGRICULTURAL ANALYSIS. A course in analytical methods applied to agricultural materials including cereals, fertilizers, soil, waters, etc.

Junior year; first semester; four credits; four laboratory periods.

Prerequisites: Chemistry 201 and 500.

506. AGRICULTURAL ANAYLSIS. A continuation of course 505, extending through the second semester. Same credits and requirements.

507. ADVANCED AGRICULTURAL ANALYSIS. This course is especially Thesis work in the Experiment Station laboratory, or work of the same general description.

Senior year; first semester; four credits; four laboratory periods.

508. ADVANCED AGRICULTURAL ANALYSIS. A continuation of course 507.

Senior year; second semester; four credits; four laboratory periods.

600. INDUSTRIAL CHEMISTRY. A practical study of the chemical processes involved in the production of various commodities, including iron, steel, copper, and other metals; soaps, dyes, paints, and the like. The course is intended to familiarize the student with the application of chemistry to modern industries.

Elective; course in Commerce; junior or senior year; either semester; three credits; three recitations.

ENGLISH LANGUAGE AND LITERATURE

Professor Berchtold
Assistant Professor Callahan
Mr. Baldwin
Mrs. McElfresh
Mr. Peterson
Miss Vance
Miss Bowden
Miss Rosaaen

It is the aim of this department to teach the student to express with clearness what he thinks with vigor. He is taught that the essential part of any composition, whether oral or written, is thought, well-organized and well-expressed; that to comprehend clearly and to feel strongly what he has to say are the indispensable conditions of making others comprehend and feel it.

What his text-book helps him to do consciously, familiarity with superior writers should help him to do unconsciously; for we may get good from a master of English by unconscious absorption, just as we acquire good manners by associating with gentlemen and ladies. No mind can fail to be stimulated by contact with greater minds, whether living or dead. Their pages feed the powers of thought and strengthen the power of expression, thus enabling the student to think, talk, and write to more purpose.

In all the collegiate courses in English, particularly accentuated, however, in the courses in public speaking, the work is correlated with that offered in the other departments, to bring it into harmony with the trend or spirit of the institution, which is distinctly technical and industrial in character. Subjects are assigned for presentation and discussion which bear close relation to the work pursued by the students in the different schools, in

anticipation of their probable needs and activities in later life. What is sought and insisted on is, earnest, logical, forceful presentation of facts that will compel attention and carry conviction.

The Oregon Agricultural College participates in a number of intercollegiate oratorical contests and debates; and the courses in public speaking are designed to give preparation for these contests.

A—RHETORIC AND LITERATURE

A. ELEMENTARY CONSTRUCTIVE ENGLISH. This course is designed to make the expression of ideas a pleasure to the student. It is not confined to the mere memorizing of inflections and the formulation of rules. The course consists of both oral and written work, with Baskervill and Sewell's English Grammar as a basis. Written exercises prepared under rules of form are required constantly to obtain flexibility and confidence in expression. There is daily drill in punctuation and capitalization, in analysis and synthesis of sentences. Special emphasis is laid upon spelling. Practice in the correction of written work is given to enable the student to detect his own mistakes readily. Elementary themes, one, two, and three paragraphs in length are required, the subjects being chosen from the student's experience, and from classic readings. Ten short themes, with conferences for criticism, will be required.

The Secondary courses; first year; first semester; four credits; four recitations.

B. COMPOSITION. The aim of this course is to ground students thoroughly in the elements and fundamentals of composition. Capitalization and punctuation reviewed; the importance of letter writing emphasized; principles governing sentence structure, paragraph structure, and theme structure, studied, with certain classic models always in the foreground; the aim is, in short, to develop power of expression and individuality as spontaneously and naturally as possible. Further, the logical arrangement of thoughts as represented by the outline, receives special emphasis. At least eight short themes, six long themes, synopses, and one resume, with conferences for criticism, to illustrate the forms of

composition. To be taken in connection with English D, and supplemented by it.

The Secondary courses; first year; second semester; two credits; two recitations.

C. ELEMENTS OF LITERATURE. The aim of this elementary course is to cultivate in the student a taste for reading; to assist him in the interpretation of the simpler classics of our literature; and to encourage him to express his own thoughts clearly and without embarrassment. Masterpieces of prose and poetry are studied, and some collateral reading is required. Oral and written reports on current events as outlined in the Literary Digest, The Atlantic Monthly, and other standard magazines.

The Secondary courses; first year; first semester; one credit; one recitation.

"The Odyssey," Lang's Translation.

"Snowbound," Whittier.

D. ELEMENTS OF LITERATURE. A continuation of Elements of Literature C.

The Secondary courses; first year; second semester; three credits; three recitations.

"The Iliad," Lang's Translation.

"The Pilgrim's Progress," Part I, Bunyan.

"The Merchant of Venice," Shakespeare.

"The Vision of Sir Launfal," Lowell, or "The Ancient Mariner," Coleridge.

E. RHETORIC AND COMPOSITION. Open to students who have had courses A, B, C, D, or their equivalent.

A review of the principles of grammar; exercises in syntactical construction; principles governing the structure of the whole composition; analysis and outline of specimens of easy classic prose and poetry, with a view to illustrating theme structure; writing of short compositions in class on "read up" matter; and the preparation of twelve short themes and two long themes, in the narrative and descriptive forms, with attention to sentence structure, spelling, punctuation, and paragraph arrangement.

The Secondary courses; second year; first semester; three credits; three recitations.

F. RHETORIC AND COMPOSITION. A continuation of course E. Intensive study of the Paragraph, the Sentence, and the Word; study of synonyms; paragraph writing, with a view to applying the principles governing the development of the topic statement; at least ten short themes, occurring weekly, and three long themes, in the expository and argumentative forms.

The Secondary courses; second year; second semester; three credits; three recitations.

G. ELEMENTS OF LITERATURE. Principles of literary criticism; interpretative study of classics; analysis and rendering. George Eliot's "Silas Marner," Irving's "Tales of a Traveller," Parkman's "Montcalm and Wolfe" or Dickens' "Tale of Two Cities", constitute the list of classics from which selections for study will be made.

The Secondary courses; second year; first semester; two credits; two recitations.

H. ELEMENTS OF LITERATURE. Continuation of the methods of work employed in the first semester. A selection of two classics will be made for study from a list consisting of Shakespeare's "As You Like It," Mary Johnston's "The Long Roll," Hawthorne's "The House of Seven Gables."

The Secondary courses; second year; second semester; two credits; two recitations.

21. BUSINESS ENGLISH. Besides giving a thorough training in commercial correspondence, the course aims to ground the students in the vocabulary, forms, and usages peculiar to business and administrative pursuits. Incidental writing, summaries, advertising, preparation of copy, and proofreading receive much attention.

The standards of commercial English are each year advancing; and familiarity with proper usage of recognized form is of paramount importance to those who are looking forward to a business career.

The course in Commerce; freshman and second Secondary years; first and second semesters respectively. The course in Forestry; freshman year; second semester. Three credits; three recitations; either semester.

31. RHETORIC. Study of the elements and principles involved in effective discourse. Study of the expository and argumentative methods of writing, with analysis of selections. Drafting of expository outlines, with special attention given to correct coordination and subordination. A study of the paragraph as the form of expository composition, accompanied by practice-writing for showing the various methods of developing the topic statement. Instruction and drill in compiling and composing notes, an elementary exercise in orginial research. Plotting of briefs.

Compositions required: Eight expository and four argumentative short themes. One expository long theme requiring research, and accompanied by bibliography; one criticism; two argumentative long themes, accompanied by briefs.

All degree courses; freshman year; first semester; three credits; three recitations.

32. ADVANCED RHETORIC. Study of the elements and principles involved in effective discourse continued, lectures, discussions and outlines on the characteristics of the literature of feeling, accompanied by readings to illustrate the type. Study of the descriptive and narrative methods of writing, with illustrative readings. Expository and emotional description differentiated. Function of description in narrative writing. Outlines exhibiting and briefly defining narrative types. Practice in writing dialogue.

Compositions required: Eight short descriptive themes; four short narrative themes; two long narrative themes; one long theme retelling, in abstract, the story of a book of fiction. Frequent oral delivery.

All degree courses; freshman year; second semester; three credits; three recitations.

41. ELEMENTS OF LITERATURE. Instruction in the elements of literature will aim to give the student an intimate acquaintance with typical specimens of excellent literary productions composed in the English language, and help him to discover whatever is of significance in a piece of literature, and to explain it intelligently in terms of rhetoric. Specimens for critical examination will be chosen from the works of authors that have become classic, and from the productions of the best contemporary writers. The

prevailing type studied during the first semester will be the literature of thought. The work will be so conducted as continually to correlate with the work in rhetoric and composition. Analysis and rendering. Topics assigned for reading, and for oral and written reports.

All degree courses; freshman year; second semester; two credits; two recitations.

42. ELEMENTS OF LITERATURE. The work in the elements of literature, during the second semester, is, as regards aims, sources of specimens, and methods of study, essentially the same as that of the first semester. The prevailing type studied is the literature of feeling. Topics assigned for reading and oral and written reports.

All degree courses; freshman year; second semester; two credits; two recitations.

51. THE ESSAY. This is perhaps the most instructive, helpful and profitable of the forms of discourse. A careful study of the works of the masters of this form: Emerson, Lowell, Stedman, DeQuincey, Macaulay, Matthew Arnold, Ruskin, Pater, Stevenson. Study of the paragraph; frequent written exercises, to acquire correctness and facility of expression.

Required in the course in Domestic Science and Art; sophomore year; first semester; three credits; three recitations.

52. THE ENGLISH DRAMA. A course devoted chiefly to the study of Shakespeare. Rapid survey of the rise and development of the English drama, by lectures and reports, followed by the careful reading of three or four of Shakespeare's plays. Study of setting, plot, structure, and characters. Reports on assigned readings. Reviews.

The course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations.

61. ENGLISH LITERATURE. A general outline course of the history of English literature. This includes a survey of the principal forms of literature as exemplified by the masters in each field. The aim is to cultivate an appreciation of what is excellent in quality and form. Masterpieces representing the best thought and form are studied in class or assigned to students for

careful reading and reports. Chief attention given to Chaucer, Spenser, Shakespeare, Milton, Swift, Pope, Johnson, Burke, Goldsmith, and Burns.

The course in Domestic Science and Art; junior year; first semester; three credits; three recitations.

62. ENGLISH LITERATURE. A continuation of course 61. A study of the writers of the nineteenth centruy: Wordsworth, Scott, Shelley, Keats, Macaulay, Dickens, Thackeray, George Eliot, Matthew Arnold, Carlyle, Ruskin, Stevenson, and others. The required readings are designed to illustrate the different forms and periods of English literature.

The course in Domestic Science and Art; junior year; second semester; three credits; three recitations.

71. AMERICAN LITERATURE. A study of the leading periods and principal writers of our country, with particular emphasis on what is sometimes called the First National Period, including such authors as Irving, Cooper, Bryant, Poe, Hawthorne, Longfellow, Lowell, and Holmes; also prominent writers of the present day; lectures; class room study and reading; compositions.

The courses in Domestic Science and Art, and Pharmacy; elective in the other courses; senior year; first semester; two credits; two recitations.

72. AMERICAN LITERATURE. A continuation of course 71. The metropolitan writers; present schools and tendencies; literature in the West; lectures; class room study and reading; compositions.

The courses in Domestic Science and Art, and Pharmacy; elective in the other courses; senior year; second semester; two credits; two recitations.

81. MODERN ENGLISH PROSE. A study of representative modern prose writers with special reference to prose as found in present day standard periodicals. Study of the newspaper paragraph. Practice in reporting lectures. Exercises in the elaboration of field notes. Drills looking to the popularization of technical matters and the results of experiments. Writing of papers and reports. Theme writing. Oral composition.

Elective in the courses in Agriculture, Forestry, Commerce, Mechanical and Civil Engineering; sophomore year; first semester; three credits; three recitations.

82. MODERN ENGLISH PROSE. A continuation of course 81. Elective in the courses in Agriculture, Forestry, Commerce, Mechanical and Civil Engineering; sophomore year; second semester; three credits; three recitations.

B—PUBLIC SPEAKING

101. ARGUMENTATIVE THEMES. This course is devoted principally to training in analysis, evidence, and brief-drawing. The work consists of lectures, a study of text-books, and practice in the composition of various forms of argumentative themes.

All courses in Engineering and Pharmacy; sophomore year; first semester; one credit; one recitation.

In the courses in Agriculture, Commerce, and Forestry; junior year; first semester; one credit; one recitation.

102. PRESENTATION. This course deals with the principles of conviction and persuasion, and with the problems of presentation. Students are taught how to recognize and solve problems which arise because of the different interests and characters of individuals and communities.

All courses in Engineering and Pharmacy; sophomore year; second semester; one credit; one recitation.

In courses in Agriculture, Commerce, and Forestry; junior year; second semester; one credit; one recitation.

103. COMPOSITION OF ADDRESSES. This course deals with the composition of the most important kinds of addresses, including the argument, the eulogy, the commemorative address, and various forms of non-forensics. The work consists of lectures, a study of text-books, analysis of masterpieces, practice in the composition of the various forms, and frequent class room exercises.

All Engineering courses; junior year; first semester; two credits; two recitations.

The courses in Agriculture, Commerce, Forestry, and Pharmacy; senior year; first semester; two credits; two recitations.

104. EXTEMPORE SPEAKING. Practice in the presentation of the various forms of addresses. Speeches are prepared on topics of special interest to the students and delivered with the view

to making them most effective as means in the advancement of a particular cause. Extensive criticism is offered as to methods of selection, organization and presentation.

All Engineering courses; junior year; second semester; two credits; two recitations.

The courses in Agriculture, Commerce, and Pharmacy; senior year; second semester; two credits; two recitations.

105. PRACTICAL PUBLIC SPEAKING. Practice in the presentation of the various forms of public addresses, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Practice in the rapid preparation and in the impromptu delivery of speeches on topics of current interest. Designed for those who wish some general training in public speaking. Drill in parliamentary procedure.

Elective; first semester; three credits; three recitations.

106. PRACTICAL PUBLIC SPEAKING. Continuation of course 105.

Elective; second semester; three credits; three recitations.

107. DEBATING. Practical work in brief-drawing, the collection and handling of evidence, and debating. Each student will prepare several debates under the direction of the instructor; construct briefs and participate in class room debates. Personal consultation with the instructor on thought, composition and delivery. This course is a critical and practical study of debating. The class is limited in number, and the course can be taken only with the consent of the instructor.

Elective; first semester; two credits; two recitations.

108. ORATORY. This course is intended as special preparation for those who wish to enter oratorical work. The work consists of lectures on the theory of oratory, the preparation of original orations, class room exercises, and personal conferences and criticism. The course can be taken only with the consent of the instructor.

Elective; first semester; one credit; one recitation.

109. ELEMENTARY PUBLIC SPEAKING. By studying the principles of conviction and persuasion, and by practicing daily the presentation of impromptu as well as carefully prepared speeches, the students are given in this course a training along those lines

of public speaking which will be the most practical and useful to them after leaving the College. Practice in parliamentary procedure will also be given.

The course in Domestic Science and Art; first or second semester

Miss Rosaaen:

1913-1914
I Sem., English 201
" " 203
II " " 202
" " 204

Journalism

1913-1914.
I Sem. English 301 .... one credit
II " " 302 .... " "

of public speaking which will be the most practical and useful to them after leaving the College. Practice in parliamentary procedure will also be given.

The course in Domestic Science and Art; first or second semester of the freshman year; two credits; two recitations.

110. APPLIED PUBLIC SPEAKING. This is a companion course to courses 105 and 106. It is intended for those who want a practical course in Public Speaking as applied in salesmanship, in speeches on technical subjects, etc. Like the other courses (105 and 106) it offers practice in the presentation of various types of addresses, the purpose of which is to acquire ease, grace, clearness, persuasiveness, and force in speaking. Drill in parliamentary practice.

Elective; first semester; two credits; two recitations.

111. APPLIED PUBLIC SPEAKING. Continuation of course 110.

Elective; second semester; two credits; two recitations.

201. ELOCUTION. Literary interpretation, including analysis, memorizing, and rendering of selected masterpieces of prose and poetry. The aim of this course is to enable the student not only to understand and appreciate the thought and spirit of literature, but to render it naturally and effectively; to correct erroneous habits of speech and to give freedom, purity, and strength of tone; to cultivate the power of expression through imagination; to eliminate artificiality, affectation, and self-consciousness.

Elective; first semester; two credits; two recitations.

202. ELOCUTION. Continuation of course 201.

Elective; second semester; two credits; two recitations.

203. ELOCUTION. Advanced literary interpretation. Training in the delivery of masterpieces of prose and poetry; repertoire; Bible reading; interpretative study of Shakespeare and the modern drama; voice culture; bodily expression; impersonation.

Prerequisite: Course 108.

Elective; first semester; two credits; two recitations.

204. ELOCUTION. Continuation of course 203.

Elective; second semester; two credits; two recitations.

301. AMERICAN JOURNALS. Lectures dealing with the history and development of American newspapers, scientific and industrial

journals; their use, and influence on the political and scientific activities of the times; law of libel and copyright. Class room examination of newspapers, industrial, scientific and critical periodicals. Practical work in writing for journals of the various classes.

Elective; first semester; three credits; three recitations.

302. INDUSTRIAL JOURNALISM. Continuation of course 301. Practice in preparation of articles for newspapers, scientific and industrial periodicals. Preparation of scientific bulletins. Writing of political letters and pamphlets. Critical examination of specimens of journalistic production in the fields of politics and science, supplemented by lectures.

Elective; second semester; three credits; three recitations.

303. THE SCIENCE OF EDITING. Practice in the reading of proof and the remodeling of material prepared for the press. In this course, the students will work under the direction of the instructor in the preparation of the undergraduate publications and, to some extent, the College publications.

Elective; first semester; two credits; two recitations.

304. ADVERTISING. Lectures on the psychology of successful advertising. Study of the principles of composition in the various forms of advertising. Preparation and distribution. Lectures supplemented by critical examination of advertising in American journals. Practice in the preparation of advertising matter.

Elective; second semester; two credits; two recitations.

Note.—Courses 301, 302, 303, 304, may not be offered during 1913-14.

HISTORY

Professor Horner.

A. ANCIENT HISTORY. A survey of the ancient eastern nations with a careful study of Greece and Rome.

The Secondary courses; first year; first semester; three credits; three recitations.

B. MEDIAEVAL AND MODERN HISTORY. A study of the social and political institutions of Europe, with discussions touching the material progress of these ages; famous works of art; foundations, inventions, discoveries, enterprises, improvements, and investigations.

The Secondary courses; first year; second semester; three credits; three recitations.

10. ENGLISH HISTORY. An outline of political and constitutional history to serve as a framework for the study of the economic, social, and intellectual development of the nation.

Required of freshmen in Domestic Science and Art.

Elective; first semester; three credits; three recitations.

20. UNITED STATES HISTORY. With special attention to the colonial, political, and industrial aspects.

The secondary course in Forestry; second year; first semester; three credits; three recitations.

30. EUROPEAN HISTORY (ADVANCED COURSE). The period studied under this title extends from the Renaissance to the close of the French Revolution. The beginnings and growth of modern European states are considered, together with the great art, intellectual, religious, and political movements which have prevailed in Europe. The modern expansion activities of these states upon other continents are also discussed.

Prerequisite: History B.

The course in Commerce; sophomore year; second semester; three credits; three recitations.

40. MODERN EUROPE. The development of modern Europe since the Congress of Vienna.

Prerequisite: History B.

Elective; three credits; three recitations.

50. CONSTITUTIONAL HISTORY OF ENGLAND. Development of the English Government; the Magna Charta; its origin; its meaning; its bearing upon English legislation and law. Bill of Rights; Petition of Rights; and other important political documents; American Constitution, the outgrowth of English Polity. Adapted especially to students expecting to study law.

Elective; senior year; second semester; three credits; three recitations.

60. POLITICAL AND CONSTITUTIONAL HISTORY OF THE UNITED STATES. A brief course that covers the important events of our history. It is offered to students who have not had time to take thorough courses in United States History and Political Science. Especially important in Oregon since the introduction of direct legislation, and equal suffrage.

In order to accomplish as much as possible in the brief time alloted to the subject, the student uses a combination of two text-books; namely, Channing's "United States History," and Ashley's "American Government." Instruction by recitation and discussion. Adapted to all schools except the Schools of Commerce and Domestic Science and Art, which cover the course with other work.

Elective; two credits; two recitations.

70. HISTORY OF OREGON. Early explorations. Lewis and Clark expedition. Minor expeditions. Fur trade. Rivalry between companies. Era of immigration. Oregon organized under Hudson Bay Company. Agitation in Congress for military occupation of the Columbia. The Nez Perce Indians ask for the Bible. Response by Methodists and Congregationalists. Doctor Whitman and the Oregon movement. Struggle for the Willamette. Struggle for the Columbia. First transcontinental wagon road. Provisional government. Progress of immigration and missons. Gold excitement. Subdivision of Oregon into territories. Indian wars. Home building. Disposition made of the Indians. Oregon becomes a

State. Introduction of improved fruit, grains, and stock. Ships and railways. Select schools, public schools, and higher education. Oregon literature. Industrial training, and introduction of scientific methods. Irrigation; conservation of forests. "The Oregon System" of direct legislation.

Elective; the course in Commerce; sophomore year; first semester; the course in Domestic Science and Art; junior year; second semester; three credits; three recitations.

LIBRARY

Mrs. Kidder
Miss Lewis*
Miss Haight
Miss Herse

EQUIPMENT. The Library occupies the second floor of the Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building. It is supplied with about five hundred leading magazines and newspapers. Through the courtesy of the editors, a large number of farm, orchard, stock, and home journals, and county newspapers of Oregon are received regularly at the reading room. The book stacks, occupying adjacent rooms, contain about sixteen thousand volumes of standard works of history, biography, engineering, agriculture, natural science, general literature and reference, and about five thousand reports and other publications from the Agricultural Colleges and Experiment Stations of all the states, and thirty thousand bulletins and pamphlets. The library is a designated depository of United States Government publications, of which it has about seven thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

Practical use of the books has led to the establishment of small reference libraries kept in the rooms of the following departments: General Chemistry, Agricultural Chemistry, Animal Husbandry, Agronomy, Horticulture, Botany, Forestry, Bacteriology, Zoology, Pharmacy, Civil, Mechanical, Electrical, and Mining Engineering. Each department library is in charge of the head of that department, to whom application must be made for the use of the books.

All books are classified and catalogued according to the Dewey decimal system. Books may be drawn for home use by all officers

*On leave of absence.

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 any reasonable time. All students have free access to the shelves of the reference library in the reading room, but apply at the delivery desk for other works which they may desire.

The reference library consists of encyclopedias, dictionaries, standard reference books in the different departments of study, and bound periodicals, together with books designated by professors for collateral reading in the various courses of instruction. A small collection of books for cultural reading is also kept in the reading room. In the same room, and accessible to all readers, is the card catalogue of the general library, including the books of the department libraries. The catalogue includes both authors and subjects under one alphabet on the dictionary plan; there is also a card catalogue of the publications of the U. S. Dept. of Agriculture, and a card index to the publications of the State Experiment Stations.

1. LIBRARY PRACTICE. This course teaches, by means of lectures and practical problems, the use of catalogues, indexes, and reference books, such as dictionaries, encyclopedias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc.

All degree courses; freshman year; first semester; one credit; one recitation.

MATHEMATICS

Professor Johnson
Assistant Professor Tartar
Mr. Beard
Mr. Beaty
Miss Campbell

A. ALGEBRA. The work of the course includes a drill in the fundamental operations, use of parentheses, special rules of multiplication and division, factoring, highest common factor, lowest common multiple, and fractions.

The Secondary courses; first year; first semester; five credits; five recitations.

B. ALGEBRA. The topics studied are solution of fractional and literal equations, problems involving linear equations, simultaneous linear equations involving two or more unknown numbers, problems involving simultaneous linear equations, graphical representation, inequalities, involution, evolution, theory of exponents, radical expression, and imaginary numbers.

The Secondary courses; first year; second semester; five credits; five recitations.

C. ALGEBRA. After a short review of the topics which precede quadratic equations, the following subjects are carefully treated: quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, theory of quadratic equations, factoring of quadratic expressions, solution of quadratic equations by factoring, graphical representation of quadratic expressions with one unknown number, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers, and graphical representation of simultaneous quadratic equations.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course D.

D. PLANE GEOMETRY. Course D includes the first two books of Plane Geometry. The constant aim is to develop in the student the power of logical reasoning, and of clearness and accuracy of expression. To this end, many original exercises are studied, and at all times demonstrations and proofs are freely discussed in the class room.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course C. Required of freshmen entering deficient in first semester of Plane Geometry.

E. PLANE AND SOLID GEOMETRY. This course is a continuation of course D and is arranged for students in Mechanic Arts, and for freshmen in Engineering who enter deficient in the second semester of Plane Geometry.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five recitations.

F. SOLID GEOMETRY. Required of all Engineering freshmen who are deficient in Solid Geometry.

Freshman year; first semester; two credits; two recitations.

G. PLANE GEOMETRY. Courses G and H are arranged for freshmen who enter deficient in the second semester of Plane Geometry and who desire to use both semesters to make up the condition. The two courses are equivalent to course K.

Freshman year; first semester; two and one-half credits; two and one-half recitations.

H. PLANE GEOMETRY. This is a continuation of course G.

Freshman year; second semester; two and one-half credits; two and one-half recitations.

K. PLANE GEOMETRY. The last three books of Plane Geometry. All Secondary courses except Mechanic Arts; second year; second semester; five credits; five recitations.

A continuation of course D; required of freshmen, except those in Engineering, who enter deficient in second semester of Plane Geometry.

11. PLANE TRIGONOMETRY. This course includes functions of acute angles, right triangles, functions of any angle, relations

Rothrock 1906

between functions, inverse functions, trigonometric equations, and oblique triangles. Considerable time is devoted to the deduction of trigonometric formulæ, study of trigonometric identities and the solution of practical problems.

All Engineering courses; freshman year; first three-fifths first semester; three credits; five recitations.

12. PLANE TRIGONOMETRY. The course in Commerce; second semester; three credits; three recitations.

15. SPHERICAL TRIGONOMETRY. The course in Civil Engineering; freshman year; last half of first semester; one credit; two recitations.

21. COLLEGE ALGEBRA. After a brief review of radical expressions, theory of indices, and quadratic equations, graphical representation and mathematical induction are studied.

All Engineering courses; freshman year; last two-fifths of first semester; two credits; five recitations.

31. ELEMENTARY ANALYSIS. Under College Algebra are treated the binominal theorem, progressions, complex numbers, and the theory of equations. In analytical geometry the point, straight line, circle, conic sections, and some of the higher plane curves are studied. Considerable time is given to the plotting of curves in both rectangular and polar co-ordinates.

All Engineering courses; freshman year; second semester; five credits; five recitations.

41. PLANE ANALYTIC GEOMETRY. Course 41 is offered to students who enter the sophomore year deficient in Analytic Geometry. The topics studied are the point, the straight line, polar co-ordinates, transformation of co-ordinates, the circle, conic sections, tangents, diameter, poles and polars, discussions of general equations of the second degree, problems in loci, and higher plane curves.

All Engineering courses; sophomore year; first semester; three credits; three recitations.

51. DIFFERENTIAL CALCULUS. Among the subjects presented are: Differentiation and applications, evaluation of indeterminate forms, expansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of

independent variable, functions of two or more variables, asymptotes, curve tracing, etc.

All Engineering courses; sophomore year; first semester; five credits; five recitations.

52. INTEGRAL CALCULUS. Among the topics considered are: Direct integration, definite integrals and applications; integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces, and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in Course 51, great stress is laid upon practical applications, and a large number of practical problems are solved.

All Engineering courses; sophomore year; second semester; five credits; five recitations.

61. DIFFERENTIAL EQUATIONS. A study of the solution of ordinary and partial differential equations which the Engineering student is likely to encounter.

Prerequisites: Courses 51, 52.

Elective; junior year; first semester; three credits; three recitations.

71. METHOD OF LEAST SQUARES. Prerequisites: Courses 51, 52.

Elective; junior year; second semester; two credits; two recitations.

MODERN LANGUAGES

Professor Bach
Miss Kuney
Miss ——— Jeanne Leroux

Courses of three years are offered in French, German, and Spanish respectively.

The end in view is practical use for the various pursuits of life. Consequently the method of teaching is thoroughly practical, combining all the theory necessary with all the practice possible.

FRENCH

101. FRENCH. Grammar; oral and written exercises; some of the irregular verbs in general use; reading of 100 to 150 pages of easy prose.

Sophomore year; first semester; three credits; three recitations.

102. FRENCH. A continuation of course 101.

Prerequisite: Course 101.

Sophomore year; second semester; three credits; three recitations.

103. FRENCH. Grammar continued; irregular verbs; reading of intermediate texts; oral and written exercises.

Prerequisites: Courses 101 and 102.

Junior year; first semester; three credits; three recitations.

104. FRENCH. A continuation of course 103.

Prerequisites: Courses 101, 102, 103.

Junior year; second semester; three credits; three recitations.

In addition to the regular second year's work, a special elective conversational course is offered for all students who have completed the first year's work. (See course 109.)

105. FRENCH. Science course. Reading of selections from French scientific literature.

Prerequisites: Courses 101, 102, 103, 104.

Elective; senior year; first semester; two credits; two recitations.

106. FRENCH. A continuation of course 105.

Prerequisites: Courses 101, 102, 103, 104, 105.

Elective; senior year; second semester; two credits; two recitations.

107. FRENCH. Literature course. Reading of standard selections from French general literature.

Prerequisites: Courses 101, 102, 103, 104.

Elective; senior year; first semester; two credits; two recitations.

108. FRENCH. A continuation of course 107.

Prerequisites: Courses 101, 102, 103, 104, 107.

Elective; senior year; second semester; two credits; two recitations.

109. FRENCH. A conversational course. Provides interesting and profitable conversational drill on practical every-day topics and includes, in a new form, a helpful review of the elements of the language.

Prerequisites: Courses 101, 102.

Elective; junior year; first semester; one credit; one recitation.

110. FRENCH. A continuation of course 109.

Prerequisites: Courses 101, 102, 109.

Elective; junior year; second semester; one credit; one recitation.

111. FRENCH. Conversational course. Provides well graded and systematically planned talks on all sorts of topics.

Prerequisites: Courses 101, 102, 103, 104.

Elective; senior year; first semester; one credit; one recitation.

112. FRENCH. A continuation of course 111.

Prerequisites: Courses 101, 102, 103, 104, 111.

Elective; senior year; second semester; one credit; one recitation.

GERMAN

201. GERMAN. Grammar; elementary forms with oral and written exercises; reading of 100-150 pages of easy prose.

Sophomore year; first semester; three credits; three recitations.

202. GERMAN. A continuation of course 201.

Prerequisite: Course 201.

Sophomore year; second semester; three credits; three recitations.

203. GERMAN. Grammar continued; reading of intermediate texts, oral and written exercises.

Prerequisites: Courses 201, 202.

Junior year; first semester; three credits; three recitations.

204. GERMAN. A continuation of course 203.

Prerequisites: Courses 201, 202, 203.

Junior year; second semester; three credits; three recitations.

In addition to the regular second year's work, a special elective conversational course is offered for all students who have completed the first year's work. (See Course 211.)

205. GERMAN. Science course. Reading of selections from German scientific texts.

Prerequisites: Courses 201, 202, 203, 204.

Elective; senior year; first semester; two credits; two recitations.

206. GERMAN. A continuation of course 205.

Prerequisites: Courses 201, 202, 203, 204, 205.

Elective; senior year; second semester; two credits; two recitations.

207. GERMAN. Literature course. Reading of standard selections from German literature.

Prerequisites: Courses 201, 202, 203, 204.

Elective; senior year; first semester; two credits; two recitations.

208. GERMAN. A continuation of course 207.

Prerequisites: Courses 201, 202, 203, 204, 207.

Elective; senior year; second semester; two credits; two recitations.

209. GERMAN. Conversational course. Provides interesting and profitable conversational drill on practical everyday topics and includes, in a new form, a helpful review of the elements of the language.

Prerequisites: Courses 201 and 202.

Elective; junior year; first semester; one credit; one recitation.

210. GERMAN. A continuation of course 209.

Prerequisites: Courses 201, 202, 203, 204, 209.

Elective; senior year; second semester; one credit; one recitation.

211. GERMAN. Conversational course. Provides well graded and systematically planned talks on all sorts of topics.

Prerequisites: Courses 201, 202, 203, 204.

Elective; senior year; first semester; one credit; one recitation.

212. GERMAN. A continuation of course 211.

Prerequisites: Courses 201, 202, 211.

Elective; junior year; second semester; one credit; one recitation.

SPANISH

301. SPANISH. Grammar; elementary forms; oral and written exercises; reading of easy text, 100-150 pages.

Sophomore year; first semester; three credits; three recitations.

302. SPANISH. A continuation of course 301.

Prerequisite: Course 301.

Sophomore year; second semester; three credits; three recitations.

303. SPANISH. Grammar continued; reading of intermediate texts; oral and written exercises.

Prerequisites: Courses 301, 302.

Junior year; first semester; three credits; three recitations.

304. SPANISH. A continuation of course 303.

Prerequisites: Courses 301, 302, 303.

Junior year; second semester; three credits; three recitations.

In addition to the regular second year's work, a special elective conversational course is offered for all students who have completed the first year's work.

305. SPANISH. Conversational course. Provides interesting and profitable conversational drill on practical every-day topics and includes, in a new form, a helpful review of the elements of the language.

Prerequisites: Courses 301, 302.

Elective; junior year; first semester; one credit; one recitation.

306. SPANISH. A continuation of course 305.

Prerequisites: Courses 301, 302, 305.

Elective; junior year; second semester; one credit; one recitation.

307. SPANISH. Literature course. Reading of standard selections from Spanish general literature.

Prerequisites: Courses 301, 302, 303, 304.

Elective; senior year; first semester; two credits; two recitations.

308. SPANISH. A continuation of course 307.

Prerequisites: Courses 301, 302, 303, 304, 307.

Elective; senior year; second semester; two credits; two recitations.

309. SPANISH. Conversational course. Provides well graded and systematically planned talks on all sorts of topics.

Prerequisites: Courses 301, 302, 303, 304.

Elective; senior year; first semester; one credit; one recitation.

310. SPANISH. A continuation of course 309.

Prerequisites: Courses 301, 302, 303, 304, 309.

Elective; senior year; second semester; one credit; one recitation.

PHYSICS

Professor Weniger.
Mr. Bevan
Mr. Blair
Mr. Belknap

The following courses are offered:

A. ELEMENTARY PHYSICS. An elementary course in physics adapted to students just beginning geometry.

The Secondary courses in Mechanic Arts, and Forestry; second year; first semester; four credits; three recitations; one laboratory period.

B. ELEMENTARY PHYSICS. A continuation of course A.

Second semester; four credits; three recitations; one laboratory period.

101. ENGINEERING PHYSICS. This course covers the entire field, especial emphasis being laid on mechanics, heat and electricity. A working knowledge of trigonometry is required for entrance.

The courses in Engineering and Forestry; sophomore year; first semester; five credits; two lectures; two recitations; one laboratory period.

102. ENGINEERING PHYSICS. A continuation of course 101.

Second semester; five credits; two lectures; two recitations; one laboratory period.

103. ENGINEERING PHYSICS. A course designed for those students in Engineering and Forestry who have satisfactorily completed a course in elementary physics. For such students courses 103 and 104 will take the place of courses 101 and 102; this will allow such students to carry two credits of some elective subject each semester without increasing their total number of credit hours. A working knowledge of trigonometry is required for entrance.

Sophomore year; first semester; three credits; one lecture; one recitation; one laboratory period.

104. ENGINEERING PHYSICS. A continuation of course 103.

Second semester; three credits; one lecture; one recitation; one laboratory period.

111. GENERAL PHYSICS. A course in general physics, descriptive rather than mathematical in character, covering the subjects of mechanics, heat and electricity. A good working knowledge of geometry is the only prerequisite.

The courses in Agriculture, Pharmacy; freshman year; and Commerce, sophomore year; first semester; three credits; two recitations; one laboratory period.

112. GENERAL PHYSICS. A continuation of course 111.

Freshman year; second semester; three credits; two recitations; one laboratory period.

131. HOUSEHOLD PHYSICS. A brief descriptive course with such applications as are of greatest interest to students in Domestic Science and Art.

The course in Domestic Science and Art; sophomore year; first semester; three credits; two lectures; two recitations.

201. ELECTRICAL AND MAGNETIC MEASUREMENTS. A laboratory course in the exact determination of electrical and magnetic quantities, calibration of instruments, etc.

The course in Electrical Engineering; junior year; first semester; two credits; one three-hour laboratory period.

The course will be repeated during the second semester, as an elective, should a sufficient number of students apply.

202. ELECTRICITY AND MAGNETISM. An advanced course, taking up the theory of electrical measuring instruments, etc., with suitable practice in the laboratory.

Elective; credit to depend on work done.

211. HEAT AND LIGHT. An advanced course, taking up the phenomena of heat and light in detail, including recent discoveries.

Elective; credit to depend on work done.

212. ILLUMINATION. A study of illuminants and their utilization in exterior and interior illumination.

Prerequisites: Physics 101, 102.

The course in Electrical Engineering; senior year, elective; second semester; three credits; three recitations for two-thirds of the semester; laboratory work for one-third of the semester.

222. WIRELESS TELEGRAPHY. A study of electric waves, their measurement, and their application to practical wireless telegraphy.

Prerequisites: Math. 51, 52; E. E. 101.

The course in Electrical Engineering; junior or senior years, elective; second semester; three credits.

PHYSICAL EDUCATION

Professor Stewart
Professor Thayer
Mr. Arbuthnot
Miss Plock
Mr. ————

PHYSICAL EDUCATION FOR MEN

ATHLETICS. All college athletic contests are under the jurisdiction of the athletic board, composed of two members of the faculty, two members of the student body and one alumnus; and the faculty committee on athletics, composed of six members of the faculty.

Direct and active supervision comes from the athletic board, while the faculty committee determines matters of policy and questions which have an important relationship to college affairs. The athletic board supports representative teams in football, basketball, wrestling, track and baseball, and awards monogram "O's" to members of these teams. The most efficient coaches are furnished to all of these teams, while assistants teach the theory and practice of the various sports to freshmen and other teams.

The new gymnasium will furnish to the students at the Oregon Agricultural College the most modern and complete equipment for specializing in indoor sports, while the new athletic field now under course of construction will include a new quarter mile track, two football fields, and two baseball diamonds, together with eight tennis courts and outdoor handball courts.

The armory, one of the largest of its kind in the United States, provides fine facilities for winter training in football, track, baseball, and the various other outdoor sports. An indoor track, which is but eight laps to the mile, furnishes facilities which are proving a great aid in shaping all of the teams into condition.

GYMNASIUM WORK. Because physical health determines capacity for efficiently carrying out work which a student prepares for in college, the importance of Physical Education in the modern educational institution is being emphasized more and more every year. The functions of this department are: (1) To develop organic power, the basis of vitality, necessary to physical and mental efficiency; and (2) to secure and maintain a good posture, harmonious muscular control, and a reasonable degree of scientific training for expert gymnasium and field athletic work.

The new gymnasium for men, which it is expected will be completed in time for work at the opening of the College in September, 1913, will be equipped with all of the modern gymnastic apparatus and facilities for properly carrying on the work in physical education and recreation. The floor, 90 x 150 feet in dimensions, will furnish ample space for the most efficient type of gymnasium work. It will be surrounded by a running track of fourteen laps to the mile.

Features of the new gymnasium which will add to its attractiveness will be two regulation sized handball courts; two squash courts; three basketball courts; one 100 x 50 ft. swimming pool; regulation sized, padded rooms for boxing and wrestling; bowling alleys; steel lockers to accommodate 2,500 students; modern hygienic showers, steaming rooms, hot rooms, etc., for scientific care of the body.

The treasurer's receipt for the $1.50 gymnasium fee entitles the holder to registration at the gymnasium office for full privileges of the gymnasium, including physical examination, chart of measurements, locker, free towels, etc.

On the basis of the physical examination, special work of such a nature as the student's physique demands will be assigned, and a careful plan outlined for the symmetrical development of the body.

Two periods per week of Physical Education are required of each man student until his junior year. No student is subject to excuse from this work except by special action of the College council, and by recommendation of the director of the department.

Membership and regular practice on any of the varsity squads

is accepted as an equivalent for gymnasium work during the active practice season, the attendance being reported weekly.

FALL WORK. Instruction is given in both theory and practice of Physical Education. During the warm weather of the first semester the department emphasizes the desirability of outdoor work, furnishing a large and efficient corps of instructors in football, basketball, tennis, volley ball, soccer, swimming, cross country, track athletics, etc.

WINTER WORK. The active gymnasium work starts with the beginning of the fall rains, about October 15, when outdoor work is no longer convenient. The work prescribed is intended to correct cases of scoliosis, flat-foot, weak chest, round shoulders, or any other deformity which is susceptible of improvement through prescribed gymnastics.

Recreative games, such as basket ball, indoor baseball, wrestling, boxing, indoor tennis, volley ball, etc., are also conducted during the winter period.

SPRING WORK. In the spring, full advantage will be taken by the gymnasium instructors of the opportunity for cross country runs, track and field work, and out-door games with the classes, during which occasions correct methods of breathing, form in running, and proper carriage of the body will be emphasized.

NORMAL COURSE. Many students expect to take up the profession of teaching after graduation from college. A general knowledge of the theories of physical education and methods of gymnastics and athletic instruction is often of material assistance in securing important teaching positions.

Students showing an especial aptitude and interest in physical education will be admitted to this course. The work will include lectures on the history and development of physical training, the general physiological principles of exercises, methods of teaching, and first aid to the injured. Calisthenics, gymnastic drills, apparatus work, games, and athletics will comprise the practical work of the course.

Elective; hours and credits subject to arrangement.

All sophomores, freshmen, and students of the Secondary courses, unless physically unable, are required to take physical training. The classes meet twice a week for sixty-minute periods.

HYGIENE. A special lecture course in Hygiene is arranged to give general information regarding the laws of health to all freshmen students. The purpose will be to instruct in a popular way in the general principles of hygiene. Lectures will be given by specialists leading to a comprehensive knowledge of the human machine and its relation to healthful social life. Lectures on bacteriology, and its relation to health and well being, will be included in the course. Ventilation, physical exercise, recreation, diet, and bathing, will also be discussed. Hygiene of occupation will be considered in this course, and the importance of good physical habits as a commercial asset will be emphasized.

COURSES IN PHYSICAL EDUCATION FOR MEN

PRACTICE.

11. First year Secondary; first semester; two periods a week.
12. First year Secondary; second semester; two periods a week.
13. Second year Secondary; first semester; two periods a week.
14. Second year Secondary; second semester; two periods a week.
15. Freshman year; first semester; two periods a week.
16. Freshman year; second semester; two periods a week.
17. Sophomore year; first semester; two periods a week.
18. Sophomore year; second semester; two periods a week.

THEORY.

19. HYGIENE. Freshman year; all degree courses except Domestic Science and Art; second semester; one lecture per week.

PHYSICAL EDUCATION FOR WOMEN

PURPOSE. The aim of this department is to bring each student to her best possible physical condition, and by a careful system of gymnastic training to correct faulty posture and carriage, to aid in the formation of habits of hygienic living, to establish a normal

condition in the circulatory and respiratory systems, to secure bodily vigor, and to attain a healthy and symmetrical development, rather than the greatest increase in mere muscular power. Students are under the care of teachers who have had thorough medical training, and will be given special medical and corrective gymnastics, prescribed according to individual needs as indicated by their physical examinations.

REQUIREMENTS. Physical Training is prescribed for all secondary students and for all college women during their first two years of residence, for three periods a week. Two periods are to be taken in regular class work, and the third period may be elected by the student, if physically qualified, in sports or dancing; or in corrective work, if such work is necessary for better physical development. Any student, however, who, after the completion of her two years' required work, does not have a good posture and carriage, may be required to take corrective gymnastics.

Women students are required to be able to swim a distance of 35 yards by the end of their sophomore year. (This requirement will go into effect after the completion of the swimming pool in the new gymnasium.)

SPECIAL CORRECTIVE AND MEDICAL GYMNASTICS. Students who are shown by their physical examinations to be unfit for the work of the regular classes in gymnastics and sports, or to have physical defects, will be assigned to corrective classes where the work is light and the emphasis is laid on correct breathing and posture, relaxation and rest; or, whenever necessary, students will be given private work in medical or corrective gymnastics according to their individual needs. Thus the physical condition of each student is carefully diagnosed and supervised. The instructors encourage conferences concerning matters of health, personal and sex hygiene, and as far as possible advise proper treatment for the student's temporary ailments. They also take care of the emergency and first aid work for the women of the College.

COSTUMES. In order that the gymnasium costumes be hygienic and uniform, a regulation suit and shoes are required of all students. The shoes are sold by the local dealers, subject to the

approval of the director. The suits should be ordered at the gymnasium office, immediately upon arrival at the College.

Good second-hand uniforms of outgoing girls will be for sale at about $4.00, while the new uniforms cost $5.00.

Special Work in Physical Education

Students permitted to pursue special work in Physical Education for the purpose of teaching, should elect classes in regular and corrective gymnastics besides Aesthetic and Folk Dancing and various kinds of outdoor sports. It should be noted, however, that only under special circumstances will such free election of courses be allowed.

In addition to the practice work, the following courses in theory are advised for students permitted to pursue this special work.

English and English Literature; German (knowledge sufficient to read and study medical works); Physics; Chemistry; Physiology (Elementary and advanced); Hygiene (personal and school); Botany; Psychology; Education; Sociology; Bacteriology; Anatomy; Home Nursing; Theory of Gymnastics; Play and Playground Games; Public School Methods and Practice Teaching.

COURSES IN PHYSICAL EDUCATION FOR WOMEN

REQUIRED COURSES.

PRACTICE.

In the regular courses in Elementary and Intermediate Gymnastics a variety of work is taught. Both the Swedish and German systems of gymnastics are used, and the best in both is adapted to the needs of the classes. Much emphasis is laid on correct posture and breathing. The following order is usually observed: (1) Tactics; (2) exercises which include all the groups of muscles, taken free hand or with light hand-apparatus (wands, dumbbells or Indian clubs); (3) apparatus exercises for those physically

adapted; (4) recreative work at the end of the lesson, games or fancy steps.

1. ELEMENTARY SECONDARY GYMNASTICS; first semester; three hours per week.

2. ELEMENTARY SECONDARY GYMNASTICS; second semester; three hours per week.

Prerequisite: Course 1.

3. INTERMEDIATE SECONDARY GYMNASTICS; first semester; three hours per week.

Prerequisites: Courses 1 and 2.

4. INTERMEDIATE SECONDARY GYMNASTICS; second semester; three hours per week.

Prerequisites: Courses 1, 2 and 3.

5. ELEMENTARY COLLEGE GYMNASTICS; first semester; three hours per week.

6. ELEMENTARY COLLEGE GYMNASTICS; second semester; three hours per week.

Prerequisite: Course 5.

7. INTERMEDIATE COLLEGE GYMNASTICS; first semester; three hours per week.

Prerequisites: Courses 5 and 6.

8. INTERMEDIATE COLLEGE GYMNASTICS; second semester; three hours per week.

Prerequisites: Courses 5, 6 and 7.

(It should be noted that Gymnasium work is required of all college women during their first two years of resident work regardless of how they may be classified.)

THEORY.

HYGIENE. Freshman year; second semester; one lecture per week.

ELECTIVE COURSES.

26. CORRECTIVE GYMNASTICS. Open to all students who have need of remedial work. Special attention is given to those having

spinal curvature, round shoulders, narrow chests, forward heads, weak backs, pronated ankles, and other physical defects or weaknesses.

27. OUTDOOR SPORTS. Open to all students physically qualified. In this course are taught a variety of games, including baseball, indoor baseball, soccer, playground ball, cross ball, track athletics and relay racing. In the rainy season games are played in the Armory.

One, two, or three periods a week.

28. BASKET BALL. Open to students physically qualified. In good weather the games will be played outdoors.

One period a week for each class throughout the year.

29. SOCCER. Open to all students physically qualified.

One period a week in the spring and fall.

30. BASEBALL. Open to all students in spring and fall seasons.

One period a week.

31. INDOOR BASEBALL. Open to all students during indoor season.

One period a week.

32. HOCKEY. Open to all physically qualified.

One period a week in the spring and fall.

33. CROSS BALL. Open to all students physically qualified.

One period a week during the outdoor season.

34. TENNIS. Courts will be assigned to those who wish to play regularly.

35. SWIMMING. One or two lessons a week are allowed each student.

36. FENCING. Open to all students.

One period a week during indoor season.

37. INDIAN CLUBS. Open to all students.

One period a week during indoor season.

38. AESTHETIC DANCING. (Elementary). Open to all students. The purpose of this course is to develop grace and freedom of movement. Classic dancing, which is now considered one of the most important phases of gymnastic exercise, is emphasized.

One or two periods a week.

39. AESTHETIC DANCING. (Intermediate). Open to all students who have completed course 38.

One or two periods a week.

40. FOLK DANCING. Open to all students. In this course are taught a variety of peasant and national dances suitable for recreation or teaching.

One period a week.

41. THEORY OF GYMNASTICS. Open to all students interested in the teaching of school gymnastics. This course is very elementary, but gives an insight into public school conditions and methods of teaching practical gymnastics. Each student learns how to teach proper breathing, correct posture, and simple prescriptions of corrective exercises for round-shouldered and hollow-chested children.

One period a week for one semester. One credit.

42. THEORY OF GYMNASTICS. Continuation of Course 41, and open to all students who have completed course 41.

One period a week for one semester. One credit.

*43. PLAY AND PLAYGROUND GAMES. Open to all students. This course is designed for public school teachers or students interested in playground work, or wishing to specialize in Physical Education. The psychology of play, adaptation of play to varying ages, necessity of supervision of play, simple equipment for school playgrounds, organization of games, will be given briefly. The majority of the time, however, will be given to the practice of various playground games and simple folk dances.

Five periods a week for one semester. Two credits.

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*Offered in Summer School, 1913.

MILITARY SCIENCE AND TACTICS

Lieutenant Hennessey

The Oregon Agricultural College was founded in pursuance of three lines of national legislation. The first of these was the act of Congress known as the Congressional Land Grant Act, of July 2, 1862, and the acts supplemental thereto, for the establishment of colleges "where the leading object shall be, without excluding other classical and scientific studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts."

The absolute dependence of the College upon the benefactions of the Nation and the State imposes a particular obligation on all who enjoy its privileges. The College, on its part, conforming to the spirit of law, has provided for an efficient system of military instruction, and the Corps of Cadets is entitled to the loyal, zealous, and true support of each and every student in the College. That it receives that support each year will be best evidenced by the standing which the corps attains among the military organizations of the higher universities and colleges.

The Congressional Land Grant Act of 1862 requiring military instruction, was passed during a critical period in the life of the Nation while it was engaged in a civil war. The best of evidence was then at hand showing the need of trained citizen soldiers prepared at all times for service in the cause of the Nation. The object of the law, therefore, was to provide well trained citizen soldiers. The object has been successfully met. Students enrolled in the Military Department may attain a high state of military proficiency if the spirit as well as the letter of the law is followed out during the prescribed course, thereby fulfilling a duty to the Nation, the State, and the College.

The military body of this College consists of one regiment of infantry having three battalions of four companies each, a hospital

corps and signal corps detachment, and a band of thirty-two instruments. The drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments, and becomes a valuable asset to a young man going out into the world in any profession.

Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which it is desirable every citizen should possess in order that he may render intelligent aid to his country or state in time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self restraint—all qualities of inestimable value to a young man in whatever calling he may select.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms may be excused from active military drill, and will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The new armory contains a drill room 120x300 feet in extent, ample office room and suitable rooms for storing guns and other ordnance.

Eight hundred and forty modern U. S. magazine rifles (Krag-Jorgensen), with equipment and ammunition, are furnished by the U. S. Government. Other necessary accoutrements and apparatus for the thorough equipment of the military department are furnished by the College.

Appointment and promotion of officers and non-commissioned officers, and their relative rank in each grade, are determined according to the military standing of the cadets, based upon a careful consideration of the following points: Knowledge of drill

and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers; zeal, soldierly bearing, and aptitude for command; character; military record; general standing in College.

Commissioned officers are selected from the senior class or from such students as have had three or more years of drill; non-commissioned officers, from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the commandant, with the approval of the President of the College.

Drill is required during the secondary, freshman, sophomore, junior and senior years, four hours per week. Senior privates may be excused from drill. The practical course in infantry includes the school of the soldier, company and battalion; in close and extended order; evolutions of the regiment; ceremonies; guard and outpost duty; target practice and battle tactics.

Paragraph 24, General Orders No. 231, War Department, November 16, 1909, directs that, "Upon occasions of Military Ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they shall appear in the uniform prescribed by the institution. They shall be held strictly accountable for the arms and accoutrements issued to them."

The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $21.40; it is of the regulation olive drab color adopted by the United States Army, and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

1. THEORETICAL INSTRUCTION. This instruction consists of recitations in Infantry, Drill Regulations, Field Service, Regulations, Manual of Guard Duty, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war.

Junior year; first semester; one credit; one recitation or lecture.

2. THEORETICAL INSTRUCTION. Junior year; second semester; one credit; one recitation or lecture.

3. THEORETICAL INSTRUCTION. Senior year; first semester; one credit; one recitation or lecture.

4. THEORETICAL INSTRUCTION. Senior year; second semester; one credit; one recitation or lecture.

THE BRODIE BANNER is a richly decorated silken banner that is carried by the best drilled company as a mark of merit. Each year it goes to the company making the highest total number of credits in competitive drill. Company D carries the honor for 1912-13.

COLLEGE EXTENSION

Professor Hetzel
Mr. Collins
Miss Webb
Miss Moore
College and Experiment Station staffs co-operating.

The complete mission of the Oregon Agricultural College, as understood by those who are charged with the direction of its efforts and the determination of its policies, is to serve the people of the State. This service clearly extends to those who come to its campus and claim the advantages of its instructional work. But its mission does not end there. It is concerned, also with the interests of all who may be in a position to benefit from its assistance. It is in the prosecution of this conception of the mission of the College that a Division of Extension has been created and charged with the task of extending to the people of the State the advantages of their institution.

The indefatigable efforts of the authorities and staff members of the College and Experiment Station, extending over a period of many years, have resulted in the establishment of valuable service in the form of institutes, lectures, demonstrations, demonstration trains, the preparation and distribution of bulletins, and co-operative effort in connection with private and community interests. But the growth of the State and the correspondingly greater demands made upon the College, have made it necessary to provide an organization which shall give its exclusive attention to college extension. It has become necessary to systematize the extension service in order to guarantee its highest efficiency.

THE EXTENSION SUBJECTS. The extension work is concerned with all instruction given by the College which is not classified as a part of the regular resident work. The subjects which are included

in the extension work are, therefore, all the subjects taught at the College which are of such a nature as to lend themselves to extension methods. While the College, in the past, has been exclusively concerned with agricultural and domestic science and art extension, it has now provided for extension work in all lines of instructional effort. There will be, in addition to all of the various branches of agricultural extension, which include agronomy, horticulture, gardening, animal and poultry husbandry, dairying, entomology, and other related subjects, extension instruction in domestic science and art, forestry, mining engineering, mechanical engineering, electrical engineering, civil engineering, commerce, education, and other scientific and industrial subjects. While it is clearly impossible to attempt to give complete and full courses in the great majority of these lines of work, there is much that is practical, usable, and valuable that can be taught through extension methods. It is, then, only such branches of the college work as can be effectively taught without residence requirement, that will come within the scope of extension work.

THE EXTENSION AGENCIES. The agencies, which the College expects to use in disseminating information among the people of the State, are as varied as the conditions which will be met in carrying out the work.

The plan, as it is now conceived will include the use of institutes, itinerant schools, lectures, demonstrations, and demonstration trains, as one distinct group of extension methods. The institutes will include the farmer's institutes, as held in the past, and other special institutes, such as school teachers' and domestic science institutes. The itinerant schools will consist of a staff of lecturers, numbering from three to ten, who will go out from the College equipped with portable laboratories that may be used in demonstrating their work, and who will remain in each of the various communities from three days to a week. The lectures will be given upon any of the many occasions when the service of some member of the College staff may be of value. The demonstration trains will be run from time to time in co-operation with the railway companies. These will vary in the scope of the work undertaken from a single car to a full train equipped to demon-

strate many lines of work. By these methods the College hopes to be able to extend directly to those who cannot come to it, the advantages of its instruction.

The second group which is to be used, is that of correspondence courses. The plans provide for correspondence courses in all the lines of work given at the institution which may be carried on by this method. Up to the present time, it has been possible to provide for only one general course of correspondence study, viz., the Commercial Course. The subjects now offered in this course are (1) Farm Accounting. (2) Rural Economics. (3) Commercial Law. These courses are offered to the residents of the State for a normal fee.

The third division of the work will be concerned with co-operative efforts in connection with community organizations. This will include the organization of the boys and girls of the State into associations and clubs for the study of industrial work. The industrial fair movement, which has been so vigorously advanced this year, indicates something of the methods by which the boys and girls will be instructed and assisted.

The College will be concerned, also, in this connection, with organizations among the adults. It is the purpose of the extension lecturers to foster and encourage the organization of improvement associations and clubs throughout the State and to assist them in the work which will tend to improve local conditions. Where these organizations now exist and are doing effective work the College will co-operate and assist in every possible way.

The Oregon Library Commission is now doing a splendid work by furnishing well selected libraries to organizations of this kind. The Commission has consented to co-operate with the Extension Division of the College in extending this line of work and making it even more effective. This should result in stimulating interest among the people of the State, and especially in the rural districts, in social and industrial conditions, and place within their reach the means by which their interests may be materially advanced and their conditions improved.

The fourth division of the extension work is that which is concerned with the extension publications and educational exhibits.

From this department there will be published many bulletins written in clear simple form which will tell the secrets of applied science and improved methods, and which will make it possible for the laborer, the clerk, the farmer, the mechanic, and the housewife to ease and vitalize their daily tasks. Helpful articles will be furnished to the newspapers and the magazines.

The exhibits, which it has been the custom of the College to make at the State Fair, will be enlarged, and in all probability more exhibits will be made at county fairs, association meetings, and conventions. These will be in the form of educational demonstrations.

One of the most important features of the College extension service, as provided for by laws passed by the last legislature, is the county field and demonstration work in agriculture. The new law authorizes the county court of each of the several counties of the State to provide and appropriate funds, either by special provision in the annual tax levy or by an appropriation of funds not otherwise appropriated, to be used in field work in agriculture and in promoting farm demonstration work in such county.

The law further provides that the State will appropriate one dollar for each dollar so raised by the respective counties, the appropriation not to exceed $2,000 a year to any county having an area of 5,000 square miles or less, and not to exceed $4,000 to any larger county. This fund is to be expended, and the work is to be done, under the supervision of the State Agricultural College.

This feature of the law contemplates placing county agricultural advisors in such counties as take action under the law. These agents, under the direction of the Agricultural College, will arrange for and carry on co-operative farm demonstration work with farmers in various sections of their respective counties. They will study conditions, and advise farmers as to the crops best adapted to their locality, and the best methods in agricultural practice. They will aid the teachers of the public schools in giving proper instruction in agricultural subjects, and help to interest our young people in country life, directing their energies into the proper channels. In short, the county agent will be a traveling agricultural evangelist devoting his time to improving country

conditions and country life. It will be his task to combine the results of scientific discovery with the best experience of practical farmers, and apply them to conditions as he finds them.

PRESENT ORGANIZATION. It will readily be seen that the scope of the work here outlined will require considerable time for its organization and perfection. During the next year the extension work will be organized and prosecuted according to the laws passed by the 1913 session of the legislature. This will be along the lines above indicated and to as great an extent as funds and conditions will permit. The College extension staff will be enlarged, and it is hoped that a number of the counties will take steps in the very near future to provide for the county field and demonstration work.

In the meantime, the College will continue to offer lectures, hold institutes, co-operate with the railway companies in running demonstration trains, publish extension bulletins, co-operate with the school authorities of the State in the advancement of industrial education, offer some courses by correspondence, prepare and circulate exhibits, furnish many valuable articles to the newspapers and magazines, and carry on demonstrations on farms and in the orchards of the State.

HOW TO APPLY. All persons or communities in the State wishing assistance in any of the lines indicated should communicate with the Extension Division as far in advance of the time the service is desired as possible. If an institute is desired, be sure to give all particulars pertaining to the time, the nature of the subjects in which such community will be interested, the number of speakers desired, and the plans for the meeting. If a single lecture, or demonstration, or exhibit is desired, be equally prompt and explicit.

It must be remembered that the College is willing at all times to help all who apply, but that its staff, facilities, and funds are limited, and so it sometimes is unable to give aid where it would like most to give it. However, the College can serve in the great majority of cases and is always ready and glad to do so.

Any county desiring to organize under the provisions of the law for agricultural field and demonstration work should communicate with the Director of Extension at the Agricultural College in order to determine the best methods of procedure.

SCHOOL OF MUSIC

Professor Gaskins
Mrs. Gaskins
Mrs. Ressler
Miss Bowden
Mr. Beard
Miss Johnson

The advantage of studying music with instructors skilled in the psychology and practice of teaching cannot be overestimated. It results in an appreciable saving of time and expense and a maximum gain in efficiency. Hence the School of Music offers the following comprehensive courses of study to earnest students who wish to acquire scholarly musicianship at moderate cost. The courses may be begun at any time during the school year. All students may advance as rapidly as is consistent with good scholarship. The time required for completion of any of the courses is dependent upon the age, previous preparation, talent, ability, and character of work of each student.

In these courses the following subjects are included: Conducting, elements of music, history of music, interpretation, languages, music form and analysis, music pedagogics, song singing, oratorio singing, opera singing, choral singing, organ playing, organ structure, piano playing, piano structure, sight reading, stage deportment, stringed instrument playing, wind instrument playing, brass instrument playing, theory, harmony, counterpoint, composition, voice culture. Outlines of the courses:

1. VOICE. Exercises will be given for correct breath control; purity of tone production; freedom of action and blending of registers; articulation and correct pronunciation and enunciation of vowels and consonants; elements of phrasing and style. Students must appear on programs if requested, singing from mem-

ory, and attend all rehearsals and recitals unless otherwise instructed by the Director.

Required: Two lessons a week in voice; practice with instrument one or two hours daily; sight reading and ear training, two hours a week; harmony and history of music, two hours a week each; choir and chorus practice throughout the year. Physical culture.

2. VOICE. This course consists of exercises for tone placing; phrasing and style; legato, marcato, and portamento delivery. Physiology of the vocal mechanism. First year German, Italian, or French, at student's option unless otherwise advised by the Director. Songs and exercises of medium grade of difficulty. Attendance at recitals and rehearsals required, unless otherwise directed as above.

Required: Two lessons a week in voice; practice with instrument one or two hours daily; harmony and counterpoint, two hours a week each; German, Italian or French, as required in beginning work by the Department of Modern Languages; physical culture; choir and chorus practice throughout the year.

Prerequisite: Course 1 or its equivalent.

3. VOICE. This course includes the study of tone color, agility, the trill, messa di voce, recitation, declamation, phrasing, style, through the use of songs in English, German, French, Italian; the regular second year study of one of the above foreign languages at the student's option, in the Department of Modern Languages, unless otherwise advised by the Director. Attendance at recitals and rehearsals required unless otherwise directed as above, singing from memory on programs of the School of Music when so requested.

Required: Two lessons a week in voice; two lessons a week each in advanced harmony and harmonic analysis; German, French, or Italian, at student's option, second year study as required in Department of Modern Languages; choir and chorus practice throughout the year; physical culture.

Prerequisite: Course 2 or its equivalent.

4. VOICE. This course includes advanced study of vocal technique by means of difficult exercises, songs, oratorios, operatic arias, declamation. Advanced composition throughout the year.

Attendance at rehearsals required in preparation for public appearances and at recitals, singing from memory. For graduation a public recital must be given as arranged by the Director, unless he may specify to the contrary. A diploma will be issued upon the satisfactory completion of this course.

Prerequisite: Course 3 or its equivalent.

5. PIANO PREPARATORY COURSE. FOR BEGINNERS. Training of the hand, fingers, wrist, and arm. Extended preparation for scales and arpeggios; exercises for same. Chords. Octaves. Sonatinas by Clementi; Kuhlau; smaller compositions of Mozart, Handel, Beethoven, and other composers. Easiest sonatas of Haydn and Mozart. Selections from easier works of Schumann, Kullak, Reineke, and Grieg; other easy, appropriate compositions.

Required: Two lessons a week in piano; practice with instrument, one to three hours daily.

6. PIANO. Scales and arpeggios, tempi, accent, nuance, rhythm. Double notes. Trills. Exercises for endurance, speed, accent, and rhythm. Etudes from Czerny, Cramer, Kullak, Krause, Two-part inventions and dance forms by Bach. Easier sonatas of Haydn, Mozart, Beethoven. Easier composition of Mendelssohn, Schubert, Schumann, Grieg, Raff, and others.

Required: Two lessons a week in piano; two lessons a week in harmony; two lessons a week in music history for thirty-six weeks; practice with instrument, two to four hours daily. Physical Culture.

Prerequisite: Course 5 or its equivalent.

7. PIANO. Two and three-part inventions and suites by Bach. Etudes of Czerny, Cramer, Hasert, Berens. Sonatas of Beethoven of moderate difficulty. Sonatas of Mozart. More difficult selections from Weber, Mendelssohn, Schumann, Chopin, Grieg, Liszt, Mozart concertos; transposition of easy hymns; to sight read readily; to play from memory five compositions from the preceding course in a satisfactory manner.

Required: Two lessons a week in piano; two lessons a week for thirty six weeks in advanced harmony; one lesson a week in counterpoint; practice with instrument three to five hours daily. German or French. Physical Culture.

Prerequisite: Course 6 or its equivalent.

8. PIANO. Collegiate Course: Well tempered clavichord, chromatic fantasy and fugue, Bach. A limited number of etudes by Rubinstein, Chopin, Henselt. The more difficult sonatas of Beethoven. Solo works of Mendelssohn, Chopin, Schumann, Grieg, Liszt, Brahms. Concertos by Mozart, Mendelssohn, Beethoven.

Required: Two lessons a week in piano; practice with instrument three to five hours daily; two lessons a week in composition; one hour a week in harmonic analysis; German or French. Physical Culture.

To complete this course satisfactorily the student must fulfill the requirements above outlined and appear in programs when requested by the Director.

9. PIANO. Graduate Course; Beethoven sonatas Op. 57, 106, 110. Liszt Rhapsodies. More extended study of the principal classics and romantic composers. Solo works of modern composers. Concertos by Schumann, Chopin, Beethoven, and other composers.

Following is the list of graduate course pieces of which the student must play six from memory: Wagner-Liszt—Tannhauser March; Chopin—Scherzo in B Minor, op. 31; Mendelssohn—Rondo Capriccioso, op. 14, Prelude and Fugue in A Minor; Variations Serieuses; Schumann—Kreisleriana, op. 16, Carnival, op. 9; Mac. Dowell—Marzwind and Wald Idyllen, op. 19, Nos. 1, 3, and 4; Fugue in A Minor—Bach, or his Italian Concerto; Suit in D—Handel; Caprice Espannol, op. 37—Moszkowski; Concert Etude, op. 36—MacDowell; Ballade—Grieg; Liebestod (Tristan and Isolde)—Liszt; Bach—Chromatic Fantasy and Fugue; Mozart—Fantasia in C Minor; Sonata in F—Rubenstein; Beethoven: Sonatas to be selected. Concertos by Chopin, Henslet, Hummel, Liszt, MacDowell, Mendelssohn, Mozart, and Saint-Saens, or five other works at teachers' option.

Required: Two lessons a week in piano; practice with instrument three to five hours daily; advanced German or French. For graduation, students are required to perform publicly under the direction of the School of Music, playing a program not less than one hour in length, arranged by the instructor and approved by the Director, which shall include two or more numbers equal in difficulty to any composition in the list of graduate course pieces. A diploma will be issued upon the satisfactory completion of this course.

10. THEORY. The course in theory will comprise systematic and progressive study in the elements of music. Consideration will be given to the theories of acoustics, to notation, scales, keys, modes, sight reading, intervals, melodic progression, tempo, dynamics, rhythm and ear training. Advanced theory will embrace harmony, counterpoint and subdivisions thereof, music history, concluding with form, composition and orchestration.

11. VIOLIN. This course is preparatory and designed to develop correct fingering, free bowing, and accuracy as to pitch and rhythm. Appropriate studies by the following composers, or acceptable equivalents, are required for satisfactory performance before advancing to course 12.

Schubert, Dancla, DeBeriot, Pleyel, duets, Dort, Hayser. Accurate playing of all major and minor scales is required; students must appear in public recitals when required, playing from memory.

Required: Two lessons a week, harmony and music history as in course 6.

12. VIOLIN. Prerequisite, course 11. Studies by David Kayser, Schradieck, Kreutzer, or acceptable equivalents, for accuracy in playing all positions, and skill in scales and arpeggios at rapid tempos. Suitable solos, concertos, sonatas, ensemble playing at discretion of instructor. Students must appear in public recitals when requested, playing from memory. A certificate is granted upon completion of this course.

Required: Two lessons a week, harmony, counterpoint and advanced music history as in course 7.

13. VIOLIN. This course comprises the most advanced studies by Fiorillo, Rode, Paganini, Bach, concertos and sonatas of the old and modern schools, solos by Vieuxtemps, Wieniawski, and other compositions of similar difficulty. Students must appear in public recitals when requested, playing from memory.

To graduate, students must satisfactorily complete the above or its equivalent, complete Theory course as outlined for Piano III, and give a public recital, playing from memory program not less than an hour in length, arranged by the instructor and approved by the Director. A diploma will be issued upon the satisfactory completion of this course.

Band Instruments

Instruction will be given by the regular College band leader in the use of brass, wood-wind, and percussion instruments.

To become a member of the College Band a student must pass a satisfactory examination in the elements of music and ability to perform on his instrument.

Members are required to attend rehearsals each school day, and a reasonable amount of individual practice is expected.

There is no charge for instruction in the band. Each member must furnish his own instrument and music stand, except basses, baritones, altos, and drums, whose instruments are furnished by the College.

Any student desiring to enter the band should see that his instrument is in low pitch.

The courses for the various band instruments are as follows:

14. CORNET. Methods by Arbou; characteristic studies by St. Jacome.

15. CLARINET. Methods by Dieppo; studies by Dieppo and Blume.

16. FRENCH HORN. Methods by Franz; studies by Franz and Hayffman.

17. In all other band instruments, including the oboe, bassoon, saxophone, alto, and bass clarinets, drummer's trapps, xylophone, and orchestra bells, the courses will be similar to those given above.

The work in theory required to complete these courses is that outlined for piano courses 6 and 7.

18. THEORY. The course in theory will include systematic and progressive study of the elements of music; acoustics, notation, scales, keys, modes, sight reading, intervals, melodic progression, chords, rhythm, dynamics, and ear training.

Advanced theory will include harmony, counterpoint and subdivisions thereof, harmonic analysis, form, composition, and orchestration.

General Information

Any student in the Oregon Agricultural College with a satisfactory record in scholarship in his major course may take at least one hour a day in music.

Students in the School of Music may enter classes in the several departments of the College; and in order to enhance their general culture are encouraged to take at least one study throughout the school year other than the work required in the regular music courses.

Applicants for instruction may take complete or partial courses. Those registering for the former are classified as "regular music," while the others are classified as "special music."

"Special Music" students have the option of selecting such music studies as they desire by registering for the same with the Director in the regular manner and at the catalogue rates of tuition.

Non-resident young women are required to live in Waldo Hall, where their conduct is subject to the approval of the Dean of Women. Outside rooming and boarding places may be obtained subject to the approval of the College authorities. The rates for board and room are listed elsewhere in detail. (See index.)

Students registered for study in the regular course of the Oregon Agricultural College School of Music are subject to the same rules and regulations as all regular students in other courses.

No student is permitted to omit lessons or practice without sufficient excuse, and no refund will be made for absence from lessons or practice or for discontinuance, except in cases of severe personal illness; for such unavoidable absence, lessons may be made up only by appointment, and before the expiration of the term.

Lessons falling on legal holidays, or on special holidays petitioned for by the student body or by special student organizations, which may be granted by the College authorities, will not be made up.

Students will not be permitted to transfer tuition accounts to others, nor to receive credit for tuition fees beyond the assigned registration period, except in cases of severe personal illness attested by a physician, or similar extreme necessity, and then only by making suitable arrangements with the Director.

The college year in the School of Music consists of thirty-six weeks divided into terms of twelve weeks each, the first term beginning at the opening of college on September 19, 1913.

Private individual instruction is given in lessons of thirty minutes each in all departments of the School of Music. Class instruction in all theoretical branches is required of candidates for graduation, as specified in the preceding outlines of courses. Terms for instruction are as follows:

Voice culture and singing—Professor Gaskins. Private instruction.
One lesson a week, a term.....$12.00
Two lessons a week, a term..... 24.00

Piano, voice culture and singing—Genevieve Baum-Gaskins. Private instruction.
One lesson a week, a term.....$12.00
Two lessons a week, a term..... 24.00

Organ—Genevieve Baum-Gaskins. Private instruction.
One lesson a week, a term.....$24.00
Two lessons a week, a term..... 48.00

Piano—May Babbitt-Ressler. Private instruction.
One lesson a week, a term.....$12.00
Two lessons a week, a term..... 24.00

Violin, 'cello, mandolin, banjo—Florence Bowden. Private instruction.
One lesson a week, a term $10.00
Two lessons a week, a term 20.00

Band instruments—Instructor Beard. Private instruction.
One lesson a week, a term.....$10.00
Two lessons a week, a term..... 20.00

Music History—Professor Gaskins. Class instruction.
Two hours a week, a term .....$ 3.00

Harmony, counterpoint, harmonic analysis—Instructor Johnson.
Two hours a week, classes limited to eight students. Each subject, a term.....$10.00

Composition, orchestration—May Babbitt-Ressler. Class instruction.
Two hours a week, classes limited to eight students. Each subject, a term $10.00

Sight singing, the rudiments of music and the theory of music, class instruction, two hours a week, free to students registered in the full music courses (those known as "regular music" students). To all persons not registered in the regular music courses, a term, $3.00.

Rentals—Pianos and a pipe organ for practice will be furnished students of the School of Music at the following rates:

Piano—

Term of twelve weeks, one hour a day	$ 5.00
Two hours	7.50
Three hours	10.00
Four hours	12.50
Five hours	15.00

Organ—

Term of twelve weeks, one hour a day	$12.00
Two hours	18.00

The pipe organ is a new, modern Kimball two manual, concave pedal board instrument of beautiful tone.

For additional information address, William Frederic Gaskins, Director, Administration Building, Oregon Agricultural College, Corvallis, Oregon.

SUMMER SESSION

The chief purpose of the summer school is to afford an opportunity for study to those unable to attend during the academic year. The courses are arranged for elementary and secondary teachers; for town and rural supervisors; for credit in regular college subjects, as well as for prospective students deficient in entrance credit; for those interested in music and art; and for those desiring practical instruction in agriculture, household economics, and woodwork.

It is thought advisable to arrange for a series of two-week courses in addition to those continuing six weeks. They are provided for students who will not find it possible to remain longer than two weeks and are so planned that practically the entire time each day will be devoted to each special line of study. Should any decide to continue through the remaining four weeks of the summer session, a number of six-week courses, conducted on the topical method, will admit of the entrance of students with profit.

Of special interest is the inclusion in the two-week calendar of courses for boys and girls of upper grammar grades and high school age. At this formative period, an opportunity to study in an interesting way the problems of the two great fundamental occupations should arouse new ideals of the beauty, importance, and significance of such callings. The romance as well as the dignity of agriculture and home pursuits have their appeal to youthful imagination, but ordinary school education both consciously and unconsciously places the emphasis on the professions and occupations leading to a public career.

A large faculty, chiefly regular college instructors, supplemented by a number of specialists from Oregon public schools and from other states, the extensive equipment in classrooms, laboratories, libraries, shops and experimental fields, are at the service of the students.

The state-wide interest in garden and household contests of the public school pupils has resulted in a demand for more knowledge

of these industrial subjects on the part of the teachers. The summer courses will not only provide specific and detailed instructions for conducting these contests, but will show the teacher how to use the state-adopted text in elementary agriculture and supplement it with simple and interesting experiments both indoors and outdoors. In the same way, the direct and practical instruction in cooking and sewing will furnish the essentials for assisting the girl pupils. Any teacher who has the advantage of six weeks' contact with expert instructors and practical demonstrations in the work in which he is to direct his pupils, will greatly multiply his efficiency and usefulness in his community.

The winter short course comes at a time best suited to the convenience of the farmer. Professional and business men find their slack season during the summer, as do the youth who are attending school and the women of the family. The summer school offers them the opportunity of some study of the problem nearest every town dweller's heart, the acquirement of a piece of land and its cultivation. From the standpoint also of the beautification and sanitation of the dooryard and home premises, the kitchen-garden, house decoration, hygienic and economic preparation of foods and other indoor problems, the summer school makes its appeal. Young men and women who are through high school, and others undecided as to their life work, may find just the leadings in summer study which will determine their future vocation.

Railroad Rates

To those attending the summer school, the railroad companies grant a special rate of one and a third fare for the round trip, on the certificate plan, from all stations in Oregon. In order to receive the benefit of the reduction, the purchaser must pay full fare to Corvallis, *securing a receipt from the ticket agent* at the time of purchase. This receipt must be countersigned by the College secretary at Corvallis and on presentation to the ticket agent at Corvallis will secure rate of one-third fare for the return. This special rate takes effect three or four days before the opening date of the summer session and remains in force until the same

length of time after the closing date. Tickets on this plan may be secured at any time while the school is in session, and are also good for return at any time. If for any reason, receipt should not be secured at time of purchase, get train conductor's receipt, showing the form and number of your ticket. If a through ticket to Corvallis cannot be sold from your station, do not fail to get a receipt for each ticket, even if the fare be paid on the train. The reduced rate is good only within the State; if you live beyond the State line, buy your ticket to a station in Oregon and from that point to Corvallis.

Admission and Expenses

There are no entrance examinations or other educational test for admission. Students desiring college credit must do the required work and pass satisfactory examinations at the close of the session. The registration fee of five dollars and a small laboratory fee to cover the cost of material in some of the courses, are the only charges made for class instruction, and entitle the student to admission to as many courses as he cares to attend during the entire session. Private, individual lessons in music will be given at the regular price charged during the school year; students taking music only, will not pay the college registration fee.

Waldo Hall, the college dormitory, will accommodate 150 lodgers and over 200 boarders. A rate of $3.50 per week, for board and room, has been made. The hall has all the modern conveniences, including hot and cold water in each room, and will be under the management of the regular staff. Board in private families and house-keeping rooms are also listed. Committees will meet all trains and assist students with their baggage and in finding comfortable living accommodations.

All absolutely necessary expenses for the six weeks can be kept under $40.00 on the following basis: Board and room, $21.00; incidentals, $2.50; tuition, $5.00; laundry, $2.50; books, laboratory fees (if such courses are taken), etc., $9.00. This may even be reduced by those who board themselves.

Recreation

On one or more evenings each week a popular lecture or entertainment will be given. Members of the faculty will present stereopticon views of the agricultural and other resources of Oregon, including its picturesque scenery. Concerts by the School of Music, twilight concerts on the campus by the Cadet Band, and other features are in preparation.

The tennis courts, baseball field, golf course, gymnasium and other recreation resources of the institution may be used by the students and instructors, free of charge. Boating on the Willamette and Mary's rivers, picnics and excursions to various points of interest, including Mary's Peak, and week-end trips to the ocean at Newport will also be available for those who desire. The social features of the Summer School are given careful attention, so they may not come in conflict with the regular work but at the same time be full of pleasure and interest. Variety and inexpensiveness may thus be assured and the proper balance preserved between work and play.

Courses of Instruction

The Summer instruction is of two general kinds; the regular college courses, reciting a sufficient number of periods per day to equal the credits of one semester; and special courses organized for needs not met by the regular instruction. For the session of 1913, nine regular courses in agriculture are offered, including Agronomy, Animal Husbandry, Dairying, Horticulture, and Poultry Husbandry. Other regular courses are given in Art, Botany, Chemistry, English, Geology, History, History of Education, Mathematics, Physics, Psychology, School Administration, School Management. Special courses are offered in Elementary Agriculture, Domestic Science, Domestic Art, Manual Training, Drawing, Music, Physical Education, Methods in Teaching, and Town and Rural Supervision, for teachers; also special courses for those not caring to teach, in Agriculture, Domestic Science, Domestic Art, Woodwork, Music, Art. Pro-

vision is also made for the admission of those not desiring college credit to the regular courses, in order that the widest possible freedom of selection may be made.

Special Illustrated Bulletin

Each spring, special circulars are issued, giving complete description of the various courses offered, statement in detail of living and other expenses, list of instructors, directions for registration, and other matter. These bulletins are illustrated with interesting views of the College campus. Copies may be obtained by addressing the director, Professor E. D. Ressler, or the Oregon Agricultural College, Corvallis, Oregon.

WINTER SHORT COURSES

For many years the Oregon Agricultural College has offered each winter one or more courses of lectures and demonstrations which have been known as Winter Short Courses. These courses have been so generally successful and have called forth so many expressions of approval from those in attendance, that the work has expanded until several courses are given in each of the following Schools:

School of Agriculture.
School of Domestic Science and Art.
School of Commerce.
School of Engineering.

Each of these courses, except the one in Mechanic Arts, which will consist entirely of practical work in the shops or in the draughting room, will consist of a series of lectures supplemented by demonstrations, and by practical exercises in the dairy, the orchard, and the various laboratories.

The work offered will be adapted to the various needs of farmers, fruit growers, dairymen, mechanics, or of women in the home. It is believed, also, that teachers who desire to prepare themselves to teach Elementary Agriculture, now required in our public schools, will find these courses decidedly helpful.

The various courses are so planned as to provide the largest amount of practical information in the short time available. The subjects to be discussed are those in which every farmer should be interested, and the aim will be to present them in the most practical manner possible. The laboratories and collections, the shops, the creamery, the orchards, the college farm, the cutting, fitting, and sewing rooms, the dining rooms and kitchens,—all offer facilities for demonstration or for practical exercises by the students attending these courses. A pleasing and profitable feature of these courses will be a series of lectures by prominent men who are qualified by successful experience to speak upon some particular phase of Agriculture.

Special lessons in Music may be taken by short course students at the regular rates listed under the School of Music.

Students should report to the Registrar for registration and for assignment to the various classes. The inclusive dates of these short courses are as follows: Farmers' Week, December 8-13; Winter Short Courses, January 5 to January 31. A list of boarding and lodging places may be consulted at the office of the Y. M. C. A.

No entrance examination or other educational test will be required; but no one will be received who is less than sixteen years of age. Over fifteen hundred men and women registered in these courses in 1911, their ages ranging from sixteen to over seventy-five.

There will be no fees whatever for attending the exercises of Farmers' Week. Those who attend the other courses will be expected to pay a registration fee of $1.00. In addition, students who elect certain courses will be expected to pay small fees, to cover the cost of materials used, as indicated in the following list:

	Fees	Deposits
Apple Packing	$ 2 50	$
Basketry	1 50	
Blacksmithing	3 00	
Dairying	1 00	2 00
Dressmaking	25	
Food Preparation (Invalid)	2 00	
Food Preparation (Simple)	3 00	
Millinery	50	
Plant Propagation	50	
Pruning, Advanced	50	
Spraying Laboratory	50	
Woodworking	3 00	

Board and lodging may be had in Corvallis at $4.50 to $6.00 per week.

RAILROAD RATES. The railroad companies grant a rate of one and one third fare for the round trip on the usual certificate plan.

A circular descriptive of all Short Course work will be issued about November 1, and may be obtained by addressing the Registrar, Oregon Agricultural College, Corvallis, Oregon.

SCHOOL OF AGRICULTURE

The School of Agriculture offers to its Short Course students instruction in the following courses, viz.: Agronomy, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, Horticulture, and Crop Pests. In addition to these courses, students are advised to take advantage of the courses in Rural Economics which are offered in the School of Commerce, as well as the course in Rural Highways, in the School of Engineering.

Something of the nature of the work is indicated in the following program of a single day's lectures as given during January, 1913. For more detailed information regarding these courses write for the descriptive circular mentioned above.

TUESDAY, JANUARY 28, 1913.

A. M

8-9. Principles of Fruit Growing.
C. I. Lewis.
Dairy Herd Management.
E. R. Stockwell.
Irrigation Farming.
W. L. Powers.

9-10. Soil Fertility.
H. D. Scudder.
Commercial Vegetable Growing.
A. G. Bouquet.
Landscape Gardening.
A. L. Peck.
Anthracnose of Loganberry and other Cane Fruit Diseases.
H. S. Jackson.

10-11. Cabbage and Cauliflower Insects.
A. L. Lovett.
Vegetable Marketing.
A. G. Bouquet.
Flower Forcing.
A. L. Peck.

11-12. Principles of Fruit Growing.
C. I. Lewis.
Farm Machinery.
E. M. D. Bracker.
Swarms and Swarming.
H. F. Wilson.
10-12. Sheep Judging.
E. L. Potter.

P. M.

1-2. Farm Management.
H. D. Scudder.
2-3. Oregon Seed Crops.
G. R. Hyslop.
3-4. Mutton and Wool Production.
E. L. Potter.
Farm Drainage.
W. L. Powers.
4-5. Breeds of Sheep.
G. R. Samson.
2-5. Orchard Practice (Sec. 1).
R. W. Allen.
Spraying (Sec. 2).
V. R. Gardner.
Plant Propagation (Sec. 3).
F. C. Bradford and E. J. Kraus.
Fruit Packing (Sec. 4).
F. R. Brown.
Orchard Economics.
C. I. Lewis.
8-9. The 1912 Apple Market.
E. H. Shepard, Editor "Better Fruit."

The work is so arranged that each hour of the day lectures may be heard and demonstrations witnessed on special Agricultural phases. The work in the other schools is similarly arranged.

FARMERS' WEEK

The exercises of Farmers' Week will begin Monday noon, December 8, and will close Saturday noon, December 13. They will be conducted somewhat upon the plan of an extended farmers' institute and will consist principally of lectures, supplemented by such demonstrations and practical exercises as are made possible by the equipment of the College and Experiment Station. The aim of the course will be to give to those in attendance the largest possible amount of information regarding the principles of successful agricultural and horticultural practices. The lectures and demonstrations by the various members of the faculty will be supplemented by one or more lectures each day by some of the most successful men in the State.

DOMESTIC SCIENCE AND ART

These courses are designed for all women who are interested in the practical and scientific working out of household problems, and who are unable to avail themselves of a regular course in Domestic Science. Many argicultural men and their sons, yearly take advantage of the Short Courses which deal with the problems of the farm, such as feeding of cattle, judging of corn, study of soils, etc. It is to meet the demand of Oregon women who are interested in the correct feeding of the family, the judging and selection of material used in the home, and study of sanitary conditions which lead to the health, comfort and happiness of the family, that this course has been established, and is to be carried on.

FOOD PREPARATION. This course deals with the subject of foods and food preparation in its scientific and economic aspect. It is the study of the nutritive principles as they are found in various foods, and the method of cooking foods to retain those principles in digestive form; serving of food in simple and attractive form; economy of money, time, and labor being the watchword.

SPECIAL FOOD PREPARATION. This course consists of the selection and preparation of foods for children of different ages, adults in active life, the aged, and invalids.

HOME MANAGEMENT.—

1. General health and welfare of the home.
   (*a*) Economy of time, labor and income.
   (*b*) Sanitation of the home.
   (*c*) Home nursing.

NOTE.—These courses have been planned to meet the needs of those who have had previous work as well as those who are entering for the first time.

PLAIN SEWING. This course is planned for those women wishing instruction in the economical purchasing and making of household linens and underwear; the mending and renovating of old garments usually found in all households; the drafting of patterns for underwear to the students's own measurements, together with the practice of interpreting and using purchased patterns.

All women are eligible to this course.

DRESSMAKING. This course offers instruction in the principles of dressmaking; the taking of accurate measurements; the drafting and use of patterns; the choosing and economical cutting of materials; the making of at least one dress, with special emphasis on artistic color combinations and suitable design.

Tests will be made showing the adulterations of textiles; and simple methods of detecting the adulterations in dress materials will be given.

This course is given for those women who have had experience in sewing and dressmaking.

MILLINERY. Demonstrations, discussions, and manual work. Renovations of millinery materials will be taught; hence it is advisable that all women desiring to take this course should bring at least one hat from home to be used for this part of the work.

Desire to enter this class should be made known to the department not later than December 20.

ENGINEERING AND MECHANIC ARTS

MECHANICS, FARMERS, AND OTHERS. It is the purpose to teach the subjects offered in a straightforward, practical manner which can be readily grasped and understood by farmers, mechanics, and others who haev had only the advantages of a common school education.

WOODWORKING. Considerable latitude will be allowed in choosing the particular line of work desired in this department as set forth under the following headings:

(*a*) A course for those not familiar with the care and handling of tools. This course affords instruction in the correct methods of using, sharpening, and caring for the carpenter's bench and its equipment. The work is exemplified by exercises in planing, sawing, chiseling, and the construction of useful articles of furniture.

(*b*) The Steel Square and Its Use. This work includes laying out rafters, braces, stairs, and other work with the steel square. Lectures will be given on the use of the square, after which the actual construction of work will be undertaken by the student.

(*c*) Those already familiar with the use of bench tools may obtain instruction in machine work, such as band-sawing, jig-sawing, wood-turning, the care and management of wood-working machinery.

(*b*) Instruction in the use of paints, stains and varnishes.

BLACKSMITHING. Two lines of work are offered in blacksmithing:

(*a*) Making repairs on machinery, tools, and farm implements. Students with no previous knowledge of blacksmithing are taught how to build and manage a forge fire; how to draw, bend, upset, forge, and weld iron; how to make chains, clevises, hooks, gate-hinges, whiffletrees and neck-yoke irons, and other useful articles.

(*b*) A course in working and welding steel for those with some general knowledge of blacksmithing. This course includes a study of the different grades of steel; the effect of heat treatment on the quality and temper of steel; the use of the color scale in tempering; and finally the forging, dressing, and tempering of steel tools.

COMMERCE

COMMERCIAL WORK. To meet the demand for a short, practical business course, the work outlined below will be offered under the same conditions and entrance requirements as other winter courses.

BOOKKEEPING. This course will embrace the fundamental principles of double entry bookkeeping. It will be made strictly practical and only sufficient theory will be introduced to give the student a firm foundation for his work. The basis of the work will be a study of a model general store equipped with the latest labor-saving methods of bookkeeping and office practice. Two laboratory periods daily.

BUSINESS ARITHMETIC. In connection with the course in bookkeeping, the instructor will review the fundamental processes of business arithmetic for the benefit of those who need it.

COMMERCIAL LAW. The course in Commercial Law will begin with the thought that there are certain fundamental principles of commercial law with which every one should be familiar, and will include the following important subjects: Property, contracts, negotiable instruments, interest and usury, bailment, agency and partnership, and real estate. Three recitations per week.

BUSINESS FORMS AND LETTER WRITING. The purpose of this course will be to familarize the student with various forms used in general business practice. Exercises will be required illustrating both principle and practice in a clear, simple understandable manner. In the work on letter writing the correct form, wording, and general arrangement of the business letter will be taken up. Original letters, received from the most important manufacturing concerns and business houses of the United States, will be studied. Three recitations per week.

PENMANSHIP. The work in penmanship will embrace the study and practice of the best forms and style of practical business writing. The primary aim of the course will be to develop an easy, rapid, legible business hand. Two recitations per week.

TYPEWRITING. The work in typewriting will be outlined to suit the requirments of the individual student. The beginner

will be taught the correct method of fingering, the uses of the various parts of the machine, the care of the machine, manifolding, and the correct arrangement of the typewritten letter or form.

FARM ACCOUNTING. A complete analysis of farm accounts by different methods in which simplicity, accuracy, and labor-saving are emphasized; household and personal accounts; cost accounting and special records; cost of production; special cost records; labor records; milk records; poultry records; etc.; the farm plot, office methods; business organizations; business correspondence and business forms. Two lectures; two recitations per week.

RURAL LAW. The general principles of common and statutory law are discussed and explained; special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, county records, etc.; landlord and tenant; eminent domain, and right-of-way; water rights and boundaries; laws governing shipping, insurance, banking, etc., court procedure. Two lectures.

RURAL ECONOMICS. The fundamental principles of production, distribution, and exchange with special reference to rural life. Rural labor problems, farm finance, legislative problems affecting rural life, co-operative organizations, marketing products, advertising, the economics of machinery, transportation, etc. Three lectures.

ROSTER OF OFFICERS AND NON-COMMISSIONED OFFICERS

COMMANDANT AND STAFF.

Commandant.....P. J. Hennessey, 1st. Lieut. 15th U. S. Cavalry
Asst. Comdt. 1st Sergeant.....Chas. Reynolds, U. S. Army Ret'd
Captain..... O. G. Reeves, Inspector
2nd Lieutenant.....J. C. Bonner, Aide de Camp
Sergeant Major.....F. Young
Ord. Sergeant .....J. O. Baker

REGIMENT FIELD STAFF.

Colonel.....C. P. Moffitt
Lieut. Col.....C. N. Anderson
Capt.....R. T. McKee, Adjt.
Capt.....W. H. Dunham, Q. M.
Capt.....R. B. Thompson, Comsy.
Sgt. Maj.....W. R. Dallas
Comsy. Sgt.....R. R. Hammersley
Q. M. Sgt.....C. W. Edwards
Color Sgt.....H. D. Foster
Color Sgt.....W. H. Foster

BAND.

Chief Mus.....E. Woodcock
Drum Major.....H. S. Walters
Prin. Mus.....O. W. James
Chief Trump.....G. F. Hess
Sergeant.....A. C. Archbold
Sergeant.....F. L. Strang
Sergeant.....J. L. McGinnis
Corporal.....R. C. Day
Corporal.....P. T. Wagner
Corporal.....R. D. Kennedy
Corporal.....C. Hardman
Corporal.....R. Akers
Corporal.....L. F. Anderson
Corporal.....W. L. Luxton

FIRST BATTALION.

Major.....G. D. C. Cronemiller
1st Lieutenant.....C. A. Dickey, Adjt.
Sgt. Major.....W. B. Anthony
2nd. Lieutenant .....C. L. Robinson, Q. M. & Comsy.

	COMPANY A.	COMPANY B.
Captain	F. W. Smith	L. D. Porter
First Lieutenant	L. F. Cronemiller	M. C. Hayes
Second Lieutenant	F. E. Neer	H. Odean
First Sergeant	H. W. Siefert	P. E. Freydig
Sergeant	L. J. Allen	B. A. Eddy
Sergeant	F. G. Pelland	C. E. Oakes
Sergeant	R. Magness	M. A. Baker
Sergeant	O. Balhorn	C. E. Berry
Corporal	C. L. McFadden	C. P. Venstrand
Corporal	N. L. Tartar	H. C. Gilbert
Corporal	H. W. Russell	W. M. Macpherson
Corporal	W. R. McAlister	H. Crosby
Corporal	L. E. Wahlberg	J. F. Williams

	COMPANY C.	COMPANY D.
Captain	G. C. Jones	A. J. Wilson
First Lieutenant	P. M. Rinearson	F. C. Jernstead
Second Lieutenant	M. P. Cook	G. Krause
First Sergeant	F. M. Miller	D. R. Smith
Sergeant	O. B. Stauff	L. E. Emery
Sergeant	B. F. Horning	R. E. Shinn
Sergeant	G. R. Thomas	J. I. Roberts
Sergeant	G. T. Wolff	O. B. Hayes
Corporal	R. Livingstone	F. P. Amort
Corporal	A. T. Fletcher	F. A. Holmes
Corporal	H. L. Hubbard	J. A. Crawford
Corporal	J. L. Taylor	F. C. Martin
Corporal	L. G. O. Gentner	C. E. Schuster

SECOND BATTALION.

Major.....W. L. Dutton
1st. Lieutenant.....F. M. Harrington, Adjt.
2nd Lieutenant.....E. E. Horning, Q. M. & Comsy.
Sergeant Major....V. A. Rawson

	COMPANY E.	COMPANY F.
Captain	G. G. Godfrey	R. Cruit
First Lieutenant	S. J. Damon	L. E. Johnson
Second Lieutenant	E. B. Loken	W. K. Peery
First Sergeant	J. Olsen	G. M. Stambach
Sergeant	R. S. Blackden	H. W. Clough
Sergeant	R. G. Chenault	G. R. Johnson
Sergeant	V. E. Weber	C. J. Williamson
Sergeant	W. O. King	C. Clarke
Corporal	M. H. Jordan	F. W. Schreiber
Corporal	W. R. Siler	A. A. Amort
Corporal	E. W. Bartruff	A. Cole
Corporal	H. M. Lamb	G. H. Loughery
Corporal	F. T. Leonetti	J. F. Groce

	COMPANY G.	COMPANY H.
Captain	G. M. Montgomery	D. B. Hogan
First Lieutenant	R. J. Anderson	J. E. Norton
Second Lieutenant	D. Eddy	I. T. A. Rice
First Sergeant	H. I. Padgham	H. A. Schoth
Sergeant	C. A. Starker	E. S. Wisdom
Sergeant	T. A. Ellestead	M. Moore
Sergeant	V. H. Stauff	J. C. Shirley
Sergeant	F. O. Suffron	M. Wilkins
Corporal	E. B. Krantz	L. L. Laythe
Corporal	H. G. Schreiber	J. P. Fairhurst
Corporal	J. W. McClaren	I. Betzel
Corporal	A. L. Olmstead	L. C. Schram
Corporal	R. B. Case	H. W. Weaver

THIRD BATTALION.

Major.....E. T. Pierce 2nd Lieutenant.....
1st Lieutenant ..... J. H. Hallock, Q. M. & Comsy.
.....O. B. Shattuck, Adj. Sgt. Major.....A. K. Andrews

	COMPANY I.	COMPANY K.
Captain	G. C. Kelly	L. D. Tycer
First Lieutenant	D. C. Howard	R. M. Howard
Second Lieutenant	W. W. Howard	A. O. Mangold
First Sergeant	R. B. Boals	S. A. Covell
Sergeant	M. R. Hoff	J. W. Chambers
Sergeant	C. L. Hill	G. H. Roberts
Sergeant	A. H. Kuhnhausen	H. C. Gambee
Sergeant	W. H. Brown	H. F. Stoneberg
Corporal	W. J. Koenig	J. E. Muck
Corporal	W. H. Stewart	D. C. Mosby
Corporal	J. D. Meyers	C. C. Calkins
Corporal	G. F. Chambers	H. I. Savage
Corporal	J. B. Hukill	J. A. Straugham

	COMPANY L.	COMPANY M.
Captain	B. H. McNamee	L. H. Kistler
First Lieutenant	C. N. Miller	E. J. Weber
Second Lieutenant	F. W. Kehrli	B. B. Irving
First Sergeant	K. R. Ferguson	A. F. Mason
Sergeant	C. M. Wilcox	W. B. Gardner
Sergeant	J. W. Moore	H. S. Babb
Sergeant	R. W. Arens	A. E. Mills
Sergeant	R. J. Bowers	A. Frank
Corporal	B. C. Culver	R. J. Wood
Corporal	A. L. Lindsey	E. F. Crouchley
Corporal	M. F. Hathaway	L. A. King
Corporal	F. H. Struble	A. C. McCormick
Corporal	A. E. Zwicker	S. J. Milliken

FORENSIC HONOR ROLL

INTERCOLLEGIATE ORATOR.

G. R. Hoerner.

INTERCOLLEGIATE DEBATERS.

A. R. Chase.
G. R. Hoerner.
C. L. Hill.
F. McCabe.
H. M. Miller, Alternate.

CHAMPION INTERCLASS ORATOR.

Nao Uyei, Freshman.

CHAMPION IN INTERCLASS DECLAMATION.

Miss Kareen Hansen, Freshman.

CHAMPIONS IN INTERCLASS DEBATE.

G. R. Hoerner
F. McCabe
F. J. Dietsch
} Freshmen.

CATALOGUE OF STUDENTS

(The following abbreviations are used to indicate the course in which the student is registered and the classification within the course: Agri., Agriculture; C. E., Civil Engineering; Com., Commerce; D. S., Domestic Science and Art; E. E., Electrical Engineering; For., Forestry; M. A., Mechanic Arts; M. E., Mechanical Engineering; Min., Mining Engineering; Phar., Pharmacy; Fr., Freshman; Soph., Sophomore; Jr., Junior; Sr., Senior; F. Sec., First Year Secondary; S. Sec., Second Year Secondary; Opt., Optional; Spec., Special; First Yr., first year of Pharmacy short course; Sec. Yr., second year of Pharmacy short course.)

GRADUATE STUDENTS

Name	*Course*	*Home Address*
Allinger, Harry Wesley (University of Missouri)	Agri.	Corvallis
Applewhite, Mrs. Alice Hill— (O. A. C.)	Agri.	Corvallis
Arbuthnot, Samuel Hubbell (O. A. C.)	Agri.	Corvallis
Barss, Alden F. (Cornell University)	Agri.	Rochester, N. Y.
Belknap, John Harrison (O. A. C.)	M. E.	Corvallis
Bonner, Sadie (O. A. C.)	D. S.	Corvallis
Brown, Frank Ross (O. A. C.)	Agri.	Corvallis
Chambers, Lincoln Beaumont (O. A. C.)	M. E.	Corvallis
Copson, Godfrey Vernon (O. A. C.)	Agri.	Grand Rapids, Mich.
Dobell, Lila Grace (O. A. C.)	D. S.	Corvallis
Dolde, William Earl (Oklahoma Agricultural College)	M. E.	Guthrie, Okla.
Evans, Merrill Osgood (University of California)	Agri.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Groves, Edna (O. A. C.)	D. S.		Corvallis
Hand, Ford A (O. A. C.)	Phar.		McMinnville
Harris, Edna Marie (O. A. C.)	Phar.		St. Helens
Haskell, William Dexter (O. A. C.)	M. E.		Corvallis
Leedy, Alice (O. A. C.)	D. S.		Sherwood
Lewis, Harold Mayo (Yale University)	Agri		Somerville, Mass.
Lilly, Gertrude E (O. A. C.)	Phar.		Corvallis
Pratt, Hiram Eldridge (O. A. C.)	Agri		Boston, Mass.
Ralston, Glancy Sherman (Colorado Agricultural College)	Agri		Paradise, Calif.
Sitton, Otto (O. A. C.)	Agri		Carlton
Spurrier, Odith Kenelworth (O. A. C.)	M. E.		Guthrie, Okla.
Starring, Clarence Cecil (North Dakota Agri. College)	Agri		Lead, North Dakota
Thomson, Henry Lyon (Occidental College)	Agri		Grants Pass
Tufts, Warren Porter (University of California)	Agri		Berkeley, Calif.
Wilson, Harley Frost (Colorado Agricultural College)	Agri		Corvallis
Wilson, Mary A (O. A. C.)	D. S.		Gresham

UNDERGRADUATE STUDENTS

Name	*Course*	*Rank*	*Home Address*
Abbott, Arthur Evelyn	Agri.	Spec.	Vernon, B. C.
Ackerman, Fred Edward	Phar.	Sec. Yr.	Portland
Adams, Mary Etta	D. S.	Soph.	Corvallis
Addison, Nettie	Com.	Fr.	Lorane
Affolter, Walter	For.	S. Sec.	Neskowin
Akers, Robert	M. A.	S. Sec.	Portland
Albers, Helmuth Harold	Phar.	Sec. Yr.	Shoshone, Idaho
Albert, Paul	Agri.	Fr.	Seattle, Wash.
Alderson, Edward Regiland	Agri.	Spec.	Vernon, B. C.

Name	*Course*	*Rank*	*Home Address*
Alderton, Ada	D. S.	Fr.	Portland
Aldrich, Elias Hugh	For.	Fr.	Lebanon
Aldrich. Winnifred Reba	Opt.		Corvallis
Allen, Ethel Edna	D. S.	Soph.	Corvallis
Allen, Ethel Miriam	D. S.	Sr.	Bend
Allen, Fred	M. A.	F. Sec.	Burns
Allen, Harold B.	Phar.	First Yr.	Lents
Allen, Leonard J	Agri.	Jr.	Cove
Allinger, Mrs. Grace Smith	Opt.		Corvallis
Allingham, William David	M. E.	Fr.	Warmspring
Allworth, Edith	D. S.	Jr.	Crawford, Wash.
Allworth, Edward C	Com.	S. Sec.	Crawford, Wash.
Allworth, Helen	D. S.	Jr.	Crawford Wash.
Alspaugh, Roy Ware	Agri.	Sr.	Burton
Amesbury, Ruth M	D. S.	Fr.	Portland
Amort, Albert Alexander	C. E.	Fr.	Corvallis
Amort, Frank Peter	C. E.	Soph.	Macleay
Amort, Paul	M. E.	Fr.	Albany
Anderson, Carl Nathaniel	Min.	Sr.	Portland
Anderson, Edmund	For.	Fr.	Albany
Anderson, Helen B.	D. S.	Fr.	Portland
Anderson, Isaac Milton Compton	Agri.	Jr.	Drewsey
Anderson, Joan	Opt.		Medford
Anderson, Louis Frederic	Agri.	Jr.	Newberg
Anderson, Olaf Ewart	M. A.	F. Sec.	Astoria
Anderson, Roy J.	E. E.	Sr.	Tillamook
Anderson, Verlie	D. S.	Fr.	Corvallis
Andresen, Olaf	Agri.	S. Sec.	Vancouver, Wash.
Andrews, Allan Kendall	C. E.	Jr.	Medford
Andrews, Corliss Burton	Agri.	Fr.	Oregon City
Anthony, Marie	D. S.	Fr.	McMinnville
Anthony, Walter Edward Burton	C. E.	Jr.	Carmel by the Sea. Calif.
Antle, Mildred	D. S.	Fr.	Medford
Archbold, Alston Conway	E. E.	Jr.	Hillsboro
Archibald, Harold Gilbert	C. E.	Fr.	Albany
Archibald, Viva	D. S.	Jr.	Albany
Arens, Ralph Waldo	Agri.	Soph.	Hood River
Armstrong, Fay	D. S.	Fr.	Corvallis
Armstrong, Jay Manwaring	Agri.	Jr.	LaPeer, Mass.
Arnold, Alice	D. S.	Fr.	Gladstone
Asplund, John Walter	E. E.	Sr.	Marshfield
Atherton, Leona	D. S.	Soph.	Corvallis
Ault, Byrd Moore	Agri.	Fr.	Enterprise

Name	*Course*	*Rank*	*Home Address*
Ault, Indiana Moore	D. S.	Fr.	Enterprise
Ausmus, Ormond	Com.	Fr.	Lawen
Ayers, Auldy Augustus	For.	Fr.	Lacomb
Babb, Harold Sidney	E. E.	Jr.	Portland
Babbitt, Richard Carrick	C. E.	Fr.	Corvallis
Bohr, Alice	Opt.		Grandronde
Bailiff, Florence	D. S.	Fr.	Corvallis
Bains, Umrao Singh	E. E.	Jr.	Mahilpur, India
Baird, Alice	D. S.	Fr.	Portland
Baird, Mary Tate	Opt.		Portland
Baker, George William	Agri.	Fr.	Medford
Baker, John Oscar	C. E.	Soph.	Portland
Baker, Marshall	M. E.	Jr.	Portland
Baldwin, Lee Ernest	Phar.	First Yr.	Winlock, Wash.
Baldwin, Neil Burton	Com.	Fr.	Corvallis
Ballard, Frank L.	Agri.	Fr.	Meredith, N. H.
Ballhorn, Otto	Com.	Soph.	Woodland, Wash.
Bannister, Clyde Eugene	C. E.	Fr.	Portland
Bartholomew, Lela Mae	Opt.		Corvallis
Bartruff, Elmer Walter	Agri.	S. Sec.	Salem
Bartu, Frank	M. E.	Fr.	Crabtree
Bartu, Mylo	M. E.	Jr.	Crabtree
Bass, Chester	Agri.	Fr.	Portland
Bates, Grenville	For.	Soph.	Williamsport Pa.
Baum, Olin Huntington	Agri.	Fr.	Corvallis
Baynard, Claud Corthel	M. E.	Fr.	Creswell
Beals, Agnes	D. S.	Jr.	Silverton
Beals, Elva Lovina	D. S.	Fr.	Corvallis
Beck, James Obye	Agri.	Fr.	Boise, Idaho
Beck, Pauline	D. S.	Soph.	Corvallis
Beck, Ursula Amelia	D. S.	Jr.	Aurora
Beckett, Carl William	Agri.	Fr.	Salem
Belton, Howard Clair	Agri.	Soph	Los Angles, Calif.
Bennett, Arthur A.	M. E.	Fr.	Dallas
Bent, Crawford H.	Agri.	F. Sec.	Los Angles, Calif.
Berg, Frank Oscar	Phar.	Sec. Yr.	Astoria
Berlin, Treve	Agri.	S. Sec.	Turlock, Calif.
Bernards, Martin	Agri.	Spec.	Forest Grove
Bernstein, Leon Myer	Agri.	Sr.	Portland
Berry, Carl Evan	Agri.	Soph.	Hood River
Berry, Royal Lincoln	E. E.	Fr.	Aurora
Betzel, Charles	M. E.	Fr.	Oregon City
Betzel, Dorian	M. A.	S. Sec.	Oregon City
Betzel, Irwin L.	Phar.	Soph.	Oregon City
Bewley, Charlcia M.	D. S.	S. Sec.	Sheridan

Name	*Course*	*Rank*	*Home Address*
Bewley, Philip Mendenhall	Agri.	F. Sec.	Sheridan
Bick, Norma Gladys	D. S.	Jr.	Philomath
Biggar, H. Howard	Agri.	Spec.	Brookings, S. Dak.
Bixby, Clarence Milton	Agri.	Fr.	Freewater
Bixby, Penelope	D. S.	Fr.	Grants Pass
Blackden, Ralph Silsby	For.	Jr.	Ashland
Blackwell, Ira Lee	For.	Fr.	Aberdeen, Wash.
Blair, Bernard	Agri.	Fr.	Seattle, Wash.
Blair, Joe Earl	For.	Fr.	Seattle, Wash.
Blakely, Cecil Grant	Com.	Fr.	Glide
Blakley, Harold G.	Phar.	First Yr.	Brownsville
Blakely, Lloyd Herbert	M. E.	Fr.	Newport
Blanchard, Ralph Abel	Agri.	Sr.	Chicago, Ill.
Blascynski, Adam	Agri.	Spec.	Lodz, Russia
Blunt, Clarkson E.	Agri.	F. Sec.	The Dalles
Boals, Roy B.	E. E.	Jr.	Dallas
Boddinghouse, Emmons Richard	M. E.	Fr.	White Salmon, Wash.
Boies, Etta Philippi	Com.	Fr.	Harlan
Boies, John	M. E.	Fr.	Harlan
Boies, Thursa	D. S.	Fr.	Harlan
Bolin, Francis Gerald	Agri.	S. Sec.	Portland
Bones, D. Chesley	Opt.		Taft
Bones, John William	C. E.	Fr.	Carlton
Bonner, James Charles	Agri.	Jr.	Corvallis
Booco, Florence Irene	Opt.		Corvallis
Booth, Bertha M.	D. S.	Jr.	Portland
Boothe, Joe Miles	Agri.	Soph.	Union
Bowen, Merle Elva	D. S.	Jr.	Silverton
Bower, Hazel Harriet	Opt.		Corvallis
Bowers, Ralph J.	Agri.	Soph.	Seattle, Wash.
Bowman, Florence G.	Opt.		Pendleton
Boyed, Eva Annette	Opt.		Hood River
Boyer, Will	Min.	Fr.	Portland
Bozorth, Inez	D. S.	Fr.	Bay City
Bozorth, Levi Stephen	Agri.	S. Sec.	Amboy, Wash.
Brackett, Ethel B.	Com.	Fr.	Rufus
Brackett, Florence Marie	Com.	F. Sec.	Rufus
Bradford, Miles Thomas	M. E.	Fr.	Salem
Bradley, Blanche A.	D. S.	Jr.	Portland
Brett, Sereno Elmer	For.	Fr.	Portland
Brewster, Charles Stockton	Agri.	Sr.	Portland
Bridges, Boyd Joseph	Com.	Fr.	Oakland
Bristol, R. R.	Opt.		Portland
Bristow, Arlow Blaine	Agri.	Spec.	Pleasant Hill

Name	*Course*	*Rank*	*Home Address*
Brockman, Mildred	D. S.	Fr.	Weiser, Idaho
Brown, Donald E.	Agri.	Fr.	Oregon City
Brown, Ellis Elmer	Agri.	Soph.	New Era
Brown, Harry Calvin	Com.	S. Sec.	Smith River, Calif.
Brown, Mae C.	D. S.	S. Sec.	New Era
Brown, Nina	D. S.	Fr.	Portland
Brown, Robert Walton	Com.	Sr.	Drewsey
Brown, Waldo Frank	Agri.	Fr.	New Era
Brown, William H.	Agri.	Soph.	Portville, N. Y.
Browining, Pansy	Com.	F. Sec.	Hoskins
Brownlee, Earl Cranston	Com.	Spec.	Aguascalientes, Mexico
Brunner, Henry Walter	For.	Fr.	Bellevue, Pa.
Brunquist, Edythe	D. S.	Jr.	Hood River
Bryant, Claude H.	E. E.	Fr.	Gaston
Buchanan, Elizabeth May	D. S.	Sr.	Corvallis
Burdick, Bert Chas.	Phar.	Spec.	Portland
Burns, Ralph	Agri.	Fr.	Taulatin
Butler, Alice	D. S.	Jr.	Mapleton, Iowa
Butts, Fred Edwin	Com.	Soph.	Parkplace
Butterfield, Albert E.	Agri.	Spec.	Portland
Cadwell, Jennie	D. S.	Jr.	Seattle, Wash.
Caldwell, Jonathan Edward	M. A.	F. Sec.	Hensall, Canada
Calkins, Claude Clark	Agri.	Spec.	Airlie
Calkins, Nelta	D. S.	S. Sec.	Airlie
Callison, Annabelle	D. S.	Jr.	Aberdeen, Wash.
Campbell, Edna	D. S.	F. Sec.	Oakbar, Calif.
Campbell, George Kenneth	Agri.	S. Sec.	Honolulu, Hawaii
Candfield, M. E.	Com.	Sr.	Albany
Cardinell, Horace Albert	Agri.	Fr.	Portland
Carlson, Evelyn	Com.	Fr.	Portland
Carlson, Ruth	Com.	Fr.	Portland
Carlson, Vida	D. S.	Fr.	Portland
Carnell, Edwin H.	Agri.	Fr.	Medford
Carnes, Homer Maxwell	Agri.	Sr.	North Powder
Carnie, Norval Craigie	Agri.	S. Sec.	Chicago, Ill.
Carogal, Joseph A.	Agri.	Spec.	Brooklyn, N. Y.
Cartan, Hazel	D. S.	Jr.	Corvallis
Case, Richard Burton	Agri.	Soph.	Portland
Cassels, Ada Evyln	Opt.		South Bend, Wash.
Cathey, Alice Marie	D. S.	Sr.	Corvallis
Catterlin, Merlin	Agri.	Fr.	Langlois
Chamberlin, Everett	M. A.	S. Sec.	Lebanon
Chamberlin, Willard Joseph	For.	Soph.	Albuquerque, N. Mex.
Chambers, George Fredrick	C. E.	Fr.	Newberg
Chambers, Joseph William	Agri.	Soph.	Newberg

Name	*Course*	*Rank*	*Home Address*
Chambers, Minnie Eva	Opt.		Eugene
Chand, Ram	M. A.	F. Sec.	Village Nagar, India
Chandler, Earl Charles	Agri.	Sr.	Sheridan
Chandler, George Leo	Agri.	Fr.	Rogue River
Chapman, Charles Lloyd	Min.	Jr.	Sheridan
Charley, Floyd Sharp	Agri.	F. Sec.	Brownsboro
Chase, Arthur R.	Agri.	Sr.	Corvallis
Chase, Ernest	For.	Soph.	Corvallis
Chase, Harold	Agri.	Spec.	Eugene
Chase, Lucile	D. S.	Fr.	Salem
Chenault, Ralph Garfield	Agri.	Soph.	LaGrande
Cheney, Maribel Whitman	D. S.	Jr.	Coupeville, Wash.
Cheney, Willard Colfax	M. E.	Soph.	Coupeville, Wash.
Chrisman, Robert John	For.	Soph.	Danville, Ky.
Chrisman, Vida R.	Phar.	Sec. Yr.	Silver Lake
Chu, Tsowa	For.	Fr.	Canton, China
Ckashein, Armen	Agri.	Fr.	Diarbekir, Armenia
Clark, Arthur Clarence	C. E.	Soph.	St. Johns
Clark, Carrie E.	D. S.	Fr.	Waitsburg, Wash.
Clark, Cederic	Com.	Soph.	Canyon City
Clark, Gladys Mary	Opt.		Hood River
Clark, Helen	D. S.	Sr.	Grants Pass
Clarke, William E.	For.	Spec.	Newberne. N. C.
Clausen, Arnold Alvin	C. E.	Soph.	The Dalles
Clough, Huron Willoughby	C. E.	Jr.	Canyonville
Clough, Mary Beatrice	Opt.		Tumwater, Wash.
Cochran, Paul Henry	C. E.	Soph.	St. Johns
Coe, Wayne Walter	Agri.	Fr.	Portland
Cohen, Benjamin B.	Agri.	Fr.	Smiclar, Russia
Cohen, Leeser Raphael	E. E.	Sr.	Portland
Cole, Albert B.	Agri.	Spec.	Pasadena, Calif.
Cole, Grace E.	D. S.	Fr.	Portland
Coleman, C. P.	Opt.		Templeton
Colvig, Vance DeBar	Opt.		Medford
Conklin, Evelyn	D. S.	Fr.	Grants Pass
Connell, Dorothy M.	Opt.		Portland
Conner, Mary	Opt.		Albany
Conner, Raymond M.	C. E.	Soph.	Albany
Cook, Elsie	D. S.	Fr.	Peak
Cook, Jack Chandler	M. E.	Jr.	Portland
Cook, Mortimer Parker	Agri.	Jr.	Portland
Coolidge, Dorothy	D. S.	Spec.	Corvallis
Coolidge, Jay Francis	E. E.	Soph.	Corvallis
Coon, Abbie R.	D. S.	Soph.	Corvallis
Cooper, Benjamin Harrison	Agri.	Sr.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Cooper, Clarence	M. A.	S. Sec.	Chemawa
Cooper, Hary C.	Phar.	Spec.	Corvallis
Cooter, John E.	Agri.	Sr.	Cottage Grove
Corbin, Kathryn	Com.	Fr.	Portland
Cordiner, Peter Clarence	Phar.	First Yr.	Astoria
Corkins, Vernon Granding	E. E.	Jr.	Enterprise
Coral, Leland David	M. E.	Fr.	Corvallis
Cornwall, Thomas	Agri.	S. Sec.	Bandon
Cottell, Charles Campbell	Phar.	Sec. Yr.	Portland
Coulter, Olive E.	D. S.	Fr.	Corvallis
Coursen, Raymond Eugene	Opt.		Portland
Covell, Spencer Albert	M. E.	Jr.	Corvallis
Cowgill, Helen Julia	D. S.	Sr.	Corvallis
Cox, Helen Madeline	D. S.	Fr.	Hood River
Cox, Walter Judson	Com.	Fr.	Burton, La.
Craig, Asa Paul	Agri.	Soph.	Enterprise
Crain, Julia Diesten	D. S.	Soph.	Biggs, Calif.
Crain, William Wallace	Agri.	Fr.	Biggs, Calif.
Craine, Erma Melinda	D. S.	Fr.	Bandon
Cramer, Floyd Samuel	Com.	F. Sec.	Hitchcock, S. Dak.
Crane, Fred Hovey	Agri.	F. Sec.	Cleone
Crawford, James Arthur	For.	Soph.	Burlington, Iowa
Crawford, Lucy Adelle	D. S.	Sr.	Laidlow
Creighton, Leland David	M. E.	Fr.	Portland
Crockatt, Edith L.	D. S.	Fr.	Pendleton
Cronemiller, Guy D.	E. E.	Sr.	Lakeview
Cronemiller, Lynn F.	For.	Jr.	Lakeview
Crosby, Hartzell	Agri.	Soph.	Sherwood
Crosby, Maud	D. S.	Soph.	Sherwood
Crouchley, Ernest F.	For.	Fr.	Corvallis
Cruit, Rowley	Min.	Sr.	Weller
Crum, McKinley	Agri.	F. Sec.	Olex
Crumley. Elmer	Agri.	Fr.	National City, Calif.
Culver, Benjamin C.	For.	Soph.	The Dalles
Crummings, Arthur Edwin	Agri.	Soph.	Salem
Currey, Hiram Meyrick	Agri.	Fr.	Baker
Curtis, Ernest Walton	Agri.	Sr.	Claremont, Calif.
Curtis, Mary Bushe	Opt.		Whitehorse, Yukon Ter.
Curtis, Roland Edward	Agri.	Soph.	Claremont, Calif.
Cusick, Mrs. Anna	D. S.	Sr.	Medford
Daley, Opal Viola	Phar.	Sec. Yr.	Medford
Dallas, Willis Robert	Agri.	Soph.	Kist
Damewood, Clifford Elsworth	Agri.	F. Sec.	Cottage Grove
Damon, Ruth Columbia	D. S.	S. Sec.	Newport

Name	*Course*	*Rank*	*Home Address*
Damon, Sumner John	Agri.	Jr.	Ferndale, Calif.
Darling, Charles Vador	C. E.	Soph.	Portland
Darling, Corliss Arthur	Agri.	Spec.	Klamath Falls
Darst, Susie	D. S.	Fr.	Corvallis
Davidson, Leffie	D. S.	Fr.	Portland
Davidson, Mabel	D. S.	F. Sec.	Ione
Davis, Charles Harold	Com.	Soph.	Corvallis
Davis, Durrell Crosby	Com.	Fr.	Independence
Davis, George Nash	Phar.	Sec. Yr.	Silverton
Davis, Robert Ray	M. E.	Jr.	Hillsboro
Davisson, Margaret	D. S.	Fr.	Central Point
Dawson, Keneth Fenton	M. A.	F. Sec.	Clatsop
Day, Ralph Coulter	C. E.	Soph.	Portland
Denny, Edward Bell	Agri.	Fr.	Newark, N. J.
Deutsch, Henry C.	For.	Soph.	Portland
Devenport, Adella	D. S.	Sr.	Corvallis
Dewey, George Garrington	Agri.	Fr.	Corvallis
Deyoe, Harold Leroy	E. E.	Fr.	Portland
Dickerson, Earl Jesse	Agri.	Fr.	Parma, Idaho
Dickey, Chester Allan	Com.	Jr.	Molalla
Dietsch, Frank John	Agri.	Fr.	Days Creek
Dinges, Grace May	D. S.	Jr.	Corvallis
Dobell, Roland	Com.	Fr.	Corvallis
Doerner, Armin Meredith	Agri.	Fr.	Grants Pass
Doods, Wheeler E.	Min.	Fr.	Portland
Donaldson, Olga Hope	D. S.	F. Sec.	Chinook, Wash.
Donovan, Christopher	Agri.	Spec.	Dublin, Ireland
Doolittle, Lydia	D. S.	Fr.	Corvallis
Doolittle, Maida	D. S.	Fr.	Corvallis
Douglas, Nina	Com.	F. Sec.	Corvallis
Dow, William Neal	For.	S. Sec.	Astoria
Downing, Hazel	D. S.	S. Sec.	Kingston
Doxsee, Earl DeWitt	Agri.	Fr.	Brownsville
Doyle, Willis Burlington	For.	Fr.	Portland
Drilling, Carl Fred	C. E.	Fr.	Warrenton
Driver, Frances Estha	Com.	Fr.	Tangent
Dryden, Robert James	Agri	S. Sec.	Corvallis
Duncan, Edgar Bruce	Agri.	Soph.	Nyssa
Dunham, William Henry	Agri.	Sr.	Portland
Dunn, Evelyn Guthry	Com.	S. Sec.	Corvallis
DuRetta, Cecil A.	M. A.	F. Sec.	Gervais
DuRetta, Francis Ralph	Agri.	F. Sec.	Gervais
Durkheimer, Sylvan F.	Com.	Jr.	Portland
Dutton, Walt L.	For.	Sr.	Lakeview
Dye, Edah M.	D. S.	Fr.	Vancouver, Wash.

Name	*Course*	*Rank*	*Home Address*
Eachus, Roy Milton	Com.	Fr. Sec.	Coquille
Eaton, Karl	Agri.	Fr.	Yamhill
Eckley, Winfield	E. E.	Fr.	LaGrande
Eddy, Benjamin A.	C. E.	Jr.	Roseburg
Eddy, Delmar	Com.	Jr.	Kings Valley
Edington, Jesse Boyd	Agri.	Sr.	Corvallis
Edwards, Connor Whealdon	Agri.	Jr.	Monroe
Edwards, Elias Jackson	Agri.	Fr.	Myrtle Creek
Edwards, Jess	Phar.	First Yr.	Sumpter
Ehrman, Harry J.	E. E.	Soph.	Junction City
Elkins, Millard Combs	Agri.	Fr.	Prineville
Ellestad, Theodore Alfred	Agri.	Soph.	Central Point
Emery, Edythe	Opt.		Corvallis
Emery, Lee Earl	For.	Jr.	Corvallis
Endres, Richard William	Agri.	F. Sec.	Seattle, Wash.
Erickson, Anton	M. E.	Fr.	Portland
Estes, Marie Genevieve Cecilia	Com.	Fr.	San Francisco, Calif.
Estes, Melville Burnham	M. A.	F. Sec.	San Francisco, Calif.
Evans, Carl Clarence	Agri.	Spec.	Waterbury, Vt.
Evans, Dorothy	Com.	Soph.	Umpqua
Evendon, James C.	For.	Jr.	Warrenton
Failing, Kate Whittesey,	Agri.	Fr.	Portland
Fairhurst, Joe Paul	For.	S. Sec.	Corvallis
Fairhurst, Nell	Com.	Fr.	Corvallis
Farwell, Fred Kenneth	Agri.	F. Sec.	Three Pines
Farmer, Oliver	Agri.	F. Sec.	Shedds
Feathers, Mabel	D. S.	Fr.	Corvallis
Feemster, Russell Emil	Opt.		Marion
Feldenheimer, Elmer	Agri.	Jr.	Portland
Feldman, Gustav	Com.	Fr.	Portland
Fellows, Lillian	D. S.	Spec.	Dallas
Fenn, Donald	Agri.	Fr.	Portland
Ferguson, Almont Hawthorn	M. A.	S. Sec.	Hood River
Ferguson, Blaine	Agri.	Sr.	Hailey, Idaho
Ferguson, Keith Robert	Com.	Jr.	Hailey, Idaho
Fiedler, Frank D.	C. E.	Jr.	Bellingham, Wash.
Fisher, Boyd F.	C. E.	Fr.	Portland
Fisher, Stella Blanche	Opt.		Port Hammond
Fisk, Carlos Ewing	Agri.	Fr.	Parma, Idaho
Fitzgerald, Gerald	Agri.	F. Sec.	Portland
Flanagan, Charles Bartlett	Agri.	Fr.	Marshfield
Flanery, Floyd B.	Phar.	Fr.	Amity
Fleckus, Edward Willis	M. A.	S. Sec.	Ashland

Name	*Course*	*Rank*	*Home Address*
Flegel, Charles	Agri.	Soph.	Portland
Fleming, Jesse Ray	Agri.	Sr.	Bakeoven
Fletcher, Allan Taylor	Com.	Soph.	Buell
Fletcher, Birdie E.	Com.	Spec.	Portland
Flint, John Walt	Agri.	Soph.	San Diego, Calif.
Floss, Fritz Carl	Min.	Fr.	Milwaukee
Forbis, John Franklin	Agri.	Soph.	Dilley
Ford, Charles Edward	Com.	Fr.	Sheridan
Forster, Fred Henry	C. E.	Fr.	Tangent
Foster, Harold D.	Agri.	Jr.	Seattle, Wash.
Foster, Valentine	D. S.	Fr.	Idaho Falls, Idaho
Foster, Warren Ralston	Com.	Soph.	Independence
Foster, Will Herman	E. E.	Jr.	Corvallis
Fowler, Robert Grey	Agri.	Fr.	Portland
Fox, Kenneth Lawrence	Min.	Fr.	Portland
Fraley, Earl John	Com.	Fr.	Ashland
Francis, George L.	Agri.	Fr.	Portland
Frank, Arthur	Agri.	Jr.	South Bend. Ind
Frank, Herbert	Agri.	Fr.	Valley City, Ohio
Franz, Earl Alfred	Com.	Spec.	Hood River
Fraser, John Henry	C. E.	Fr.	Parkplace
Freeman, Addice Lillian	D. S.	Fr.	Hood River
Freitag, Boad	Agri.	S. Sec.	Freewater
French, Phoebe Caroline	D. S.	F. Sec.	Corvallis
French, Susan E.	D. S.	F. Sec.	Corvallis
Freydig, Paul E.	For.	Jr.	Sutherlin
Frick, Robert B.	For.	Fr.	San Francisco, Calif.
Friday, Roberta Fay	D. S.	Soph.	Hood River
Fridley, Callie	D. S.	S. Sec.	Klondike
Fridley, Dora	D. S.	Fr.	Klondike
Fridley, Nettie	D. S.	S. Sec.	Klondike
Frost, Carl Magnus	E. E.	Fr.	Portland
Fryer, Carl Augustus	Phar.	Soph.	Shaw
Fujihira, Yoshitaro	E. E.	Sr.	Wakayama, Japan
Fuller, Fred Audlaigh	For.	F. Sec.	Union
Funk, Arnold John	Com.	Fr.	Corvallis
Funk, Maude	D. S.	Fr.	Etna Mills, Calif.
Fyne, Hannah R.	D. S.	Fr.	The Dalles
Gambee, Hosmer C.	Agri.	Soph.	Corvallis
Gambee, Louis Phaon	Agri.	Soph.	Corvallis
Gamble, Ella	Com.	Soph.	Astoria
Garbutt, Earl Edward	M. E.	Fr.	Sheridan
Gardiner, William Benson	Agri.	Jr.	Colorado Springs, Colo.
Garrettson, Ernest	Agri.	S. Sec.	Sioux City, Iowa
Gates, Pearl	D. S.	Fr.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Gaver, Andrew Poe	Agri.	S. Sec.	Petaluma, Calif.
Gaylord, Clarence Clyde	Phar.	Soph.	Halfway
Gentner, Louis G. O.	Agri.	Soph.	Portland
Gerke, Walter Henry	Agri.	Fr.	Portland
Getchell, Millie B.	D. S.	Fr.	Valley City, N. Dak.
Gibbs, James Clarence	Agri.	Sr.	Grace, Idaho
Gibson, Elise	D. S.	Fr.	Nyssa
Gilbert, Henry Clark	Agri.	Soph.	Salem
Gilbert, Lovina	D. S.	F. Sec.	Salem
Gilbert, Mahlon Bruce	Agri.	Fr.	Woodburn
Gildner, Walter Fred	E. E.	Soph.	Astoria
Glaisyer, Harold Roland	Agri.	Sr.	Forest Grove
Glaser, Elizabeth Carolyn	D. S.	Fr.	Lebanon
Glines, Halcie Williford	Agri.	Fr.	Waldport
Goble, Roy Elbert	Agri.	Fr.	Ferndale, Calif.
Goddard, Jackson F.	Opt.		Cottage Grove
Godfrey, Gaylord Gerald	Phar.	Jr.	Oregon City
Godfrey, Lena	D. S.	Fr.	Portland
Goffe, Cordelia Hawley	D. S.	Jr.	Central Point
Gooding, Joseph Hunter	Agri.	Soph.	Wilmington, Del.
Goodrich, Lee J.	Agri.	Spec.	Seattle, Wash.
Graf, Herman	M. E.	Fr.	Portland
Granlund, Charles Edwin	Com.	Jr.	Portland
Grasle, Wesley Reed	E. E.	Soph.	Milwaukee
Gray, June R.	D. S.	Sr.	Eugene
Green, Don Dudley	Agri.	S. Sec.	Parkdale
Green, John Wesley	C. E.	Fr.	Suver
Green, Louis Leo	Agri.	S. Sec.	Seattle, Wash.
Greenlee, James P.	Agri.	F. Sec.	Portland
Grimshaw, Henry Howard	Agri.	Fr.	Phoenix, Ariz.
Groce, Jack Francis	Com.	Fr.	Portland
Groce, Oliver	Com.	Fr.	Portland
Grubbe, Eugene Erle	Com.	F. Sec.	Elkton
Grubbe, Ivan	Com.	F. Sec.	Elkton
Haberman, Nick	Com.	F. Sec.	Ellensburg, Wash.
Hackett, Harold Nelson	E. E.	Fr.	Elgin
Hadrys, Frank Vincent	E. E.	Soph.	Portland
Hagey, Grove Adel	Phar.	First Yr.	Newberg
Hall, John Quincy	Com.	Spec.	Portland
Hall, Milred Augusta	D. S.	Fr.	Corvallis
Haller, Wanda	D. S.	Soph.	Telocaset
Hallock, Joseph Homer	E. E.	Jr.	Portland
Hamilton, Harry Earl	M. E.	Fr.	Portland
Harmersley, Ray Roy	M. E.	Jr.	Corvallis
Hamlin, Lucile Anna	Opt.		Corvallis

Name	*Course*	*Rank*	*Home Address*
Handy, Victor Hugo	C. E.	Fr.	Medford
Hankins, Glen Alan	M. E.	Fr.	Cottage Grove
Hansen, Alfred Hugo	Agri.	Jr.	Anaheim, Calif.
Hansen, Benita Kareen	D. S.	Fr.	Corvallis
Hansen, Harold Von Stein	Opt.		Portland
Hanson, Margaret	Com.	Soph.	Corvallis
Hardman, George	Agri.	Soph.	Ontario
Hardman, Sylvia	D. S.	Soph.	Cape Horn, Wash.
Hargreaves, Arthur	Agri.	S. Sec.	Corvallis
Harlow, Charles	E. E.	Fr.	Cottage Grove
Harmon, Ruth	Agri.	Spec.	North Bend
Harriman, Arthur Absalom	E. E.	Soph.	Corvallis
Harriman, Edna Cornelius	Com.	Soph.	The Dalles
Harriman, Nellie Hanford	Com.	Soph.	The Dalles
Harrington, Frank M.	Agri.	Sr.	Creswell
Harrington, Chauncey Clifford	Agri.	Fr.	Corvallis
Harris, Earl Sorsby	Com.	Soph.	Corvallis
Harris, Evan	Agri.	Soph.	Chula Vista, Calif.
Harrison, M. Allen	Agri.	Soph.	Brownsville
Harritt, Jessie Altje	D. S.	Soph.	Salem
Harry, Earl Logan	M. E.	Jr.	Corvallis
Harry, Olive Mary	Phar.	Soph.	Corvallis
Hart, Otto Clement	M. E.	Fr.	Corvallis
Hartill, Leonard Ramsden	Agri.	Sr.	Brooklyn, N. Y.
Hartsock, Charles McFerrin	C. E.	Sr.	Albany
Hartung, Esther Jennie	D. S.	Jr.	Eugene
Hartung, Mary Elizabeth	D. S.	Sr.	Eugene
Hartzog, Clara	D. S.	Sr.	Corvallis
Hartzog, Delphia	D. S.	Fr.	Corvallis
Harvey, Corwin Satterthwaite	Com.	Fr.	Milwaukee
Harvey, Gysbert	For.	S. Sec.	Corvallis
Haseltine, Sarah	Opt.		Berkeley, Calif.
Hathaway, Marcus Francis	Agri.	Fr.	Corvallis
Hattan, Lloyd Stanley	Agri.	Fr.	St. Helens
Hauser, Emil	For.	Fr.	Siletz
Hauser, Solomon	Agri.	F. Sec.	Tygh Valley
Haw, Horace Leo	Agri.	Fr.	Pendleton
Hawkins, Annie E.	D. S.	Fr.	Toledo
Hawkins, Joe Cephus	Agri.	Fr.	Sayre, Okla.
Hawkins, Thomas Powers	Phar.	Sr.	Toledo
Hawley, Mary W	Com.	Soph.	Corvallis
Hawley, Ruth Blanche	Com.	Jr.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Hawley, Tressa Lena	Opt.		Creswell
Hawley, Willa Winnifred	D. S.	Soph.	Corvallis
Hayes, Marshall Crane	For.	Jr.	Pasadena, Calif.
Hayes, Oliver Bliss	Agri.	Soph.	Pasadena, Calif.
Heath, Laura B.	D. S.	Fr.	Corvallis
Heaward, Robert Emerson	Com.	S. Sec.	Carrollton, Wash.
Henderson, Charles Albert	Com.	Fr.	Gardiner
Henderson, James A.	M. A.	S. Sec.	Weston
Henderson, William Wright	Agri.	S. Sec.	Hilo, Wawaii
Hendrick, Bertha May	D. S.	Jr.	Silverwood, Mich.
Henshaw, Ferrie	Min.	Fr.	Portland
Herigstad, Carl	Agri.	F. Sec.	Silverton
Herr, Hazel	D. S.	Fr.	Richland
Hess, George Fred	M. E.	Soph.	Corvallis
Hetzel, Harry C.	Agri.	Sr.	Madison. Wis.
Hewitt, Harry Nutting	Phar.	First Yr.	Milton
Hewitt, Henry	Agri.	Fr.	Portland
Hewitt, Marion Samuel	M. E.	Soph.	Stockton, Calif.
Heynemann, Walter Patten	Agri.	Fr.	San Francisco, Calif.
Hicks, Kreta Mae	Opt.		Silverton
Highsmith, Pearl	D. S.	F. Sec.	Portland
Hill, Charles Edwin	Agri.	Fr.	Springfield, Mass.
Hill, Charles Lester	Agri.	Jr.	Berea, Ky.
Hillyard, Mary Arrissa	D. S.	F. Sec.	Gresham
Hirst, Bernard	Agri.	Fr.	Sitka, Alaska
Hirst, Percy Verne	Agri.	Fr.	Sitka, Alaska
Hittson, Carmen	Phar.	Fr.	Medford
Hobbs, Grace E.	D. S.	Sr.	Eugene
Hoerr, Carl Girlick	M. E.	Fr.	Lebanon
Hoerner, Godfrey Richard	Agri.	Fr.	Seattle, Wash.
Hofer, Marie	D. S.	Jr.	Salem
Hofer, Paul Bellon	Agri.	Fr.	Salem
Hoff, Melvin R.	Agri.	Jr.	New Era
Hoff, N. P.	C. E.	Soph.	Salem
Hogan, D. Brooks	Agri.	Sr.	Lebanon
Hogg, J. Ashton	M. E.	Fr.	Lihue, Hawaii
Holboke, Sophia M.	Opt.		Corvallis
Holland, Wellington Payton	Agri.	S. Sec.	Sumpter
Holm, Dessa	D. S.	Fr.	Wenatchee, Wash.
Holmes, Elise Gabrielle	D. S.	Fr.	Enterprise
Holmes, Frederick Aram	Agri.	Soph.	Enterprise
Holt, Hazel	D. S.	Jr.	Corvallis
Holt, Margaret Richmond	D. S.	Fr.	Portland
Hooper, John Amos	E. E.	Fr.	Corvallis
Horning, Benjamin	Phar.	Jr.	Toledo

Name	*Course*	*Rank*	*Home Address*
Horning, Emil Edwin	Com.	Jr.	Corvallis
Horning, Helen	D. S.	Fr.	Corvallis
Hosford, Erwin Frederick	C. E.	Fr.	Slayton
Hotchkiss, George William	Agri.	Fr.	Corvallis
Houliston, George	Agri.	Fr.	East Aurora, N. Y.
Howard, D. C.	Agri.	Jr.	Corvallis
Howard, Russell Marion	Com.	Jr.	Corvallis
Howard, Walter William	Agri.	Jr.	Corvallis
Howells, Dr. Allan	Agri.	Spec.	Corvallis
Howitt, Elizabeth A.	D. S.	Fr.	Gresham
Hubbard, Harry Lee	C. E.	Soph.	Amity
Hubler, Cora May	Com.	Soph.	Corvallis
Huggins, Chester Chandler	Agri.	Spec.	Portland
Hukill, Jesse Brooke	Agri.	Soph.	Corvallis
Hult, Gustaf Wilhelm	For.	Fr.	San Francisco, Calif.
Humason, Matilda Frances	D. S.	Fr.	Spokane, Wash.
Humphrey, Esther	D. S.	Fr.	Eugene
Hunt, Cecil Canova	E. E.	Fr.	Emmett, Idaho
Huntington, Retta	D. S.	Fr.	Yoncalla
Hurlbut, Ira Wilson	Com.	S. Sec.	Corvallis
Hurlbut, Walter	Agri.	F. Sec.	Hamlet
Hurley, Alton	Agri.	Fr.	Seattle, Wash.
Hurst, Clarence M.	Agri.	Spec.	Oswego, Kans.
Hurst, Lester	Agri.	Fr.	Pendleton
Hutt, Lester T.	M. E.	Jr.	Yamhill
Hyams, Leo Klein	M. E.	Fr.	Portland
Hyatt, Lowell Lester	M. A.	F. Sec.	Weston
Hyskell, Edward Rogers	Agri.	Fr.	Portland
Ide, Russel S.	Agri.	Fr.	Portland
Irving, Benjamin Barton	C. E.	Jr.	Washington, D. C.
Irving, Iona Margaret	D. S.	Soph.	Corvallis
Irwin, Mary Louise	Com.	Soph.	Hood River
Jackson, Della M.	D. S.	Fr.	Lorane
Jackson, Edwin August	Agri.	Fr.	Astoria
Jackson, Ruth	D. S.	Fr.	Portland
Jacobs, Frederick Adolph	Agri.	F. Sec.	Firwood
Jakoby, Carl Charles	For.	F. Sec.	Toledo
James, Oscar William	C. E.	Jr.	Robinet
Jamison, Dwight Lyman	Agri.	Fr.	Corvallis
Jamison, Neal Clement	Agri.	Jr.	Puyallup, Wash.
Jaquith, Roy	Agri.	F. Sec.	Laurel
Jennings, D. V.	E. E.	Fr.	Portland
Jernstedt, Frederick Carl	M. E.	Sr.	Carlton
John, Morris	Com.	Fr.	Corvallis
Johns, Miles S.	Agri.	Fr.	Bellingham, Wash.

Name	Course	Rank	Home Address
Johnson, Alfred	Agri.	Fr.	Enumclaw, Wash.
Johnson, Anna Marie	D. S.	Sr.	Albany
Johnson, George Edward	M. A.	F. Sec.	Portland
Johnson, George R.	Agri.	Jr.	Cooston
Johnson, Jennie Louise	D. S.	Fr.	Hammond
Johnson, Leo E.	M. E.	Sr.	Carlton
Johnson, Lewis Ross	Agri.	Fr.	Corvallis
Johnson, Lillian	D. S.	Fr.	Corvallis
Jonhston, Frank H.	Agri.	Jr.	Portland
Johnston, Owen H.	For.	Fr.	Quincy, Wash.
Johnston, Perry N.	Agri.	Fr.	Moro
Johnston, Theodore	Agri.	Soph.	Moro
Jones, Charles D.	M. A.	F. Sec.	Knappa
Jones, Chester Arthur	E. E.	Fr.	Corvallis
Jones, Edward Delta	M. E.	Fr.	Jefferson
Jones, Frieda Lois	D. S.	Fr.	Astoria
Jones, George Clay	C. E.	Sr.	Portland
Jordan, Arthur	C. E.	Soph.	Pendleton
Jordan, Melvin	Com.	Soph.	Corvallis
Josselyn, Benage S.	M. A.	F. Sec.	Portland
Joy, Frederick W.	Agri.	Spec.	New York, N. Y.
Joyner, Leon	Agri.	Fr.	North Bend, Wash.
Kan, Frank F.	Agri.	Fr.	Canton, China
Keatley, Dorothy	D. S.	Sr.	Castle Rock, Wash.
Keatley, Virginia	D. S.	Jr.	Castle Rock, Wash.
Keefover, Fank Azem	Com.	Sr.	Salem
Kehrli, Frank Walter	Agri.	Jr.	Hillsdale
Keller, Anna	D. S.	Jr.	Portland
Keller, Fred John	Agri.	F. Sec.	Portland
Kellogg, Don Gilbert	Agri.	Sr.	Hoquiam, Wash.
Kelly, Glenn Curtis	Agri.	Sr.	Portland
Kelly, John L.	Phar.	Spec.	Jefferson
Kennedy Albert Seavey	Agri.	Spec	Athens, Ala.
Kennedy, Rowe Davis	M. E.	Soph.	Corvallis
Kenton, Ralph Mills	M. E.	Fr.	Albany
Kerns, Ward Buchtel	M. E.	Soph.	Portland
Keyser, Florence B.	D. S.	Fr.	Corvallis
Kidder, Ethel	D. S.	Fr.	Portland
Kidder, Melba	D. S.	S. Sec.	Portland
Kimble, Harry Frank	Agri.	F. Sec.	Portland
Kimble, Loren	Com.	Spec.	Portland
King, Charles Allen	E. E.	Soph.	Ashland
King, Edgar Herman	E. E.	Fr.	Cottage Grove
King, Luther Andrew	M. E.	Fr.	Cottage Grove
King, Norman William	Com.	Fr.	Canton, China

Name	*Course*	*Rank*	*Home Address*
King, William O.	Agri.	Jr.	Eugene
Kingsley, Earl J.	Com.	Fr.	Corvallis
Kirkpatrick, Kathreen	D. S.	Jr.	Pendleton
Kistler, Leonard Humphrey	E. E.	Sr.	Portland
Kittleson, Nora	D. S.	F. Sec.	Dallas
Klinghammer, Reinhold	Agri.	Fr.	Elgin
Klum, Otto	Opt.		Ashland
Knight, Arthur Wheelock	Agri.	Fr.	Glendale, Calif.
Koenig, Walter Jacob	Agri.	Soph.	Corvallis
Koon, Harvey	Phar.	First Yr.	Portland
Koons, Hubert Edson	Agri.	Fr.	Orland, Calif.
Krantz, Earl Beach	Agri.	Soph.	Corvallis
Krause, Gustav W.	Agri.	Soph.	Cornelius, Wash.
Kreps, Russell Richard	Agri.	S. Sec.	Laurel, Wash.
Kroner, Leo	M. E.	Soph.	Corvallis
Kuhnhausen, Arnold E.	E. E.	Jr.	Portland
Kurtz, Harry L.	Phar.	First Yr.	Rainier
Lafky, Ernest Herman	Agri.	Soph.	Salem
Laird, Ralph P.	Agri.	Fr.	Creswell
Laird, Thomas Walter	Phar.	First Yr.	Bandon
Lake, Emery Dudley	Agri.	Fr.	Eugene
Lamb, Howard M.	Phar.	Soph.	Fossil
Lamley, Harry B.	Min.	Jr.	Portland
Lamoreux, Louis Andrew	For.	Fr.	San Francisco, Calif.
Lamoreux, Thomas Liggett	Agri.	Fr.	San Francisco, Calif.
Lance, Arthur L.	Agri.	Soph.	Corvallis
Lance, Mayme Elizabeth	D. S.	Jr.	Corvallis
Lance, Neely Samuel	Agri.	S. Sec.	Corvallis
Landwehr, Walter Richard	Min.	Fr.	Cottage Grove
Lane, Vivian Maude	D. S.	Fr.	Harrisburg
Lange, Alfred J. H.	E. E.	Fr.	Portland
Lansdale, Zane Arthur	C. E.	Fr.	Weston
Lantz, Mable	D. S.	Spec.	Cove
Larson, Adolph Leonard	Agri.	Soph.	Astoria
Laskar, Adhar Chandra	E. E.	Soph.	Calcutta, India
Lau, Paul	Com.	Fr.	San Francisco, Claif.
Lawrence, Bert Fowler	Com.	Fr.	Forest Grove
Lawrence Sylvester Ernest	Agri.	Fr.	Portland
Laythe, Leo L.	Agri.	Fr.	Harriman
Lee, Earl Francis	Com.	Fr.	Waterville
Leeper, Enid Glenda	Com.	Soph.	Corvallis
Leonard, Ira Edwin	Agri.	Fr.	Montecito, Calif.
Leonette, Frederick Theodore	C. E.	Fr.	McCloud, Calif.
Lester, Warren Chauncey	Com.	Spec.	Warrenton

Name	*Course*	*Rank*	*Home Address*
Lettenmaire, Walter	Agri.	Fr.	Hubbard
Leweaux, Victor H.	Phar.	Fr.	Corvallis
Lewis, Clayton Brown	Agri.	Soph.	Portland
Lewis, D'Alvin	Com.	Fr.	Montavilla
Lewis, Dolorosa	D. S.	F. Sec.	Smith River, Calif.
Lewis, Elizabeth Thurman	D. S.	Soph.	Pacific Grove, Calif.
Lewis, Harry H.	Agri.	F. Sec.	Portland
Lewis, Katherine B.	D. S.	Fr.	Portland
Lewis, William Atwood	Com.	Fr.	Somerville, Mass.
Liddle, Mrs. Edith Dunn-	Opt.		Corvallis
Likins, Nelson	Com.	Sr.	Portland
Lindeman, Laird N.	Agri.	S. Sec.	Monmouth
Lindsay, Alexander Lewis	Agri.	Fr.	Hilo, Hawaii
Lindsley, Sterling Ladner	M. E.	Fr.	Portland
Litch, Maude E.	D. S.	Fr.	Enterprise
Livingston, Robert	Agri.	Soph.	Portland
Locker, Leonard Joseph	M. E.	Fr.	Burns
Loken, Edward Benjamin	C. E.	Jr.	Harrisburg
Long, Yick	Com.	Soph.	Canton, China
Looff, Hans Walter	For.	Fr.	Milton
Loosley, Claude F.	Agri.	Soph.	Ft. Klamath
Loughary, Edithe	Opt.		Monmouth
Loughary, Ivan H.	Agri.	Fr.	Monmouth
Loughery, George Herbert	Agri.	Soph.	Pasadena Calif.
Louttit, Clarence W.	Agri.	F. Sec.	Portland
Louttit, Thomas Alfred	Agri.	F. Sec.	Portland
Lucas, Fred Albert	Com.	Fr.	Bend
Lundeen, Arthur Robert	For.	Fr.	Rock Island, Ill.
Luxton, William L.	M. A.	F. Sec.	Idaho Falls, Idaho
Lyon, Helen	D. S.	Fr.	Corvallis
Lyster, Kathleen	D. S.	Soph.	Corvallis
McAdams, Orville Ellis	C. E.	Fr.	Portland
McAlister, Ward Richards	Agri.	Soph.	Logan, Utah
McBride, Lawrence Leon	Agri.	Sr.	Eddyville
McCabe, Frederick	C. E.	Fr.	Portland
McClaren, Joe Wallace	Com.	Soph.	Wallowa
McClellan, Thomas Richard	Agri.	Fr.	Turner
McClure, Ernest	Agri.	Fr.	Moro
McColley, Rodrick Allen	M. E.	Fr.	Albany
McComb, Mrs. Jessie D.	D. S.	Spec.	Corvallis
McConaghy, Dan	Agri.	Fr.	Los Angles, Calif.
McCormick Andrew C.	Agri.	Soph.	Lebanon
McCormick, Harl Craig	Agri.	Fr.	Drain
McDaniel, Ernest Penn	E. E.	Sr.	Corvallis
McDermott, Katherine	D. S.	Fr.	Portland

Name	*Course*	*Rank*	*Home Address*
McDermott, Mary Ellen	D. S.	Fr.	Portland
McDonald, Allie	D. S.	Soph.	Corvallis
McDonald, Paul	Com.	Fr.	Medford
McFadden, Curran Lane	Phar.	Soph.	Corvallis
McFadden, Julia Eleanor	D. S.	Jr.	Corvallis
McGee, Roy Oliver	Agri.	Jr.	Airlie
McGinnis, James Luther	Agri.	Soph.	Corvallis
McGinnis, Paul Herbert	M. A.	S. Sec.	Gest, Ky.
McGowan, Leonore	D. S.	S. Sec.	McGowan, Wash.
McGuire Helen Martha	D. S.	Jr.	The Dalles
McKee, Hazel Adelia	D. S.	Jr.	Corvallis
McKee, Robert Tandy	M. E.	Jr.	Lakeview
MacKenzie, Agnes	D. S.	Fr.	Weston
MacKenzie, Kenneth	Com.	F. Sec.	Weston
McKenzie, LeRoy Roderick	Com.	Sr.	Summerville
McKenzie, Robert Roderick	E. E.	Sr.	Lostine
McKinney, Esther	D. S.	Spec.	Centerville, Wash.
McKinney, Loette V.	Com.	Soph.	Waitsburg
McLagan, Ruby	D. S.	Fr.	Tangent
McLean. William Donald	Com.	Fr.	Kakabeka Falls, Can.
McMahan, Clarence,	Agri.	Fr.	Randle, Wash.
McMillan, Anthony	Agri.	Fr.	Oakland, Calif.
McMillan, M. Estella	D. S.	Fr.	Lorane
McMinn, Roy Ben	Opt.		Portland
McNair, Rittie	D. S.	Fr.	Bandon
McNamee, Benjamin Henry	C. E.	Sr.	Portland
McNish, Bessie M.	D. S.	Fr.	Dayton
McPhee, Clyde	Agri.	Fr.	North Powder
McQuaid, Zena	D. S.	Fr.	Portland
McVey, Jacob Ambrose	M. A.	S. Sec.	Harrisburg
Macpherson, William Maxfield	Agri.	Soph.	Pasadena, Calif.
Magness, John Robert	Agri.	Jr.	Amity
Malik, Ghulam Mohamed	Com.	Fr.	Lahore, India
Mangold, Alfred Oscar	E. E.	Jr.	Portland
Manners, Charles Haddon	Agri.	Soph.	New York, N. Y.
Manning, Kenneth Cobb	Agri.	Fr.	Portland
Manula, Wayne Erik	E. E.	Fr.	Astoria
Marcks, Raymond A.	Agri.	Fr.	Corvallis
Marsden, Anna	D. S.	S. Sec.	Beaverton
Martin, Frances Clair	M. E.	Soph.	Corvallis
Martin, Guy E.	Phar.	Fr.	Corvallis
Martin, John Holmes	Agri.	Jr.	Albany
Marvin, Julia	D. S.	Fr.	Enterprise
Mason, Albert Freeman	Agri.	Jr.	Pasadena, Calif.

Name	*Course*	*Rank*	*Home Address*
Mason, Joy	Com.	Jr.	Hood River
Mason, Rose Coffman	Phar.	Jr.	Jefferson
Mason, Walter Harold	E. E.	Fr.	Ione
Mather, Arthur Gilmore	Min.	Soph.	Clackmas
Mattson, Marshall	M. E.	Fr.	Astoria
Maxfield, Alice	Com.	S. Sec.	Airlie
May, Thomas Everett	Com.	Jr.	Portland
Meade, Frank Fulton	For.	Fr.	Elgin
Mehl, Paul	Agri.	Soph.	Chicago, Ill.
Meng, Edwin Anton	Agri.	F. Sec.	Lents
Mentzer, Lottie F.	D. S.	Jr.	Pendleton
Mercer, Frank Baker	Phar.	First Yr.	North Powder
Mercer, Grover Cleveland	Phar.	First Yr.	North Powder
Mescher, Virginia	Com.	Sr.	Silverton
Metzger, William Ernest	Com.	Jr.	Portland
Metzler, Ethel M.	D. S.	Jr.	Corvallis
Meyers, J. Donald	Com.	Soph.	Salem
Michelbrook, Roy	M. E.	Fr.	McMinnville
Middlekauff, Mark Humbert	Agri.	Fr.	Yaquina
Milam, Lottie	D. S.	Jr.	Macon, Mo.
Miller, Alice Ruth	Com.	Soph.	Corvallis
Miller, Archie Jackson	E. E.	Fr.	Enterprise
Miller, Carl N.	For.	Jr.	Indianapolis, Ind.
Miller, Charles William	E. E.	Fr.	Milton
Miller, Emily Marie	D. S.	Sr.	Corvallis
Miller, Fred Merle	M. E.	Jr.	Albany
Miller, Harry D.	M. A.	S. Sec.	Corvallis
Miller, Horace M.	Agri.	Soph.	Portland
Miller, Julia B.	D. S.	Soph.	Amity
Miller, Loraine Helen	D. S.	Jr.	Portland
Miller, Roy Edmund	Agri.	Soph.	Spokane, Wash.
Millering, Jay Mathew	Opt.		LaGrande
Millikin, Damon	M. E.	Fr.	Ontario
Millikin, Stanley John	E. E.	Soph.	Ontario
Mills, Arthur Ernest	Agri.	Jr.	Forest Grove
Mills, Edna Lola	D. S.	Fr.	Forest Grove
Milner, George R.	E. E.	Sr.	Okmulgee, Okla.
Mitchell, Grace Elizabeth	D. S.	Fr.	Medford
Moe, Forrest Lester	Agri.	Fr.	Hood River
Moffitt, Cecil Paul	Agri.	Sr.	Junction City
Monger, Walter Victor	E. E.	Fr.	Parkplace
Montague, Cass Edward Orval	Com.	Spec.	Arlington
Montague, Erwin Jones	Com.	Sr.	Arlington
Montgomery, G. Millage	Agri.	Sr.	Los Angles, Calif.

Name	*Course*	*Rank*	*Home Address*
Moore, Blanche	D. S.	Fr.	McMinnville
Moore, Frank Waltz	For.	Soph.	Newberg
Moore, Mrs. Ida Robinson-	Com.	Spec.	Corvallis
Moore, Jesse W.	Agri.	Soph.	Harrisburg
Moore, Merle	M. E.	Soph.	Corvallis
Moore, William Tracy	C. E.	Soph.	Oak Grove
Morehouse, Margaret	D. S.	Sr.	Eugene
Moreland, Julius C.	Min.	Fr.	Portland
Morgan, Mary	D. S.	F. Sec.	Heppner
Morris, George Willis	E. E.	Sr.	Corvallis
Morris, Joseph Theodore	Opt.		Corvallis
Morris, Orville	Agri.	F. Sec.	Terrebonne
Morris, Sarah	D. S.	Soph.	Rainier
Morrison, Eugene	Agri.	F. Sec.	Williams
Morrison, Ruth	D. S.	Fr.	Hood River
Morse, John J.	Agri.	Jr.	San Francisco, Calif.
Mosby, David Clayborn	C. E.	Fr.	Cottage Grove
Mosby, Harold Herbert*	Agri.	Fr.	Cottage Grove
Motley, Jesse William	M. E.	Soph.	Cove
Moznette, George Franklin	Agri.	Jr.	Vancouver, Wash.
Muck, John Edgar	M. E.	Soph.	St. Johns
Mudd, Vivian	D. S.	F. Sec.	Hammond
Mulkey, Oren	E. E.	Fr.	Myrtle Creek
Murch, George S.	E. E.	Fr.	Marshfield
Murphy, Foster McKinley	Agri.	Soph.	Evanston, Ill.
Murphy, Golda	Opt.		Forest Grove
Murphy, Loretta Belle	Opt.		Forest Grove
Naito, Tadasu	Agri.	Fr.	Tokyo, Japan
Narkans, Joseph	For.	F. Sec.	Weston
Nash, Jack Walter	C. E.	Fr.	Albany
Neale, Eric William	For.	Fr.	Willow Point, Canada
Neer, Francis Edward	Agri.	Jr.	Pasadena, Calif.
Nehl, Albert Henry	Com.	Soph.	Woodburn
Nelson, Frank Montgomery	Agri.	Fr.	Portland
Nelson, Kenneth	Agri.	Soph.	Eugene
Nelson, Willard Young	C. E.	Fr.	Lafayette
Newcomb, Gilbert Rockwell	For.	Fr.	Campbell, Calif.
Newell, Harry L.	Agri.	S. Sec.	Portland
Newins, Geraldine	D. S.	Fr.	Patchogue, N. Y.
Newmyer, Ruth	D. S.	Fr.	Chemawa
Nibler, William Henry	Phar.	Sec. Yr.	Gervais
Nichols, Tressa Elizabeth	Opt.		Corvallis
Nicholson, Raymond Edward	Agri.	Soph.	Hood River
Niederer, Carl Emil	M. E.	Jr.	Summerville

Name	*Course*	*Rank*	*Home Address*
Nixon, Clara M.	Agri.	Spec.	Trumansburg, N. Y.
Noble, Leon	Agri.	Fr.	Hood River
Noren, Carl Albin	Agri.	Soph.	Reedley, Calif.
Norris, William Thomas	Agri.	S. Sec	Fort Klamath
Norton, Edmond Carlyle	Com.	Spec.	Olex
Norton, James Emmet	Com.	Jr.	Airlie
Norton, Walter Bert	M. A.	S. Sec.	Langlois
Norton, Wenny Leonard	For.	S. Sec.	Langlois
Nunamaker, F. D.	Agri.	Soph.	Hood River
Oakes, Charles Ernest	E. E.	Jr.	Enterprise
Oakes, Mary	D. S.	Fr.	Grants Pass
Oberdorfer, Harold	Com.	Fr.	Portland
O'Connor, Kate*	D. S.	Jr.	Montogue, Calif.
Odeen, Henry	C. E.	Jr.	Portland
O'Donnell, Ellen	D. S.	Jr.	Portland
Okamoto, Kakoji	Agri.	Sr.	Kumamoto, Japan
Olcott, Wiley Hurbert	E. E.	Fr.	Canyonville
Olmsted, Aron Lemmel	Agri.	Soph.	Enterprise
Olmsted, Irl Louis	E. E.	Soph.	Enterprise
O'Mara, George V.	Min.	Fr.	Portland
O'Neel, Ruel Glover	C. E.	Fr.	Portland
Orford, Christine	D. S.	Jr.	DeLamar, Idaho
Orr, Helen	D. S.	Fr.	Hood River
Osburn, Margaret	D. S.	Sr.	Newport
Otis, Ralph Gray	Agri.	Fr.	Newberg
Overholser, Leroy Leighton	M. E.	Fr.	Pomeroy, Wash.
Overton, James White	M. A.	F. Sec.	Astoria
Paddelford, James Harold	Agri.	F. Sec.	Carey, Idaho
Padgham, Henry I.	Agri.	Jr.	Santa Ana, Calif.
Page, Charles Culver	Agri.	Fr.	Hood River
Page, John Albert	E. E.	Fr.	Enterprise
Paine, J. Howard	Agri.	Fr.	Portland
Palmer, Elizabeth	D. S.	S. Sec.	Dayton
Palmer, Ernest N.	Agri.	Jr.	Central Point
Parcel, J. Albert	Phar.	Fr.	Corvallis
Parelius, Ethel B.	D. S.	Fr.	Portland
Park, Ida	D. S.	S. Sec.	Corvallis
Park, Jas. Pennington	Agri.	Fr.	Corvallis
Park, Winniford	D. S.	S. Sec.	Corvallis
Parker, Lorene	D. S.	Soph.	Salem
Parratt, Sydney Lloyd	C. E.	Fr.	Corvallis
Parrish, Fairfax Hayes	M. E.	Soph.	Roseburg
Patterson, Winnifred	D. S.	Soph.	Corvallis

*Deceased.

Name	*Course*	*Rank*	*Home Address*
Patton, Harry C.	M. A.	S. Sec.	Macleay
Patton, Vernon	M. A.	F. Sec.	Macleay
Payne, Nola	D. S.	Jr.	Woodburn
Payne, Roy	M. E.	Fr.	Corvallis
Pearcy, Earl	Agri.	Sr.	Portland
Pearcy, Harris Leland	Agri.	Fr.	Portland
Pearson, Roderic	C. E.	Fr.	Portland
Pease, Pauline	D. S.	Sr.	Portland
Pechin, William Grover	Com.	S. Sec.	Forest Grove
Peck, Robert	For.	F. Sec.	Los Angles, Calif.
Peery, Harold Morris	Phar.	Sr.	Springfield
Peery, Wilson Kimsey	Agri.	Jr.	Dayton
Pelland, Francis Gerald	E. E.	Soph.	St. Paul
Peninger, Bertha	Com.	S. Sec.	Medford
Peninger, Mary	Com.	S. Sec.	Medofrd
Penland, Nell	D. S.	S. Sec.	Sheridan
Perard, Desire Joseph	Phar.	Sr.	Toppenish, Wash.
Peterson, Carl Edward	E. E.	Fr.	Portland
Phalon, Lillian Ruth	D. S.	Fr.	Portland
Philippi, Albert Roy	Agri.	Fr.	Early
Philippi, Leora	D. S.	Fr.	Early
Phillips, James Henry	Agri.	Jr.	Fullerton, Calif.
Pierce, Edgar Turner	Com.	Sr.	Harrisburg
Pimm, Charles	M. E.	Fr.	Philomath
Pinn, Frederick Edwin	E. E.	Fr.	White Salmon, Wash.
Pippy, Kathleen May	Opt.		Portland
Pippy, Winnifred	D. S.	Fr.	Portland
Pirtle, Mary Louise	Opt.		Albany
Platt, Dwight Gilbert	For.	S. Sec.	Idaho Falls, Idaho
Polk, Clifford George	C. E.	Soph.	Corvallis
Pomerene, Henry Wade	Agri.	Spec.	Lincoln, Nebr.
Porter, Alice Elizabeth	Opt.		Eugene
Porter, Harry Baxter	M. E.	Fr.	Corvallis
Porter, Lester Denzil	Com.	Sr.	Corvallis
Porter, Ruth R.	D. S.	Spec.	Eugene
Post, Clara Olga	Com.	S. Sec.	Blackly
Post, Elmer O.	Agri.	S. Sec.	Blackly
Potter, Elmer C.	Com.	Soph.	Portland
Powell, Charles Kelly	Agri.	Fr.	Payette, Idaho
Powell, Robin	Com.	Fr.	Cottage Grove
Powell, William Lester	For.	Fr.	Azusa, Calif.
Prader, Verna	Com.	Spec.	Talent
Pribble, Roland Carson	M. E.	Fr.	Portland
Price, Lloyd Demain	M. E.	Soph.	Scappoose
Pugh, James Elza	For.	Fr.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Purves, Delia Jeannette	D. S.	Sr.	Seattle, Wash.
Raber, Clifford Wayne	Com.	Soph.	Corvallis
Raddas, Gladys Charlotte	Com.	S. Sec.	Corvallis
Ramsey, Frances Claire	Com.	Spec.	Oakridge
Randall, Elsie	D. S.	Fr.	Idaho Falls, Idaho
Rasmussen, Gordon	Com.	Spec.	Marshfield
Rawson, Virgil Arthur	M. E.	Jr.	The Dalles
Read, Lance	E. E.	Sr.	Portland
Reed, John Edward	Agri.	Fr.	National City, Calif.
Reesor, Leora	Opt.		Idaho Falls, Idaho
Reeves, Orville G.	M. E.	Jr.	Pendleton
Reichart, Emanuel Henry	C. E.	Fr.	Corvallis
Reineman, Lester Albert	Agri.	Spec.	Freewater
Reynolds, Charles Henry	Phar.	Sr.	LaGrande
Reynolds, Lee Edward	Agri.	Fr.	La Grande
Rhinehart, Audra	D. S.	Fr.	Corvallis
Rice, Thomas Alfred	Min.	Jr.	Portland
Richards, Dale E.	Agri.	Fr.	Kalispell, Mont.
Richards, Herbert Lewis	Agri.	F. Sec.	Portland
Richardson, S. Whitley	Min.	Sr.	Salem
Ridehalgh, Walter Thayer	M. E.	Fr.	Portland
Riley, Chester A.	Phar.	Fr.	Enterprise
Rinearson, Peter Melvin	C. E.	Jr.	Milwaukee
Rineman, Hugo	Agri.	Spec.	Pasadena, Calif.
Robbins, Adah Elizabeth	Com.	Spec.	Corvallis
Robbins, Leaman T.	Com.	F. Sec.	Medford
Roberts, Glen H.	Agri.	Soph.	Cove
Roberts, John Irving	C. E.	Jr.	Sandy
Robertson, Ben Harold	C. E.	Soph.	Portland
Robey, Gladys Aileen	D. S.	Fr.	Corvallis
Robins, Charles Vincent	Com.	Soph.	Turner
Robinson, Charles L.	Agri.	Jr.	Forest Grove
Robinson, Mable	Com.	Spec.	Corvallis
Robson, Allan Edward	M. E.	Fr.	Corvallis
Rodgers, Marie	D. S.	Fr.	Portland
Rogers, Elma Ola	Opt.		Corvallis
Rogers, Wilber Leslie	M. A.	S. Sec.	Corvallis
Rohr, Frank	M. E.	Fr.	Astoria
Rollins, Ralph T.	Com.	S. Sec.	Corvallis
Romig, Frank Vernon	M E.	Fr.	McCoy
Root, Vivian Oliver	Opt.		Eugene
Rorick, Elmer Eugene	Com.	Spec.	Corvallis
Rosenthal, Bertrand J.	Com.	Fr.	Portland
Rothenberg, Paul William	Agri.	F. Sec.	Pasadena, Calif.
Rowe, Andrew Carl	M. A.	F. Sec.	Edgewood, Calif.

Name	*Course*	*Rank*	*Home Address*
Rush, Benjamin Franklin	C. E.	Fr.	Elgin
Russell, Anna B.	D. S.	Fr.	Portland
Russell, Henry Woodruff	Com.	Fr.	Beaver Hill
Rutledge, Anna Neave	D. S.	Soph.	Corvallis
Rutledge, Ralph M.	Agri.	Jr.	Corvallis
Salomon, Wilda	D. S.	Jr.	Salem
Sanborn, Guy Orlando	Com.	Spec.	Astoria
Sanders, George F.	Agri.	Jr.	The Dalles
Sant, W. S.	Com.	Fr.	Akola, India
Sather, John Adolph	Com.	Fr.	Bend
Sato, Juemon	Agri.	Fr.	Sado, Japan
Savage, Henry I	Agri.	Jr.	Seattle, Wash.
Savage, Robert Havilah	M. E.	Soph.	Salem
Savage, Stella	D. S.	Spec.	Salem
Sawyer, Louis	Agri.	Sr.	Salem
Schaff, Nicholas	Agri.	Fr.	Oregon City
Schaltenbrand, Otto	Agri.	S. Sec.	Sherwood
Schieve, L. George	M. A.	F. Sec.	Portland
Schiffman, Hazel	D. S.	Spec.	Bay City
Schneider, Edmund	Agri.	F. Sec.	Portland
Schneider, Nicholas	M. A.	F. Sec.	Portland
Schoth, Harry August	Agri.	Jr.	Oregon City
Schram, Elwina Emilie	D. S.	Fr.	Salem
Schram, Lloyd Chester	E. E.	Soph.	Oregon City
Schreiber, Fred William	Agri.	Soph.	McMinnville
Schreiber, Herbert George	M. E.	Soph.	McMinnville
Schreiber, Martin Andrew	Agri.	Fr.	McMinnville
Schroeder, Alice	Opt.		Winant
Schroeder, Bertha Amelia	D. S.	Jr.	Winant
Shcroeder, Gertrude E.	D. S.	Soph.	Winant
Schubert, Ben W.	For.	Fr.	Silverton
Schuster, Carl Ephraim	Agri.	Soph.	Corvallis
Scoggin, Paul	Agri.	Fr.	Tumalo
Scott, Alfred Merle	M. A.	S. Sec.	Scott's Mills
Scott, Jennie Ritchie	Agri.	F. Sec.	Corvallis
Scott, Mary Ritchie	Agri.	F. Sec.	Corvallis
Scoville, Eugene Herman	C. E.	Sr.	Grants Pass
Scudder, Joy William	Agri.	Jr.	Seattle, Wash.
Seibert, Harry	E. E.	Soph.	Pendleton
Seim, Bernard	M. A.	S. Sec.	Astoria
Sengupta, Satyendranath	Agri.	Spec.	Calcutta, India
Sestak, Malana	D. S.	S. Sec.	Stayton
Severance, Ivan Harrison	M. E.	Jr.	Hardman
Shahan, Lelah	D. S.	Jr.	Portland
Shake, Homer Harrison	E. E.	Sr.	Payette, Idaho

Name	*Course*	*Rank*	*Home Address*
Shattuck, Obil	Agri.	Jr.	Klamath Falls
Shaver, Leo	C. E.	Fr.	Molalla
Shaw, Edith	D. S.	Jr.	Salem
Shaw, James Neven	Agri.	Soph.	White Bluffs, Wash.
Shepard, Ruth Juanita	Opt.		Roosevelt, Wash.
Sherman, George	Agri.	F. Sec.	Pendleton
Shields, Eva	D. S.	Fr.	Milton
Shields, Winnie	D. S.	Jr.	Milton
Shinn, Robert Erwin	Agri.	Jr.	Albany
Shirley, James Carlton	Phar.	Jr.	McMinnville
Shoemaker, Glen	Agri.	Fr.	Orange, Calif.
Siefert, Herbert William	Agri.	Jr.	Pasadena, Calif.
Siler, William R.	Agri.	Soph.	Randle, Wash.
Simpson, John Ernest Henry	M. E.	Fr.	Portland
Sinks, Victor Hammond	E. E.	Fr.	Portland
Skaggs, Guy Ellison	Phar.	Fr.	Flora
Skelton, Albert Gordon	Agri.	S. Sec.	Corvallis
Skelton, Mary V.	D. S.	Soph.	Corvallis
Slavin, Joseph Andrew	Agri.	Fr.	North Yakima, Wash.
Slippern. Arild Cato	M. E.	Fr.	Portland
Smart, William Anderson	Agri.	Soph.	Santa Ana, Calif.
Smith, Clifton	Min.	Fr.	Salem
Smith, Dexter Ralph	C. E.	Jr.	St. Johns
Smith, Esther Ruby	D. S.	Soph.	Corvallis
Smith, Francis Willard	C. E.	Sr.	Portland
Smith, Glen Wood	M. E.	Soph.	Washougal, Wash.
Smith, John Mitchell	Agri.	Fr.	Baker
Smith, Lawrence Howard	Com.	Fr.	Bend
Smith, Mildred Emma	D. S.	S. Sec.	Portland
Smith, Simeon	Phar.	Fr.	Portland
Smith, Veta M.	D. S.	F. Sec.	Tiller
Smyth, Darius H.	Phar.	Fr.	Smith
Soden, Mildred	D. S.	Jr.	Portland
Sodhi, S. Charn Singh	M. A.	F. Sec.	Amritsar, India
Somers, George B.	Agri.	F. Sec.	Hermiston
Soo, Taki Herbert	Agri.	Fr.	Hong Kong, China
Sorenson, Jo	E. E.	Jr.	Portland
Spalding, H. Clifford	For.	Fr.	Salem
Spalding, Martin	Agri.	Fr.	Goldendale, Wash.
Spaulding, Amber Bessie	D. S.	Sr.	Albany
Spencer, Evelyn	D. S.	Jr.	Portland
Squires, Ralph Linden	Agri.	F. Sec.	S. Bellingham, Wash.
Stambach, George Mahlon	Agri.	Soph.	Pasadena, Calif.
Standley, Josie	Com.	F. Sec.	Camas Valley

Name	*Course*	*Rank*	*Home Address*
Stanley, Mary Alta	D. S.	Fr.	Coquille
Starker, Carl Allison	Agri.	Jr.	Portland
Starr, Carroll Theodore	Agri.	Fr.	Hanford, Calif.
Starr, George Winfield	Agri.	Soph.	Corvallis
Stauff, Oscar Brent	Agri.	Jr.	Cooston
Stauff, Victor Hugo	Agri.	Jr.	Cooston
Steineker, Mrs. May	D. S.	Jr.	Portland
Steinmetz, Avery Harold	Agri.	Fr.	Portland
Steusloff, Dorothea	D. S.	Sr.	Salem
Steusloff, May	D. S.	Fr.	Salem
Stewart, William Halbert	For.	Soph.	Fossil
Still, Bert Leon	E. E.	Fr.	Medford
Stirling, Agnes	Com.	Spec.	Burns
Stirling, Janet Finlayson	D. S.	Fr.	Burns
Stoker, Robert Leslie	Agri.	Spec.	Vernon, Canada
Stoneberg, Hugo F.	Agri.	Soph.	Coburg
Stoppenbach, Donald Chapman	E. E.	Fr.	Portland
Story, Carl Leverne	Com.	Fr.	Airlie
Stover, Allan James	Agri.	Jr.	Corvallis
Strain, Clayton Preston	Agri.	Fr.	Pendleton
Strang, C. Virgil	Phar.	Spec.	Medford
Strang, Frederick Lawrence	Agri.	Sr.	Medford
Straughan, James Alfred	M. E.	Soph.	Corvallis
Strome, Carey L.	Agri.	Fr.	Junction City
Strong, Leon Byron	E. E.	Soph.	Moro
Struble, Frank Howard	Opt.		Corvallis
Struve, Hans	Agri.	Soph.	Pendleton
Stubblefield, Nellie	D. S.	Fr.	Enterprise
Stryker, Gordon David	Com.	S. Sec.	Portland
Suffron, Fay Oakley	C. E.	Soph.	Dent, Minn.
Sult, Michael C.	Com.	F. Sec.	Summer Lake
Summers, Mylius Lysle	D. S.	Jr.	Portland
Supple, Joseph	Agri.	S. Sec.	Portland
Sutherland, Frank Gillette	Agri.	Fr.	Minneapolis, Minn.
Sutherland, Ruth	D. S.	Fr.	Portland
Sutton, Avon William	Agri.	S. Sec.	Parkdale
Sutton, George	M. A.	S. Sec.	Port Orford
Sutton, Harry Allen	E. E.	Fr.	Aumsville
Sweeney, Anna Grace	D. S.	Fr.	Murphy
Swinson, Fred Leigh	Com.	Fr.	Monroe
Sykes, Clara Louise	Opt.		Corvallis
Tadlock, Hubert	E. E.	Soph.	Corvallis
Tagg, Elvia Wain	D. S.	Soph.	Warrenton

Name	*Course*	*Rank*	*Home Address*
Tagg, Lystra Alice	Opt.		Warrenton
Tagg, Verna Mary	Com.	Soph.	Warrenton
Tamerlane, Rex	M. E.	Fr.	Portland
Tartar, Nicholas Linn	Phar.	Soph.	Corvallis
Taylor, Armond	M. E.	Fr.	Corvallis
Taylor, George Wells	Agri.	Fr.	Oakland
Taylor, Jesse LaVerne	C. E.	Soph.	Oregon City
Teel, Harry Mark	C. E.	Sr.	Echo
Telford, Wilbur Linden	M. E.	Fr.	Klamath Falls
Thayer, Gilbert	E. E.	Jr.	Portland
Theobald, Wanda	D. S.	Fr.	Silverton
Thomas, George Randolph	E. E.	Soph.	Portland
Thomas, Ralph William	C. E.	Fr.	Corvallis
Thomes, Daniel	M. E.	F. Sec.	Portland
Thompson, Agnes	D. S.	Fr.	Albany
Thompson, Ava	D. S.	F. Sec.	Gresham
Thompson, Claude Clifford	Agri.	Fr.	Roseburg
Thompson, Earl H.	Agri.	Fr.	Pasadena, Calif.
Thompson, Royal Burleigh	Agri.	Sr.	Corvallis
Thompson, William McKinley	Agri.	F. Sec.	Burns
Thompson, Reginald H.	M. A.	F. Sec.	Victoria, B. C.
Thordarson, Lillian	D. S.	Jr.	Corvallis
Thrift, Belle	D. S.	Fr.	Coquille
Tinker, Harold William	Agri.	Soph.	Corvallis
Tipley, Grace	D. S.	Fr.	Fossil
Tomlinson, Arthur Raymond	C. E.	Fr.	Albany
Torgersen, K. A.	M. E.	Spec.	Astoria
Towne, Elbert Louis	Agri.	F. Sec.	Carrolton
Tripp, Stanley Everett	Min.	Sr.	Corvallis
True, Mrs. Elsie G.	Opt.		Sherwood
Tucker, Elmer	Phar.	Fr.	Weston
Tucker, John Edward	Agri.	Fr.	Portland
Turlay, Harold S.	For.	Sr.	Astoria
Turlay, Marian	D. S.	S. Sec.	Astoria
Turlay, Maude Josephine	Opt.		Corvallis
Turner, Arthur Edward	E. E.	Fr.	Union
Turner, Blaine	Agri.	Soph.	Cleone
Turner, Eva	D. S.	Soph.	Cleone
Turner, Winnifred	D. S.	Fr.	Corvallis
Tycer, Lester D.	E. E.	Sr.	Brownsville
Ueland, Clara Lorraine	Opt.		Roseburg
Ueland, Emma Matilda	D. S.	Sr.	Roseburg

Name	*Course*	*Rank*	*Home Address*
Underwood, Edward Franklin	E. E.	Fr.	Boyd
Uyei, Nao	Agri.	Fr.	Seattle, Wash.
Vail, J. Lester	Agri.	Soph.	Corvallis
Van Blaricom, Elgin Lawrence	Com.	F. Sec.	Newberg
Van Couvering, Martin	Min.	Soph.	Riverside, Calif.
Vanderwall, Roy E.	Agri.	Fr.	Haines
Van Gundia, Gorden Keller	Agri.	Sr.	Portland
Van Slyke, Mrs. Irene	D. S.	Jr.	Portland
Venner, Levana Frank	Opt.		Brownsville
Venstrand, Carl Peter	Min.	Soph.	Portland
Vernon, Katherine	D. S.	Spec.	Oakland
Vest, Fay Herbert	Agri.	Fr.	Joseph
Vestal, Edgar	Agri.	Fr.	Payette, Idaho
Vilas, George	Opt.		Medford
Vilas, Ned	Opt.		Medford
Vincent, George	C. E.	Fr.	Sherwood
Vineyard, Sarah Bledsoe	D. S.	Jr.	Boise, Idaho
Volck, Helen Louise	D. S.	Fr.	Junction City
Von Lehe, Herbert	Agri.	F. Sec.	LeSeuer, Minn.
Waddell, Robert L.	Agri.	Fr.	Aurora, Neb.
Wade, Tracy William	E. E.	Soph.	Carson City, Wash.
Wagner, Paul Theodore	Agri.	Soph.	Portland
Wahlberg, Leif W.	Agri.	Soph.	San Francisco, Calif.
Wakeman, Louis	Agri.	Fr.	Wesport
Walker, Byron Bently	Agri.	Jr.	Springfield, Ohio
Walker, Henrietta	D. S.	Sr.	Cleveland
Wallace, Grace Eugenia	Com.	Sr.	Independence
Walling, Gertrude LaVern	Com.	Sr.	Salem
Walters, Harry S.	Agri.	Jr.	Corvallis
Warner, Douglas Holmes	Agri.	Soph.	Portland
Warner, Katherine	D. S.	Jr.	Portland
Wasser, Opal Lucile	D. S.	Sr.	Corvallis
Watkins, Edna Bernice	Opt.		Corvallis
Watkins, Laura Lucile	Opt.		Corvallis
Watson, Clifton Howe	E. E.	Fr.	Portland
Watters, William Harp	M. A.	S. Sec.	St. Helens
Watts, George Gordon	M. E.	Soph.	Corvallis
Waugh, Elma Elizabeth	D. S.	Spec.	Toledo
Weaver, Effie	D. S.	Jr.	Myrtle Creek
Weaver, Harold	Agri.	Fr.	Enterprise
Webb, Alice Lindsey	D. S.	Spec.	Corvallis
Webb, Robert Guy	Com.	Soph.	Spirit Lake, Idaho
Weber, Edward Jasper	Agri.	Sr.	Creswell

Name	*Course*	*Rank*	*Home Address*
Weber, Victor Eugene	E. E.	Jr.	Brownsville
Weberg, Melvin	Agri.	F. Sec.	Suplee
Welch, Claude LeRoy	M. A.	F. Sec.	Portland
Welch, Frank G.	E. E.	Fr.	Salem
Weller, Stanley Morton	E. E.	Fr.	Corvallis
Weller, Theodore Warford	Agri.	Fr.	Corvallis
Wendover, Royce Franklin	For.	Soph.	Stockton, Kans.
Weniger, Wanda	D. S.	Fr.	Corvallis
Wentz, Irene	D. S.	Fr.	Portland
Whitby, Harold R.	Agri.	Soph.	Corvallis
Whitby, Harris	Com.	Soph.	Corvallis
White, Cleo	D. S.	Fr.	McMinnville
White, Mary Jane	D. S.	Fr.	Corvallis
Whitehill, Ellen	D. S.	Fr.	Portland
Whitehouse, William Edwin	Agri.	Soph.	Somerville
Whiteley, Flora	D. S.	Jr.	Corvallis
Whiteley, William Henry	C. E.	Sr.	Victoria, B. C.
Whittier, George Richmond	For.	Fr.	Portland
Wiest, Margaret C.	D. S.	Fr.	Bend
Wiest, M. Pauline	D. S.	Spec.	Bend
Wightman, Parks	Agri.	Spec.	Orchards, Wash.
Wiken, Hazel	D. S.	S. Sec.	McGowan, Wash.
Wilcox, Chester M.	Agri.	Jr.	Portland
Wilcox, Donald Fred	Agri.	Fr.	LaManda Park, Calif.
Wilcox, Ralph M.	Com.	Fr.	Portland
Wilkening, Waldemar	Agri.	Spec.	New York City
Wilkins, Grace	D. S.	Fr.	Coburg
Wilkins, Mitchell	Agri.	Soph.	Coburg
Williams, John Floyd	Agri.	Soph.	Cove
Williams, John R.	Com.	Jr.	Portland
Williamson, Charles Jacob	Com.	Soph.	Corvallis
Williamson, Lowell	Agri.	Spec.	LaGrande
Williamson, Pearl	D. S.	Fr.	Albany
Wilson, Arthur James	Com.	Sr.	Albany
Wilson, Bernadetta	Com.	F. Sec.	Airlie
Wilson, Bessie A.	D. S.	Spec.	North Powder
Wilson, David McKimon	Agri.	Fr.	Linnton
Wilson, Isaac James	Agri.	Fr.	Lewiston, Calif.
Wilson, James Albert	Agri.	Soph.	North Powder
Wilson, James H.	Agri.	Sr.	Gresham
Wilson, Lois Katherine	D. S.	Jr.	Salem
Wilson, Mildred Marie	D. S.	Jr.	Salem
Wilson, Nora Mary	Opt.		Oregon City
Wilson, Violet Viola	Com.	F. Sec.	Airlie
Winslow, Myron M.	Agri.	Sr.	Okmulgee, Okla.

Name	*Course*	*Rank*	*Home Address*
Winslow, Willis Webster	Com.	Sr.	Okmulgee, Okla.
Wisdom, Everett Stanton	Agri.	Jr.	Portland
Wolff, Garland Twombly	E. E.	Soph.	Portland
Wolke, Clara Martina	D. S.	Fr.	Grants Pass
Wood, John Rollo	M. A.	F. Sec.	Arlington
Wood, Robert John	Agri.	Soph.	Cottage Grove
Wood, Rowena Adelaide	Opt.		Corvallis
Woodcock, Carl Wesley	M. E.	Fr.	Kerby
Woodcock, Edwin	Com.	Jr.	Corvallis
Wooden, Stewart L.	Agri.	Fr.	Elizabeth, N. J.
Woodruff, Herbert M.	E. E.	Fr.	Smith River, Calif.
Woodruff, Milton B.	Agri.	F. Sec	Smith River, Calif.
Woods, Lee Roy	For.	Fr.	Cottage Grove
Woodward, Anna	D. S.	Fr.	Creswell
Woodworth, Dwight	M. E.	Fr.	Portland
Woodworth, Gladys	D. S.	Fr.	Portland
Wright, Byron C.	Agri.	Fr.	Portland
Wright, Edgar Wilson	E. E.	Fr.	Portland
Wright, Ralph V.	Agri.	Spec.	Croton
Wutenberger, Oscar	Agri.	F. Sec.	Sylvan
York, Herbert L.	Opt.		Huntington, Idaho
Yost, Clarence Harry	For.	Fr.	Aurora, Nebr.
Young, Earl	M. E.	Soph.	Portland
Young, Edna	D. S.	F. Sec.	Collins, Wash.
Young, Faith Irene	D. S.	Jr.	Boring
Young, Fred Byron	M. E.	Jr.	Collins, Wash.
Young, Marian	D. S.	Jr.	Woodburn
Zimmerman, Edward	Min.	Fr.	Yamhill
Zimmerman, William Earl	M. E.	Fr.	Portland
Zwicker, Arthur E.	Agri.	Soph.	Portland

SUMMER SCHOOL STUDENTS

(Abbreviations indicate major courses as follows: Coll., College, including Agriculture, Domestic Science and Art, Manual Training, etc.; Meth., Methods in Teaching Industrial and other subjects in public schools; Prep., Preparation for Teachers' Examinations; Super., Methods in Supervision and High School Branches. Most students were registered in two or more of these courses.)

Name	*Course*	*Postoffice*
Anderson, Verlie Eugenie	Coll.	Corvallis
Andrews, Marguerita	Prep.	Corvallis
Banks, Emmeline Frances	Prep.	Portland
Banks, Marguerita J.	Prep.	Portland
Bates, Margaret	Prep.	Redmond
Beckwith, Laura A.	Prep.	Sheridan
Bocklund, Bessie	Meth.	Lyle, Wash.
Bodle, Mildred	Coll.	Carlton
Boyles, Margaret	Meth.	Monument
Brown, Katharine	Coll.	Chemawa
Buchanan, Elizabeth May	Coll.	Corvallis
Burchard, Margaret	Prep.	Scottsburg
Cate, Mary Enid	Meth.	Corvallis
Cathey, Alice Marie	Coll.	Corvallis
Chandler, Helen W.	Prep.	Rogue River
Chase, Flora M.	Prep.	Corvallis
Cheney, Maribel Whitman	Coll.	Corvallis
Coolidge, Dorothy Florence	Coll.	Corvallis
Compton, Ada L.	Prep.	Crabtree
Connor, R. Lois	Coll.	Sheridan
Copson, Godfrey V.	Coll.	Corvallis
Crabtree, Myrtle	Prep.	Albany
Curtis, Mary Bushe	Prep.	White Horse, Canada
Cusick, Mrs. Annie	Coll.	Medford
Davis, Bertha	Meth.	Corvallis
Deems, Charles R.	Super.	Wapinitia
Devlin, Sadie M.	Coll.	Forest Grove
Dobell, Mrs. C. A.	Coll.	Corvallis
Easton, George E.	Coll.	Strawberry Point
Edwards, Belle Beulah	Meth.	Monroe

Name	*Course*	*Postoffice*
Edwards, Belle Bertie	Meth.	Monroe
Enright, Mrs. L. H.	Meth.	Eugene
Ewing, Georgia Virginia	Coll.	Corvallis
Farnham, Grace E.	Prep.	McMinnville
Fletcher, Sylvia	Meth.	Roseburg
Funston, Grace L.	Prep.	Portland
Gardner, Mrs. Evelyn	Meth.	Lakeview
Gillet, Albert H.	Meth.	Chemawa
Gray, Isabelle	Coll.	Philomath
Gray, Miss J. B.	Super.	Portland
Groshong, Luella M.	Coll.	Los Angeles, Calif.
Hagen, Mabel	Prep.	Glendale
Hannah, Florence J.	Prep.	Astoria
Harry, Olive Mary	Coll.	Corvallis
Hassett, Flora	Prep.	Corvallis
Hawley, Willa W.	Coll.	Corvallis
Holt, Hazel	Coll.	Holliston, Mass.
Horner, Mrs. Isabelle	Coll.	Corvallis
Horning, Helen Mabel	Coll.	Corvallis
Huff, Mabel Florence	Prep.	Corvallis
Hull, Lillie Belle	Coll.	Corvallis
Hunt, Pearl	Coll.	Gardner
Johnston, Jane Agnes	Meth.	Corvallis
Keatley, Dorothy	Coll.	Castle Rock, Wash.
Kennedy, Ruby H.	Prep.	Salem
Kenney, Danial J.	Coll.	The Dalles
Knight, Hilda Janet	Prep.	Portland
Lindsay, Alexander Lewis	Coll.	Hilo, Hawaii
Lyster, Kathleen	Coll.	Scottsburg
Maher, Mrs. Lizzie	Prep.	Portland
Mann, Mattie L.	Prep.	Grants Pass
McKee, Hazel Adelia	Coll.	Lakeview
McGinnis, Iva Belle	Prep.	Corvallis
Merritt, Charles Edward	Prep.	Corvallis
Miller, Roy Edmund	Coll.	Spokane, Wash.
Millikin, Ethel	Prep.	Ontario
Murphy, Golda Lou	Coll.	Forest Grove
Murphy, Loretta	Coll.	Forest Grove
Otty, Nellie A.	Prep.	Milwaukie
Paine, J. Howard	Coll.	Portland
Peterson, Fred	Super.	Bonanza
Pimm, Carrie Maud	Meth.	Eugene
Pittman, Anna	Coll.	Walnut, Ill.
Reeves, Amanda	Coll.	McMinnville
Rice, May	Super.	Carlton

Name	*Course*	*Postoffice*
Rogers, R. H.	Coll.	Corvallis
Rutledge, Anna Neave	Coll.	Corvallis
Schoneman, Frederick W.	Coll.	Manito, Ill.
Shonkwiler, Myrtle	Coll.	Portland
Shrode, Jamie	Prep.	Eugene
Sigurdson, Anna	Prep.	Warranton
Smith, Bert H.	Super.	Glendale
Smith, J. Wesley	Meth.	Prineville
Smith, Mrs. Nellie Ross	Meth.	Glendale
Sorenson, Nora J.	Meth.	Springfield
Thompson, Asa C.	Super.	Aurora
Thordarson, Lillian	Coll.	Corvallis
Tillery, Genevieve F.	Meth.	Corvallis
Turnidge, Cora L.	Coll.	Sheridan
Vierhus, Mary	Prep.	Oregon City
Walker, Henrietta	Coll.	Cleveland
White, Albert C.	Super.	Milton
Wiest, Marion L.	Meth.	Bend
Wilcox, Fred Harley	Super.	Oregon City
Willis, Arza M.	Super.	Canyon City
Wood, Macel M.	Meth.	Lostine
Yates, George S.	Super.	Banks
Yokum, Pearl A.	Prep.	Bronwsville

SPECIAL MUSIC STUDENTS

Adams, George	Clarinet	Albany
Baker, Verna Jeanette	Piano	Corvallis
Bement, Edna May	Voice	Baker
Bedynek, John P.	Violin	Corvallis
Bedynek, Mary Elizabeth	Piano	Corvallis
Blackledge, Janet Ann	Organ	Corvallis
Blair, Rebecca Taliaferr-	Piano	Corvallis
Broders, Chester Ogburne	Piano	Corvallis
Broders, Roy Raymond	Piano	Corvallis
Brown, Clarence Elton	Piano	Corvallis
Brown, Georgia Katheryn	Piano	Corvallis
Caldwell, Beulah	Piano	Corvallis
Cathey, Evelyn McGarin	Piano	Corvallis
Corrie, Mary Eva	Piano	Corvallis
Curtis, William Jayne	Voice	Corvallis
Davis, Norma	Piano	Corvallis
Felton, Ella Marie	Piano	Corvallis
Fiechter, Martha Ellen	Piano	Corvallis
Gilkey, Beulah Gustavia	Voice	Corvallis

Name	*Course*	*Postoffice*
Hardman, Eleanor	Piano	Corvallis
Hardman, Rozelle	Piano	Corvallis
Haight, Rachel Webb	Voice	Corvallis
Howard, Robert Madison	Trapps	Corvallis
Jackson, Mildred May	Piano	Corvallis
Johnson, Lilian	Piano	Corvallis
Kerr, Genieve	Piano	Corvallis
Kerr, Lynette	Voice	Corvallis
Kerr, Marion Robert	Violin	Corvallis
Kreps, Rhoda Janie	Violin	Laurel, Wash.
Lewis Lucy	Voice	Corvallis
Lewis, Sarah L.	Piano	Corvallis
Lindsay, Annie	Piano	Hilo, Hawaii
McBee, Ida Josephine	Piano	Corvallis
McGinnis, Iva Belle	Voice	Corvallis
Malcomson, Emily	Voice	Corvallis
Morgan, Beulah Inez	Piano	Corvallis
Morgan, Mary Palmer	Piano	Corvallis
Moses, Everett Allen	Cornet	Corvallis
Murphy, Mary Alice	Voice	Corvallis
Nolan, Gertrude	Piano	Corvallis
Oakes, Sylvia Alice	Voice, Piano	Gaston
Overholser, Violet Melissa	Piano	Corvallis
Porter, Mildred	Piano	Corvallis
Rondeau, Ruth Louella	Piano	Corvallis
Rulifson, Leroy Comstock	Voice	Corvallis
Smith, Elinor	Piano	Corvallis
Starr, Ruby Irene	Voice, Piano	Corvallis
St. Ledger, Virginia Lenore	Mandolin	Corvallis
Stoneberg, Reuben Leonard	Voice	Coburg
Thompson, Doris Weller	Piano	Corvallis
Tortos, Lena	Voice	Corvallis
Tracy, Ray Palmer	Voice, Piano	Condon
Thurston, Alice Elizabeth	Piano	Wellsdale
Wahlberg, Elizabeth	Piano	Corvallis
Watson, Margaret Bourne	Piano	Corvallis
Welch, Litta Christine	Piano	Corvallis
Wellsher, Marie Vivian	Piano	Corvallis
Williamson, Mary Susie	Piano	Corvallis
White, Esther	Violin	Philomath
Withycombe, Mabel Anne	Piano	Corvallis
Witzig, Ivy Emma	Piano	Corvallis
Yates, Golda Francis	Voice	Albany

WINTER SHORT COURSE STUDENTS

The following abbreviations are used to indicate the course in which the student registered: Agri., General Agriculture; Agron., Agronomy; A. H., Animal Husbandry; Bus. Meth., Business Methods; D. H., Dairy Husbandry; D. S., Domestic Science and Art; For., Forestry; Hort., Horticulture; Mech. Arts, Mechanic Arts; P. H., Poultry Husandry.

Name	*Course*	*Postoffice*
Abbott, A. E.	Agron.	Vernon, B. C.
Abbott, M. B.	Hort.	Portland
Alderson, E. R.	Hort.	Vernon, B. C.
Alexander, Mrs. Dave	D. S.	Corvallis
Alexander, E. H.	Hort.	Sheridan
Allen, Dr. Stanton	Hort.	Hood River
Allen, Mrs. Stanton	Hort.	Hood River
Allinger, Mrs. H. W.	D. S.	Corvallis
Allinger, H. W.	Hort.	Corvallis
Alphouse, W. A.	D. H.	LaPine
Anderson, A. M.	Bus. Meth.	Mt. Angel
Anderson, Henry J.	Agri.	Mt. Angel
Apgar, E. I.	Agron.	Hood River
Arbuthnot, S. H.	Bus. Meth.	Corvallis
Armstrong, C. E.	Agri.	Corvallis
Armstrong, Chas. H.	Hort.	Keremeos, B. C.
Arnold, B. M.	Hort.	British Columbia
Ashton, Charles	Agri.	Tangent
Bacon, Forsyth	A. H.	Amboy
Bagot, Arthur G.	Bus. Meth.	Quathiaski, B. C.
Baker, E. D.	Hort.	Medford
Banall, J. R.	Hort.	Hood River
Barber, Lawton	Bus. Meth.	Corvallis
Barker, Mrs. Blanche	Agri.	Empire
Barklow, Clarence M.	D. H.	Norway
Beaman, C. A.	For.	Scottsburg
Beck, Bertha J.	Bus. Meth.	Albany
Beck, J. O.	Agri.	Boise, Idaho
Bengough, Wm. L.	Hort.	Grimsby East, Ont.
Bernards, M.	Agri.	Forest Grove
Berylund, Alfred	D. H.	Colton
Biggar, H. H.	Agron.	Brookings, S. D.
Bixley, C. M.	Agri.	Freewater

Name	*Course*	*Postoffice*
Blake, M. A.	Hort.	Portland
Blascynski, A.	Agri.	Lodz, Russia
Blodgett, George W.	Hort.	Hood River
Blohm, Theodore	Agri.	Portland
Bonner, J. C.	D. H.	Corvallis
Bosshart, Jacob	Bus. Meth.	Warrenton
Boyd, Edna	D. S.	Cottage Grove
Bozorth, Levi	Agri.	Amboy, Wn.
Breithaupt, Mrs. L. R.	D. S.	Burns
Brewster, C. S.	P. H.	Portland
Bristow, A.	D. H.	North Bend, Wash.
Brooker, A. M.	Agri.	Oregon City
Brown, D. E.	Agri.	Pleasant Hill
Brown, F. V.	Hort.	Dallas
Brown, J. R.	Agron.	Enterprise
Bruce, Robert C.	Hort.	White Salmon, Wash.
Brucker, Martin	Hort.	Roseburg
Brydon, James M.	Bus. Meth.	Victoria, B. C.
Busch, Wm. Clarence	Hort.	Parkdale
Butchart, Mrs. Sarah	D. S.	Hood River
Butchart, W. B.	Hort.	Hood River
Butchart, Mrs. W. B.	D. S.	Hood River
Butler, Floyd E.	Agron.	Toledo
Burton, Mrs. W.	D. S. A.	Corvallis
Calkins, C. C.	Agri.	Airlee
Capelle, Henry L.	Hort.	Hood River
Caragol, Joseph A.	Hort.	New York City
Carey, Alice	D. S.	Portland
Carl, Mrs. H. L.	D. S.	Myrtle Point
Carnie, N. C.	Agri.	Chicago, Ill.
Casteel, Edith Hazel	D. S.	Yaquina
Cator, B. P.	D. H.	Corvallis
Chandler, E. C.	Agri.	Sheridan
Chandler, G. L.	Agri.	Rogue River
Chandler, William A.	Hort.	Husum, Wash.
Chandler, Mrs. William A.	D. H.	Husum, Wash.
Chapin, C. H.	Hort.	Wren
Chase, H.	Hort.	Eugene
Chorpening, C. D.	Agri.	Klamath Falls
Christen, Theodore	Hort.	Hubbard
Clarke, Herbert H.	Hort.	Portland
Coleman, C. P.	Mech. Arts	Templeton
Coleman, Mrs. J. R.	Com.	Corvallis
Cone, Harry	Agri.	McMinnville
Cook, M. P.	Agri.	Portland

Name	*Course*	*Postoffice*
Counet, Fred	Mech. Arts	Lebanon
Coursen, R. E.	Hort.	Portland
Crain, Charles	Agri.	Corvallis
Cummings, A. E.	Hort.	Salem
Dallas, Mrs. M. C.	D. S. & A.	Corvallis
Damon, Mrs. H. O.	D. S. & A.	Corvallis
Damon, Ruth	D. S. & A.	Corvallis
Davis, C. R.	Hort.	Freewater
Davidson, William	Hort.	Hood River
Dickinson, A. K.	Agron.	Oswego
Doerner, A. M.	Agri.	Grants Pass
Donovan, C. R.	Agri.	Dublin, Ireland
Dorlin, Frank P.	Agri.	Forest Grove
Dorsey, Edwin B.	Hort.	White Salmon, Wash.
Dryden, R. J.	D. H.	Corvallis
DuMoulin, Walter W.	Mech. Arts	Corvallis
Dyer, Henry C.	Hort.	Dallas
Eaton, Karl	Agri.	Yamhill
Eckerlen, Bertha	D. S.	Salem
Eldred, Ethel Cora	D. S.	Belmont, Mich.
Elliott, Robt.	Com.	Corvallis
Evans, Lee R.	A. H.	Mosier
Evans, M. D.	Hort.	Corvallis
Euwer, Eugene C.	Hort.	Parkdale
Farmer, Oliver	Agri.	Halsey
Fisher, Charles M.	Hort.	Buhl, Idaho
Fisher, Harry H.	Hort.	Buhl, Idaho
Fletcher, H. B.	Agron.	Independence
Fletcher, Mrs. H. B.	D. S.	Independence
Folks, Bert A.	D. H.	Junction City
Ford, George William	Bus. Meth.	Sheridan
Fortin, Fred	Hort.	Coles Valley
Frank, Herbert W.	Hort.	Hermiston
Fulton, Madge	D. S.	Astoria
Garrettson, E. J.	Agri.	Sioux City, Iowa
Gellatly, Robt. H.	Agron.	Philomath
Gibbs, J. C.	Agri.	Grace, Idaho
Gillet, Ira E.	Agri.	Albany
Gilmore, Mrs. L.	D. S.	Corvallis
Glaser, Wm.	Agri.	Corvallis
Goffrier, A. F.	Mech. Arts	McMinnville
Goldsbury, John	Agri.	Parkdale
Gragg, Mrs. Mary H.	D. S.	Monroe
Graham, S. C.	Hort.	White Salmon
Gray, Greta I.	D. S.	Corvallis
Green, Dan	Agri.	Parkdale

Name	*Course*	*Rank*	*Home Address*
Green, Howard H.	Mech. Arts		Parkdale
Greene, R. W.	Hort.		Winthrop, Wash.
Griffin, George W.	Mech. Arts		Fossil
Griffis, Stanton	Hort.		Medford
Griffis, Mrs. Stanton	D. S.		Medford
Griffith, Clyde	D. H.		Klamath Falls
Grimshaw, Mrs. Olive A.	D. S.		Phoenix, Ariz.
Hall, Lewis C.	Hort.		Fairfax, Vt.
Hall, W. R.	Agri.		Buena Vista
Hallack, T. H.	Hort.		Newport
Hallack, Mrs. T. H.	D. S.		Newport
Hanley, H. H.	Agri.		Post
Hanlin, Hugh Wright	Agri.		Underwood, Wash.
Hanson, Manette	D. S.		Corvallis
Harmon, Ruth	D. S.		North Bend
Harris, Earl S.	Com.		Corvallis
Harris, Lester P.	Hort.		Parkdale
Harris, Robert R.	Agri.		Nortons
Hart, Charles W.	Hort.		Hood River
Hartley, Mrs. Earl	D. S.		Corvallis
Hartsock, Mrs. S. K.	D. S.		Corvallis
Harvey, C. S.	Agri.		Milwaukee
Haseltine, Sarah	D. S.		Berkeley, Cal.
Hastings, Jessie M.	D. S.		Portland
Hawkins, Harold Fuller	Agron.		Salem
Hawkins, Thos. P.	Phar.		Toledo
Hayes, Sherman	Agron.		Newport
Henderson, Walter H.	Hort.		White Salmon, Wash.
Herse, Mrs. L.	D. S.		Corvallis
Herse, Mrs. H. L.	Agri.		Corvallis
Hetzel, H. C.	Agri.		Corvallis
Higginbotham, Mrs. Mary	D. S.		Corvallis
Hill, J. M.	A. H.		El Paso, Texas
Hill, Thomas E.	Agron.		Grants Pass
Hogan, Eli	D. H.		Corvallis
Holboke, Sophia	D. S.		Portland
Holcomb, Clyde	D. H.		Junction City
Hooper, Johnson	Agri.		Corvallis
Howe, Mrs. H. L.	D. S.		Hood River
Howe, Helen	D. S.		Hood River
Hoxick, H. M.	Hort.		Hood River
Huggins, C. C.	P. H.		Portland
Hurst, C. M.	Agri.		Oswego, Kans.
Ibach, John	Agri.		Banks
Jackson, George W.	Hort.		Medford

Name	*Course*	*Rank*	*Home Address*
Jaeger, Edwin	Agri.		Portland
Jamison, N. C.	Agron.		Puyallup, Wash.
Jensen, George	D. H.		Astoria
Jensen, William	Agri.		Junction City
Johns, Walter I.	Hort.		Myrtle Creek
Johnson, J. E.	Agri.		Portland
Johnson, James Goodwin	Hort.		Portland
Johnson, W. P.	Bus. Meth.		Klamath Falls
Johnston, F. H.	Hort.		Portland
Johnston, Theodore	Agri.		Moro
Jones, T. D.	Mech. Arts		Mountaindale
Jones, W. E.	Agron.		Milton
Joy, F. W.	Com.		North Bend, Wash.
Joyner, Leon	Hort.		Brooklyn, N. Y.
Keemer, Joe	Agri.		Astoria
Kellogg, Don G.	Agri.		Vancouver, B. C.
Kennedy, A. B.	Hort.		Hoquiam, Wash.
Kennedy, Mrs. C. B.	D. S.		Corvallis
Kennedy, J. E.	Hort.		Hood River
Kerr, Mrs. W. H.	Agri.		Roseburg
Kerr, Mrs. L. H.	Agri.		Corvallis
Kidd, James	Hort.		Kamloops, B. C.
Kilbourn, Mrs. Matilda R.	D. S.		Litchfield, Conn.
Kinney, George A.	Bus. Meth.		Harlan
Kinzenga, Eldred	P. H.		Oswego
Knoll, Pieter A.	Hort.		Moiser
Krebs, Mary T.	D. S.		Portland
Krebs, W. T.	Agri.		Portland
Kreps, Amy V.	D. S.		Laurel
Krusson, Oscar	Agri.		Hood River
Lane, J. H.	A. H.		Silver Lake
Lange, George	Agri.		Scappoose
Lapham. A. N.	Mech. Arts		Corvallis
Latourette, Kenneth Scoot	Agri.		Oregon City
Laubner, Emma	Bus. Meth.		Albany
Laubner, W. C.	Agri.		Albany
Lemmon, Charles C.	Hort.		Hood River
Leonard, Mary	Hort.		Corvallis
Lewis. Thos. M.	D. S.		Corvallis
Lewtas, John	Agri.		Tacoma, Wash.
Libby, Millard Alton	Hort.		Amity
Libour, Israel	Hort.		Portland
Lindeman, L. N.	Agri.		Monmouth
Lore, Henry K.	Hort.		Underwood, Wash.
Lovett, Mrs. A. L.	D. S.		Corvallis

Name	*Course*	*Rank*	*Home Address*
Lundquist, L. E.		D. H.	Dundee
McCabe, Wm. L.		Mech. Arts	Condon
McClure, J. E.		Agri.	Moro
McCormick, Andrew		Hort.	Lebanon
McCulloch, George		D. H.	Marshfield
McGee, Roy Oliver		A. H.	Airlie
McQuaid, Zena		D. S.	Portland
Macpherson, Wm. M.		Agri.	Pasadena, Cal.
Marsh, Donald		D. H.	Port Orford
Marsh, John R.		D. H.	Port Orford
Marsh, Louis		D. H.	Port Orford
Martin, W. J.		Com.	Corvallis
Masters, B. A.		Hort.	Portland
Masterton, Mrs. C. H.		D. S.	Corvallis
Masterton, David		Mech. Arts	Corvallis
Matsen, Thomas		Agri.	Junction City
Melton, James M.		Agri.	Portland
Metlock, Henry		Mech. Arts	Crawford
Meyer, Albert		Agri.	Corvallis
Miller, H. M.		Hort.	Portland
Miller, W. D.		Agri.	Aurora
Miller, W. D.		Mech. Arts	Aurora
Mills, A. E.		A. H.	Forest Grove
Milton, A. B.		Hort.	Burns
Montgomery, G. M.		Hort.	Alhambra, Cal.
Moody, A. A.		D. H.	Talent
Morehead, W. H.		Mech. Arts	Wahkiacus, Wash.
Moore, Raymond G.		Hort.	Underwood, Wash.
Murphy, Mrs. R.		D. S.	Corvallis
Murphy, W. H.		Agri.	Buena Vista
Narkans, Joseph		Bus. Meth.	Weston
Nash, Harold		D. H.	Oregon City
Neal, W. E.		For.	Nelson, Canada
Nerdrum, Thoralt		Hort.	Roseburg
Newcomb, Gilbert R.		For.	Campbell
Newsom, S. J.		Agron.	Prineville
Noren, Albin		Agri.	Reedley, Cal.
O'Neil, J. W.		Hort.	Corvallis
Osburn. Mrs. Margaret		D. S.	Corvallis
Paddleford, Mr.		Agri.	Carey, Idaho
Padgham, H. I.		Hort.	Santa Ana, Cal.
Parker, George K.		A. H.	Roseburg
Patterson, Frederic		Hort.	Hood River
Pearcy, H. L.		Agri.	Portland
Peck, Mrs. Arthur L.		D. S.	Corvallis

Name	*Course*	*Rank*	*Home Address*
Peery, W. K.	D.	H.	Corvallis
Penland, Nell	D.	S.	Sheridan
Peterson, Freda	D.	S.	Eagle Point, Minn.
Plog, Walter	A.	H.	Hood River
Powell, C. K.	Agron.		Payette, Idaho
Powell, W. L.	P.	H.	Los Angeles, Cal.
Purcell, C. H.	Agri.		Portland
Rae, R. J.	Hort.		Medford
Ranchfuss, Edwin C.	Hort.		Brooklyn, N. Y.
Reimers, Edward	Agri.		Drain
Rearden, Mrs. J. E.	D.	S.	Corvallis
Reynolds, R. E.	A.	H.	La Grande
Reynolds, Mrs. R. E.	D.	S.	La Grande
Richard, Vena	D.	S.	Corvallis
Richards, Mrs. R. H.	D.	S.	Portland
Robbins, Adah	D.	S.	Corvallis
Rohwein, John	A.	H.	Scio
Rollins, J. C.	Agri.		Corvallis
Rollins, Ralph T.	Bus. Meth.		Corvallis
Rondeau, Ruth	D.	S.	Corvallis
Rothenberg, P. W.	Agri.		Pasadena, Cal.
Roussean, Alax	D.	H.	San Rafael, Cal.
Sammis, T. A.	Hort.		The Dalles
Samuelson, Archer	Agri.		Brownsville
Sanders, G. F.	Agri.		The Dalles
Sawtell, Elmer	Bus. Meth.		Molalla
Sawyer, Lewis	Mech. Arts		Gervais
Sawyer, Louis	A.	H.	Salem
Schaffner, Fritz	Hort.		Beaverton
Schmidlin, Charles	Agri.		Buxton
Shcmidt, F. C.	D.	H.	Salem
Shuster, C. E.	Hort.		Corvallis
Scott, R. S.	P.	H.	Portland
Sexton, Margaret	Bus. Meth.		Flathead
Shields, Eva	D.	S.	Milton
Shinn, R. E.	Agri.		Albany
Slavin, J. A.	D.	H.	N. Yakima, Wash.
Small, George H.	Agri.		Silver Lake
Small, Lora M.	Agri.		Silver Lake
Smith, J. A.	Agri.		Blalock
Smith, Willis B.	Hort.		New York City
Somers, G. B.	Agri.		Hermiston
Squires, Ralph	Agri.		Bellingham, Wash.
Starker, Carl	Hort.		Corvallis
Stauff, O. B.	D.	H.	Cooston

Name	*Course*	*Rank*	*Home Address*
Stauff, V. H.		D. H.	Cooston
Steininger, B. H. M.	Agri.		Molalla
Steininger, John H.	Agron.		Molalla
Stickney, Harry F.		D. H.	Underwood, Wash.
Sterling, Agnes	Com.		Burns
Stocker, R. L.	Agri.		Vernon, England
Stout, Thoron		D. S.	Fairdale
Streib, Phil		D. H.	Corvallis
Supple, Joe	Agri.		Portland
Swan, Carl	Agron.		Turlock
Tartar, Mrs. N.		D. S.	Corvallis
Taylor, Mrs. Effie		D. S.	Medford
Taylor, Gertie		D. S.	Albany
Thielin, Leo M.	Hort.		Hood River
Torgersen, K. A.	Agri.		Astoria
Vail, J. L.		P. H.	Corvallis
Vanderwall, R. E.	Agri.		Haines
Vollstedt, William	Agri.		Lebanon
Von Wirdner, H. R.	Hort.		Canby
Walker, Mr. E. H.		D. H.	Corvallis
Walker, Harry E.	Agron.		Monmouth
Weaver, Harold	Agri.		Enterprise
Webster, M. A.	Hort.		Alpine
Wedemeyer, O. T.	Hort.		Hood River
Wendover, Royce Franklin	For.		Stockton, Kans.
White, Bennie M.	Bus. Meth.		Scotts Mills
White, Harry Bernard		D. H.	Ashland
Wigle, Mrs. Laura		D. S.	Corvallis
Wilcox, Donald F.	Hort.		Lamarda Park, Cal.
Wilkie, Gordon Byron		D. H.	Montesan, Wash.
Wilkins, Mrs. Eunice		D. S.	Corvallis
Williams, Herbert	Hort.		White Salmon, Wash.
Williams, Mrs. Herbert	Hort.		White Salmon, Wash.
Williamson, Lowell		A. H.	LaGrande
Wilson, J. B.	Agron.		Corvallis
Wilson, James Morgan	Hort.		Oswego
Wodth, G.	Hort.		Foster
Wolfe, John B.	Hort.		Corvallis
Wooden, Stewart L.		D. H.	Elizabeth, N. J.
Woodwards, Harry L.	Agron.		Salem
Wright, J. Nash	Hort.		Woodsock, Wash.

SPECIAL COURSE IN DOMESTIC SCIENCE AND ART.

Beckwith, Mrs. T. D.	Corvallis
Bement, Edna	Corvallis
Blomwick, Miss I.	Corvallis
Buxton, Mrs. W. H.	Corvallis
Damon, Mrs. H.	Corvallis
Dilley, Mrs. E. J.	Corvallis
Egbert, Alice	Corvallis
Gamble, Ella	Astoria
Gollihur, Mrs. W. A.	Corvallis
Gross, Maude	Corvallis
Haight, Mrs. K. B. L.	Corvallis
Harmon, Ruth	North Bend
Harry, Mrs. T. F.	Corvallis
Hess, Maude	Corvallis
Jackson, Mrs. H. S.	Corvallis
Johnson, Mrs. W. T.	Corvallis
Law, Turah	Corvallis
Lawrence, Mrs. W. E.	Corvallis
Lewis, Lucy	Corvallis
McClain, Mrs. Chas.	Corvallis
McMillan, Katherine	Corvallis
Macpherson, Mrs. H.	Corvallis
Masterton, Mrs. C. H.	Corvallis
Peavy, Mrs. G. W.	Corvallis
Peck, Mrs. A. L.	Corvallis
Prather, Mrs. J. M.	Corvallis
Shepard, Mrs. E. R.	Corvallis
Sterling, Bertha	Corvallis
Sykes, Clara	Corvallis
Peterson, Marie	Corvallis
Plock, Carolyn	Corvallis
Robbins, Adah	Corvallis
Signs, Mrs. Alice	Corvallis
Thayer, Miriam	Corvallis
Turner, Kittie	Corvallis
Wallace, Grace	Independence
Wintler, Miss	Corvallis

SUMMARIES*

CLASSIFIED AS TO COURSE.

AGRICULTURE—		
Regular 36-week courses	429	
Short courses	1057	
FORESTRY—		
Regular 36-week courses	67	
Short courses	3	
DOMESTIC SCIENCE AND ART—		
Regular 36-week courses	270	
Short courses	435	
CIVIL ENGINEERING—		
Regular 36-week courses		67
ELECTRICAL ENGINEERING—		
Regular 36-week courses	83	
MECHANICAL ENGINEERING—		
Regular 36-week courses	129	
Short courses	12	
MINING ENGINEERING—		
Regular 36-week courses	20	
COMMERCE—		
Regular 36-week courses	143	
Short courses	15	
PHARMACY—		
Regular 36-week courses	51	
OPTIONAL—		
Regular 36-week courses	59	
MUSIC ONLY—		
Regular courses in music	62	
SUMMER SCHOOL—		
Summer term of six weeks	98	
	2984	
Deduct duplicates	670	
Total excluding duplicates	2314	

*The enrollment statistics include those only who have pursued work at the the College; correspondence students are omitted.

CLASSIFIED AS TO RESIDENCE

STATES OR TERRITORIES—		
Oregon		2507
Alabama	1	
Alaska	6	
Arizona	3	
California	115	
Colorado	1	
Connecticut	2	
Delaware	3	
District of Columbia	1	
Idaho	34	
Illinois	13	
Indiana	2	
Iowa	7	
Kansas	4	
Kentucky	4	
Louisiana	1	
Maine	1	
Massachusetts	6	
Michigan	4	
Minnesota	6	
Missouri	2	
Montana	3	
Nebraska	3	
New Hampshire	1	
New Jersey	3	
New Mexico	4	
New York	20	
North Carolina	1	
North Dakota	1	
Ohio	4	
Oklahoma	7	
Pennsylvania	2	
South Dakota	4	
Texas	3	
Utah	2	
Vermont	3	
Washington	135	
Wisconsin	2	
Wyoming	1	
		415

FOREIGN COUNTRIES—		
Armenia	1	
Canada	23	
China	7	
Hawaii	7	
India	8	
Ireland	4	
Japan	6	
Mexico	3	
Poland	1	
Russia	2	
		62
Total		2984
Duplicates		670
Total, excluding duplicates		2314

COMPARATIVE ENROLLMENT

1888-1889	97
1889-1890	151
1890-1891	201
1891-1892	208
1892-1893	282
1893-1894	240
1894-1895	261
1895-1896	397
1896-1897	316
1897-1898	336
1898-1899	338
1899-1900	405
1900-1901	436
1901-1902	488
1902-1903	541
1903-1904	530
1904-1905	680
1905-1906	735
1906-1907	833
1907-1908	1156
1908-1909	1352
1909-1910	1591
1910-1911	1778
1911-1912	2868
1912-1913	2314

The great difference in the total enrollment for the two years, 1910-11 and 1911-12, was due largely to the increase in the number

of students registered for the winter short courses in Agriculture. The increase in the number of regular students in the 36-week courses was 24 per cent.

The decrease in the number of students in 1912-13 from the year 1911-12 is due to the decrease in the short course registration. The increase in the number of regular students for the 36-week courses is 19 per cent.

NOTE.—In addition to the above listed names, out of a total of 1,140 students registered in the Farmers' Week courses in Agriculture and Domestic Science and Art, the names of 605 students who were registered in these courses, but in no other College courses, do not appear.

COMMENCEMENT, 1913.

DEGREES CONFERRED JUNE, 1913.

BACHELOR OF SCIENCE IN—		
Agriculture	35	
Forestry	2	
Domestic Science and Art	21	
Civil Engineering	7	
Electrical Engineering	12	
Mechanical Engineering	2	
Mining Engineering	3	
Commerce	12	
Pharmacy	3	
	—	97
MASTER OF SCIENCE IN—		
Agriculture	2	
	—	2
CERTIFICATES IN—		
Music	3	
Pharmacy Short Course	2	
	—	5
		104

HONOR STUDENTS.

Honor students, at graduation, are selected on a basis of pre-eminence in both class work and student activities. All courses are represented by honor students, the representation being on the basis of one honor student to every ten seniors in each degree course. No student, however, will be named in the honor list

whose merit grade is below seventy-five. The selection is made jointly by faculty and students.

AGRICULTURE—Ralph Abel Blanchard, Ernest Walton Curtis, Harry Clayton Hetzel, D. Brooks Hogan.
FORESTRY—Walt LeRoy Dutton.
DOMESTIC SCIENCE AND ART—Helen Julia Cowgill, Alice Marie Cathey.
CIVIL ENGINEERING—Francis Willard Smith.
ELECTRICAL ENGINEERING—Leonard Humphrey Kistler.
MECHANICAL ENGINEERING—Frederick Carl Jernstedt.
MINING ENGINEERING—Rowley Cruit.
COMMERCE—Arthur James Wilson.
PHARMACY—Thomas Hawkins.

WALDO PRIZES.

The Clara H. Waldo Prizes are awarded on a basis of both scholarship and general achievement as follows: (*a*) Proficiency in literary and scholastic attainments; (*b*) Success in student activities; (*c*) Qualities of womanhood; (*d*) Qualities of leadership. The selection is made by a joint arrangement between faculty and students. To the senior woman selected, a prize of forty dollars is awarded; to the junior woman, thirty dollars; to the sophomore woman, twenty dollars; and to the freshman woman, ten dollars. Students receiving second and third places in each class are given honorable mention.

PRIZES.

Senior—Lucy Crawford.
Junior—Katherine Warner.
Sophomore—Abbie Coon.
Freshman—Kareen Hansen.

HONORABLE MENTION.

Seniors—Anna Johnson, Helen Cowgill.
Juniors—Ruth Hawley, Lillian Thordarson.
Sophomores—Lorene Parker, Enid Leeper.
Freshmen—Geraldine Newins, Edith Crockatt.

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