Walton C. John

OFFICIAL PUBLICATION

OF THE

Maryland State College

Vol. 16 MAY 26, 1919 No. 1

CATALOGUE

1919—1920

ISSUED MONTHLY BY THE
MARYLAND STATE COLLEGE OF AGRICULTURE

Entered at College Park, Md., Post Office
as Second Class Matter

THE MARYLAND STATE COLLEGE

CATALOGUE

1919—1920

Containing general information concerning the College, Announcements for the Scholastic Year 1919-1920, and Records of 1918-1919

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COLLEGE CALENDAR 1919-1920

FIRST TERM.

Sept. 18–19, Thursday–Friday.	Entrance and condition examinations. Registration days for old and new students.
Sept. 22, Monday, 8.15 a. m.	Assembly of student body; President's Address; all classes begin.
Sept. 25, Thursday.	Last day for change of registration without fee; last day to register without payment of late registration fee.
Sept. 26, Friday.	President's reception for new students and presentation of Freshman Code.
Oct. 25, Saturday.	Home Coming Day. Sophomore–Freshman tug–of–war.
First Friday in November, Nov. 7.	Freshman entertainment night.
Nov. 26, Wednesday, 12 m.	Thanksgiving recess begins.
Dec. 1, Monday, 8 a. m.	Thanksgiving recess ends.
Second Friday after Thanksgiving, Dec. 5.	Football Dance.
Dec. 11–18.	Registration for second term.
Dec. 19, Friday, 4 p. m.	First term ends. Christmas vacation begins.
Last Friday of Fall term, Dec. 19.	Christmas Dance.

SECOND TERM.

Jan. 5, Monday, 8 a. m.	Christmas vacation ends. Instruction for second term begins.
Jan. 10, Saturday, 9 a. m. to 4 p. m.	Condition examinations.
Jan. 12, Monday.	Last day to change registration without fee and last day to register without late registration fee.
Third Friday in January, Jan. 16.	Intersociety debate.
First Friday in February, Feb. 6.	Intercollegiate debate.
Friday preceding Washington's Birthday, Feb. 20.	Battalion Ball.

Second Friday in March, Mar. 12.	Presentation by Dramatic Club.
Mar. 16–23.	Registration for third term.
Mar. 23, Tuesday, 4 p. m.	Second term ends.
Friday preceding Easter vacation, Mar. 26.	Sophomore–Freshman crosscountry run.

THIRD TERM.

Mar. 24, Wednesday, 8 a. m.	Third term begins. All classes meet at scheduled time.
Mar. 31, Wednesday, 12 m.	Easter recess begins.
Apr. 6, Tuesday, 8 a. m.	Easter recess ends.
First Friday after Easter, Apr. 9.	Junior Prom.
First Saturday in May, May 1.	Annual Intercollegiate and Interscholastic Track Meet. Reveille Dance.
May 15, Saturday.	All required theses must be presented.
Third Friday in May, May 21.	May Ball.
Decoration Day, May 30.	Farmers' Day.
June 1–8.	Registration for first term 1920–1921.
Friday preceding Commencement, June 11.	Junior–Senior German.
June 13, Sunday.	Beginning Commencement Exercises. Baccalaureate Sermon.
June 14, Monday.	Fraternity Day.
June 15, Tuesday.	Class Day.
June 16, Wednesday.	Alumni Day.
June 17, Thursday.	Commencement Day.

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MARY E. WALTON, Instructor in Home Economics.

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R. V. TRUITT, B. S., Assistant in Entomology.

SGT. M. McMANUS, Assistant in Military Science and Tactics.

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CHAS. O. APPLEMAN, Ph. D., Plant Physiologist.
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ROY H. WAITE, B. S., Poultryman.
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S. V. EATON, M. S., Assistant Plant Physiologist.
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ALBERT WHITE, B. S., Superintendent Ridgley Farm.
P. E. RICHARDS, M. S., Assistant Soil Investigations.
JOHN P. JONES, B. S., Assistant Plant Physiologist.
R. WELLINGTON, M. S., Vegetable Breeder.

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MESSRS. PICKENS, GRIFFITH, McDONNELL, W. T. L. TALIAFERRO and CORY.

SCHEDULE.

MESSRS. GWINNER, BROUGHTON, WENTZ, SCHULZ, GAMBLE, MAJ. MATILE and WELLINGTON.

STUDENT PUBLICATIONS.

MESSRS. P. I. REED, BYRD and OPPERMAN.

COLLEGE PUBLICATIONS.

MESSRS. PATTERSON, BYRD, OPPERMAN, McDONNELL, RICHARDSON and SYMONS.

GENERAL INFORMATION

THE MARYLAND STATE COLLEGE

Location

The Maryland State College is located in Prince George's County, Maryland, on the line of the Washington branch of the Baltimore and Ohio Railroad, eight miles from Washington and thirty-two miles from Baltimore. At least eight trains a day from each city stop at College station, thus making the place easily accessible from all parts of the State. Telephone connection is made with the Chesapeake and Potomac lines.

The grounds front on the Baltimore and Washington Boulevard. The suburban town of Hyattsville is two miles to the south, and Laurel, the largest town in the county, is ten miles to the north on the same road. Access to these towns and to Washington may be had by steam and electric railway. The site of the College is particularly beautiful. The buildings occupy the crest of a commanding hill, which is covered with forest trees and overlooks the entire surrounding country. In front, extending to the boulevard, is a broad rolling campus, the drill ground and athletic field. In the rear are the farm buildings and barn. A quarter of a mile to the northeast are the buildings of the Experiment Station. The College farm contains about 300 acres, and is devoted to fields, gardens, orchards, vineyard, poultry yards, etc., used for experimental purposes and demonstration work in agriculture and horticulture.

The general appearance of the grounds is exceedingly attractive. They are tastefully laid off in lawns and terraces which are ornamented with shrubbery and flower beds. The view from the grove and campus cannot be surpassed.

The location of the College is healthful; the sanitary conditions are excellent. No better proof of this can be given than that there has been practically no serious case of illness among the students for many years.

History

The scientific study of agriculture was advocated by far-seeing Maryland citizens as early as the second quarter of the nineteenth century. They were sensible of two facts—namely, that agriculture is one of the largest contributing factors to a nation's prosperity, and that all agricultural pursuits, in order to be potent, must be genuinely scientific. In 1847 the subject was first brought formally to the attention of the Legislature of the State. In 1856 a bill was passed which granted a charter for the establishment, endowment and incorporation of the Maryland Agricultural College. Under the provisions of this charter the corner-stone of the original college building was laid on August 24,

1858, and the institution was opened to the public on October 5, 1859. No funds were provided by the Act of 1856, but the actual establishment of the College was made possible by the contributions of public-spirited citizens of the commonwealth. The names of these persons, in remembrance of their generosity, are inscribed on the massive gateway to the College grounds. The College is unique in that its original charter was the first in which systematic agricultural experimentation was recognized as an important part of its activities. The institution thus created was the first significant agricultural college on the Atlantic slope and the second in the Western Hemisphere.

For three years the College was under private management. In 1862 the Congress of the United States, recognizing the practical value and increasing need of such colleges, passed the Land Grant Act. This act granted each State and Territory that should claim its benefits a proportionate amount of unclaimed Western lands, in place of scrip, the proceeds from the sale of which should apply under certain conditions to the "endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." This grant was accepted by the General Assembly of Maryland. The Maryland Agricultural College was named as the beneficiary of the grant. Thus the College became, at least in part, a State institution. In the fall of 1914 its control was taken over entirely by the State. In 1916 the General Assembly granted a new charter to the College and gave the College its present name.

Under the new charter the institution is co-educational. Every power is granted necessary to develop an institution of higher learning and research, comparable to the great state universities of the West, in which Agriculture and Mechanic Arts hold the dominant place without excluding the Liberal Arts. This is in full accord with the Morrill Act of the National Congress and the subsequent acts above referred to. This institution, therefore, becomes the representative of the State and the Nation in higher education and research. The charter provides that it shall receive and administer all existing grants from the national government and all future grants which may come to the State for this purpose.

EXTENSION AND RESEARCH

Agriculture and Home Economics

The agricultural and home economics extension service of the College, in co-operation with the United States Department of Agriculture, carries to the people of the State through practical demonstrations conducted by specialists of the College and county agents, the results of investigations in the fields of Agriculture and Home Economics. The organization consists of the administrative forces, including the director, assistant director, specialists and clerical force, the county agricultural demonstration agents, and the home demonstration agents in each county and in the chief cities of the State. The county agents and the specialists jointly carry on practical demonstrations under the several projects in the production of crops or in home-making, with the view of putting into practice on the farms of the State improved methods of Agriculture and Home Economics that have stood the test of investigation, experimentation, and experience. Movable schools are held in the several counties. At such schools the specialists discuss phases of Agriculture and Home Economics in which the people of the respective counties are specially interested.

The work of the Boys' Agricultural Clubs is of especial importance from an educational point of view. The specialists in charge of these projects, in co-operation with the county agricultural agents and the county school officers and teachers, organize the boys of the several communities of the county into agricultural clubs for the purpose of teaching them by actual practice the principles underlying agriculture. The boys hold regular meetings for the discussion of problems connected with their several projects and for the comparison of experiences. Prizes are offered for the stimulation of interest in the work.

The Home Economics specialists and agents organize the girls into clubs for the purpose of instructing them in the principles underlying canning, drying, preserving of fruits and vegetables, cooking, dressmaking and other forms of Home Economics work.

Educational value of the demonstrations, farmers' meetings, movable schools, clubs, and community shows is incalculable. They serve to carry the College to the farmer and to the home-maker.

General Extension

This phase of the extension service of the College is conducted in co-operation with the United States Bureau of Education, and is intended to make the Liberal Arts and other branches of educational curriculum of the College of greater service to the people of the State.

Agricultural Experiment Station

Vitally associated with the extension service is the experimental work in agriculture.

In 1847 an act was passed making provision for a State laboratory in which the application of chemistry to agriculture was to be undertaken. In 1858 experimentation was undertaken on the College farm. After two or three years this work was interrupted by the general financial distress of the time and by the Civil War. In 1888, under the provisions of the Hatch Act of the preceding year, the Agricultural Experiment Station was established.

This act states the object and purpose of the experiment station as follows:

> That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

Prior to the establishment of the experiment stations there was practically no agricultural science in this country. The work done by these institutions during the past quarter of a century has given the colleges a science of agriculture to teach, and laid a broad foundation for development.

The placing of agricultural demonstrations and extension work on a national basis has been the direct outgrowth of the work of the experiment station.

The students of the College, taking courses in the School of Agriculture, are kept in close touch with the investigations in progress.

The Eastern Branch

The Eastern Branch of the Maryland State College is located at Princess Anne, Somerset County. It is maintained for the education of negroes in agriculture and mechanic arts.

ADMINISTRATION

The government of the College is vested by law primarily in a board of trustees, consisting of nine members appointed by the Governor for terms of nine years. The administration of the College is vested in the President. The Council of Administration, composed of the President, the Assistant to the President, the Director of Agricultural Experiment Station, and Director of the Agricultural and Home Economics Extension Service, and the Deans of the several schools, acts as an advisory board to the President on all phases of College work. The faculty of each school constitutes a faculty council which passes on all questions that have exclusive relationship to the school represented.

For purposes of administration the College is divided into the following units:

School of Agriculture.
School of Chemistry.
School of Education.
School of Engineering and Mechanic Arts.
The Graduate School.
School of Home Economics.
School of Liberal Arts.
Department of Military Science and Tactics.
Department of Physical Education and Recreation.
The Summer School.

The School of Agriculture offers curricula in: (1) General Agriculture; (2) Agronomy; (3) Botany; (4) Farm Management; (5) Geology and Soils; (6) Pomology; (7) Vegetable Gardening; (8) Floriculture; (9) Landscape Gardening; (10) Economic Zoology; (11) Pre-Medical; (12) Two-Year Agriculture; (13) Animal Husbandry.

The School of Chemistry offers curricula in: (1) General Chemistry; (2) Chemical Engineering; (3) Agricultural Chemistry; (4) Biological Chemistry.

The School of Education offers curricula in: (1) Agricultural Education; (2) Home Economics Education; (3) Industrial Education; (4) General Education.

The School of Engineering and Mechanic Arts offers curricula in: (1) Civil Engineering; (2) Mechanical Engineering; (3) Electrical Engineering; (4) Highway Engineering; (5) Two-Year Courses in Mechanic Arts.

The Graduate School offers courses in any of the subjects in which a graduate may desire to obtain advanced degrees. The Graduate School consists of all students taking graduate work in the various departments. Those qualified to supervise graduate work in the various de-

partments will constitute the faculty of the Graduate School, presided over by a research specialist designated as Dean.

The School of Home Economics offers a curriculum in which may be obtained the general principles of home economics, a knowledge of home economics for teaching purposes, or a specialized knowledge of particular phases which deal with the work of the dietitian or institutional manager.

The School of Liberal Arts offers curricula with majors in : (1) Ancient Languages and Philosophy; (2) Economics; (3) English Language and Literature; (4) General Science; (5) History and Political Science; (6) Journalism; (7) French, German, or Spanish; (8) Public Speaking with reference to Special Professions; studies also are offered in Music and Library Science.

The Department of Military Science and Tactics supervises the two years of military drill required for two years of students in Land Grant colleges and directs the work of the Reserve Officers' Training Corps unit established by the War Department.

The Department of Physical Education and Recreation works in close co-operation with the military department and supervises all physical training, general recreation, and intercollegiate athletics.

The Summer School of six weeks offers courses in subjects given in any of the schools during the regular session of the College and in special subjects, such as school administration, classroom management and principles of secondary education for high school and elementary school teachers. Courses given in the Summer School are of collegiate grade and may be counted toward the bachelor's degree. Advanced courses may count toward the master's degree.

ADMISSION

Applicants for admission to the College must be at least sixteen years of age. Women are admitted to all courses and under the same conditions as men. Students may be admitted at any time, but should enter at the beginning of one of the three terms.

Students may be admitted by examination, or by certificate from an accredited high school or preparatory school, or by transfer from another college.

In general the requirements for admission to the freshman class are the same as those prescribed for graduation by the approved high schools of Maryland. An applicant must offer for admission at least 15 units of credit by examination, or by a certificate from an approved high school or its equivalent. A unit represents a year's study in any subject in a secondary school and constitutes approximately a quarter of a full year's work. It presupposes a school year of 36 to 40 weeks, recitation periods of from 40 to 60 minutes, and for each study four or five class exercises a week. Two laboratory periods in any science or vocational study are considered as equivalent to one class exercise.

Of the fifteen units presented, seven are specifically designated—eight for the School of Engineering—and eight may be elected from any subject that the high school offers toward graduation. A deficiency of one unit is approved, but the student cannot become a candidate for a degree until all entrance requirements are satisfied.

Students are admitted without examination, if they can present certificates showing that they have completed the necessary entrance subjects. The certificates presented by the candidates must be officially certified by the principals of the schools attended and must state in detail the work completed. Blank certificates conveniently arranged for the desired data will be sent upon application.

Candidates not admitted by certificates will be required to take written examinations on the entrance subjects. These examinations are offered in June and September. Exact dates will be sent upon request.

Required and Elective Subjects

	Prescribed Units	
English	3	
Mathematics	2	(For Engineering 3)*
Science	1	
History	1	
Total	7	(For Engineering 8)

Elective Units (eight)—To be selected from the following subjects:

Agriculture,	History,
Astronomy,	Home Economics,
Botany,	Industrial subjects,
Chemistry,	Language,
Civics,	Mathematics,
Commercial subjects,	Physical Geography,
Economics,	Physics,
English,	Physiology,
General Science,	Zoology,
Geology,	

*Additional unit includes Algebra, ½; Solid Geometry, ½.

Advanced Standing

A student coming from a standard college or university may secure advanced standing by presenting a statement of his complete academic record certified by the proper officials. This statement must be accompanied by a set of secondary school credentials presented for admission to the college or university. Full credit is given for work done in other institutions when found to be equivalent in extent and quality to that required at this College. An applicant may request examination for advanced credit in any subject. In case the character of a student's work in any subject is such as to create doubt as to the quality of that which preceded, the College reserves the right to revoke at any time any credit assigned on certificate.

Registration

The College year begins September 18 and ends June 17. (See calendar on page 1.) Thursday, September 18, and Friday, September 19, are devoted to matriculation and registration of students for the first term. Registration for the second and third terms takes place before the close of the preceding terms.

Candidates for the freshman class should go at once to the new agricultural building, where they will find a committee in charge of matriculation and registration.

Upper classmen should consult their advisers or deans and then proceed in the regular way. Students are not admitted to classes for which they are not registered in due form.

Lectures and practical work begin on Monday, September 22.

Unclassified Students

Mature persons who have had insufficient preparation to pursue any of the four-year courses may, with the consent of the Committee on Courses, matriculate for such subjects as they are fitted to take. Such students, however, will be ineligible for a degree until they have satisfied the entrance requirements and completed an approved four-year course of study.

Graduation and Degrees

All undergraduate four-year courses lead to the degree of Bachelor of Science or Bachelor of Arts. The total requirement for graduation, exclusive of military science, is 204 term credit hours, equivalent to 68 year hours, or 136 semester hours. A term credit hour is one lecture or recitation a week for one term; two or three hours of laboratory or field work are counted equivalent to one lecture or recitation. All practical work is scheduled for three hours, but the instructor concerned is permitted to use two or three, depending upon the nature of the work.

Candidates are recommended for graduation after they have completed the prescribed course of study, including all the required work and enough electives to total 204 credit hours, not including military science.

The Bachelor of Arts, Bachelor of Science, Master of Arts, Master of Science, Doctor of Philosophy in Arts, Doctor of Philosophy in Science, Civil Engineer, Mechanical Engineer, and Electrical Engineer are degrees conferred by the College. No degrees are given to students who finish either of the two-year curricula, but at graduation time appropriate certificates are awarded.

BUILDINGS

Some eighteen buildings have been erected on the college campus for research, extension, and residence educational purposes. The buildings comprised in the group are the Agricultural Building, Calvert Hall, the Library, Engineering Buildings, Chemical Building, Morrill Hall, Horticultural Building, the Hospital, Stock Judging Pavilion, Poultry Building, temporary dining-hall, temporary auditorium, Girls' Home Economics Practice House, and the Agricultural Experiment Station group.

Agricultural Building

The Executive Offices, the Schools of Agriculture and Education and the Agricultural and Home Economics Extension Service are housed in the Agricultural Building. This structure was completed and occupied in April, 1918. The building also contains biological, soils and bacteriological laboratories.

Calvert Hall

Excellent dormitory accommodations are provided in Calvert Hall, a modern fireproof structure erected and occupied in 1914. It took the place of the two dormitories destroyed by fire in 1912.

Morrill Hall

The School of Liberal Arts and the Department of Zoology are housed in Morrill Hall, which is a three-story building erected in 1898. This building formerly was occupied by the work in agriculture and engineering.

Chemical Building

The Chemical Building provides a home for the School of Chemistry and for the state work in analysis of feeds, feritlizers and agricultural lime. It has classrooms, laboratories, and offices for all undergraduate and graduate work in chemistry.

Engineering Buildings

The Mechanical Building was the first of the Engineering group constructed, having been completed and occupied by the Department of Mechanical Engineering in 1898. The Civil Engineering and Electrical Engineering additions, with accompanying shops, were built in 1910. The three buildings are connected by closed passageways.

The Hospital

The Hospital, or Sanitarium, was erected in 1901 and makes possible excellent treatment for students in cases of sickness. It has a private ward for segregation of contagious diseases, quarters for trained nurse, operating room, doctor's office, special culinary equipment, and accommodations for twenty patients.

The Horticultural Building

Classrooms, propagation rooms, and offices are contained in the Horticultural Building, completed in 1915. In connection with this, ten modern greenhouses are so constructed as to have entry into each direct from building.

The Stock Judging Pavilion

This building is used for stock judging competitions, for stock shows, and to house a part of the equipment of the dairy husbandry and farm machinery departments of the School of Agriculture. Connecting this building with the Agricultural Building is an auditorium capable of seating 600 persons.

The Poultry Buildings

Research in poultry projects and laboratory practice is carried on in the Poultry Building. The main building contains classrooms, laboratories, offices and incubating rooms.

Experiment Station Group

The main building of the experiment station group is a large brick structure of the colonial period. It contains the office of the Director of the Station, the chemical and physiological laboratories, and a laboratory for research in soils. Other buildings of this group contain seed and milk testing laboratories, classrooms, and others are greenhouses, Agronomy Building, a secondary horticultural building, barns, farm machinery buildings, silos, etc.

Temporary Dining-Hall

A temporary wooden structure has been erected to serve as a dining-hall until the Legislature appropriates money to put up a permanent building. This wooden structure is well built and contains kitchen equipment and other facilities for comfortably taking care of about 600 persons.

Other Buildings

Another wooden structure has been used for the last few years as an auditorium. It is capable of seating about 400 persons. The College also maintains a laundry building in which it handles the students' laundry at cost. It also has two frame dwelling-houses in which it houses part of its labor. A brick power-house contains apparatus for pumping all water for College use. Another small frame house contains machinery for canning and drying of fruits and vegetables. A small brick gas-house has apparatus for manufacturing gas for use in the laboratories.

The Filtration Plant

Now nearing completion is a modern filtration plant for furnishing an ample supply of water for use in the dormitories and general college buildings. This plant is to consists of a reservoir with a reserve supply of 1,500,000 gallons, sediment tanks, filter beds, pumps, etc.

The Library

The two-story brick building housing the Library was built in 1894. On the first floor is collected material relating to the various phases of the subject of agriculture—books, bound periodicals, Experiment Station Records, all Experiment Station Bulletins of the United States, United States Department of Agriculture and Farmers' Bulletins. The special catalog cards issued by the United States Department of Agriculture make accessible the large amount of state and national bulletin literature on agricultural subjects.

The second floor of the Library is used as a general reading and reference room as well as a stack room for all books except the agricultural.

The entire Library contains approximately 5,000 bound books and 5,000 United States Government documents and unbound reports and pamphlets. All material is on open shelves where students can easily locate it. The Library is open from 8.30 A. M. to 5.30 P. M., six days of the week; all evenings, with the exception of Saturday, from 6.30 to 10; and on Sunday afternoon, from 2.30 to 5.30. The librarian or an assistant is always in charge.

It is planned to increase the material on Maryland, making of it a well-rounded collection of Maryland literature.

COLLEGE ORGANIZATIONS

The Alumni Association is an organization composed of alumni of the College. This association has an office at the College and has several branch associations. It publishes a monthly paper, *The State College Alumnus*, and a *Bi-Annual Record*. The association is active in legislative and other measures for the support of the College and is represented on the Board of Trustees and on the committee which controls athletics by four members, two on each.

The Student Assembly

The Student Assembly is composed of all the students for carrying out a system of student self-government. The Student Executive Council is the executive committee of the Student Assembly and acts in coöperation with the faculty in the management of student affairs.

The Dramatic Club

The Dramatic Club is organized for the purpose of presenting at least one play each year. It is made up of men who have had experience either in this work since coming to College or in high school.

Fraternities

There are three national fraternities and one local fraternity at the College. The national fraternities are Kappa Alpha, Sigma Nu, and Sigma Phi Sigma. The local fraternity is Nu Sigma Omicron.

Interfraternity Council

The Interfraternity Council is made up of representatives of the four fraternities and is organized to hold weekly meetings to promote cooperation between these organizations.

Societies

Two literary societies are maintained by the students, the Poe and New Mercer. These hold weekly meetings at which regular programs are presented.

The Liebig Chemical Society is made up of students specializing in chemistry. Special lectures by students and specialists in certain branches of chemistry and open discussions of various chemical questions are featured.

The Engineering Society is composed of students in the School of Engineering.

The Agricultural Society is made up of students in the School of Agriculture.

Programs are offered in the Engineering and Agricultural Societies similar to that of the Liebig Chemical Society, except that the subjects pertain to engineering or agriculture.

Clubs

The Rifle Club is affiliated with the National Rifle Association and engages in matches with other colleges and rifle organizations.

The Chess and Checker Club is organized for the promotion of these games among those that engage in them. Annual tournaments are conducted for which gold medals are awarded.

The County Clubs are organizations of students from the same counties. The Baltimore City Club and District of Columbia Club are organizations of the same nature.

The Rossbourg Club is the student organization which has charge of most of the social events of the students. Almost all students are members.

The Christian Associations

The Young Men's and Young Women's Christian Associations are organized to be of general service to the students. They perform important functions in matters of obtaining employment for worthy students, in receiving new students, and in helping to maintain generally a high morale and state of good fellowship in the student body. A reading-room, chess and checkers, and other games are maintained by the association for use of all the students.

Student Publications

A weekly five-column newspaper, *The Maryland State Review*, is published by the students. Besides this the members of the junior class publish each year an annual book *The Reveille*. Both publications reflect the news and atmosphere of general college life.

AWARDS AND COMPETITIONS

The College offers each year gold medals to those men of the graduating class who have attained the best records in their respective departments of study.

Debating and Oratory

An annual debate is held each year in January between the Poe and New Mercer literary societies for the "President's Cup," given by Dr. H. J. Patterson.

A gold medal is awarded by the Alumni Association each year to the best debater in the College, the test being a debate between picked teams from the two literary societies.

The College gives gold medals to members of winning teams in intercollegiate debates.

The Oratorical Association of Maryland Colleges, consisting of Washington College, Western Maryland College, St. John's College, and Maryland State College offers each year gold medals for first and second places in an oratorical contest that is held between representatives of the four institutions.

Athletics

The class of 1908 offers annually to "the man who best typifies the college athlete" a gold medal. The medal is given in honor of former President R. W. Silvester and is known as "The Silvester Medal for Excellence in Athletics."

The Military Medal

The class of 1899 offers each year a gold medal to the member of the battalion who proves himself the best drilled soldier. The medal is awarded after an individual drill by each of the contestants.

The Citizenship Prize

A gold medal is presented annually by H. C. Byrd, a graduate of the College of the class of 1908, to the member of the senior class who during his collegiate career has nearest typified the model citizen and who has done most for the general advancement of the interests of the College.

FEES AND EXPENSES

All fees and expenses must be paid at the beginning of each term. Students are not admitted to classes until after payment of their dues, or until after arrangements for deferring payment have been made. The College makes no charge for tuition.

The fixed fee for all students, which is a part payment of overhead charges, such as janitor service, hospital and doctor's fee, general laboratory fees, library, physical training, etc..... $60

Bacteriology laboratory additional fee, per term..... 2

Athletic association fee, payable beginning of first term..... 10

Damage fee, to cover breakage, loss of library and reference books, and injuries to property which cannot be charged directly against any individual 5

Any unused part of this fee is returned to the student if he withdraws from College or at the end of each year.

Fee for special condition examination..... 1

Fee for change in registration after September 25..... 1

Fee for failure to register on or before September 25..... 2

Diploma fee, payable at graduation..... 5

Fees for Music: For musical instruction taken on a term basis, students are required to pay to the Treasurer of the College five dollars a term. In addition to this a fee of two dollars a term is charged for the use of pianos furnished by the institution for practice.

The tuition for musical instruction by the lesson is fifty cents, payable at the time the instruction is given. Since the hour engaged for instruction by the student is always held open for him, each student will be required to make regular payments for all engaged periods, whether he presents himself for instruction or not.

Graduate Fees

Each graduate student is subject to a registration fee of $15, a fixed charge of $15 per term, and $10 for diploma.

Short Course in Agricultural Practice

Fixed charges, to which all are subject.....$20.00

Board and lodging for regular four or two-year students, per day. 1.00

Board and lodging for special students, per week..... 7.50

Average Annual Expenses

The following are estimated average annual expenses of undergraduate students:

Fixed overhead charges	$60.00
Board and lodging	257.00
Damage fee	5.00
Laundry	20.00
Athletic association fee	10.00
Total	$352.00

The above does not take into consideration the cost of books, supplies, and personal needs. This depends largely on the tastes and habits of the individual. Books and supplies average about thirty dollars.

Board and lodging may be obtained at boarding-houses or in private families in the vicinity of the College at a slightly higher rate than is offered by the College.

In case of illness requiring a special nurse and special medical attention, the expenses must be borne by the student.

All College expenses are payable in advance, and no diploma will be conferred upon, nor any certificate issued to, a student who is in arrears in his account.

When a student desires to withdraw from College he is required to give formal notification in writing to the Recorder approved by his Dean and the Accountant. Charges for full time will be continued against him unless this is done.

Students rooming outside the College may obtain board and laundry from the College at same rates as those living in dormitories.

Day students may get lunch at nearby lunchrooms.

All College property in possession of the individual student is charged against him, and the parent or guardian must assume responsibility for its return without injury other than results from ordinary wear.

Damage to College property will be charged to the whole student body pro rata unless the offender is known.

All students assigned to dormitories are required to provide themselves with one pair blankets for single bed, two pairs sheets for single bed, four pillow cases, six towels, one pillow, two clothes bags, one broom, and one waste-basket.

There will be no refund of laboratory fees upon withdrawal of a student after the middle of a term.

Students withdrawing before end of any term will be charged $8 per week for board and lodging for the time during the term preceding their withdrawal. There will be no refund of fixed charges.

SCHOLARSHIPS AND SELF AID

While the College has no endowment nor loan funds with which to assist students, it has established for each high and preparatory school in Maryland and the District of Columbia one scholarship each year. For the three counties of Maryland which do not have high schools, Calvert, Charles and St. Mary's, one scholarship each year is given. These scholarships have a value of fifty dollars and are credited to the holder's account.

These scholarships are offered under the following conditions:

1. The holder must be a graduate of a high school and qualified to enter the freshman class.

2. The appointment to the scholarships must be made by the county school superintendent upon recommendation of the principal of the high school. In making recommendations high school principals should not only take into consideration class standing but also inability to meet the expenses of a college education.

3. The appointment shall be made for the term normally required to complete the curriculum selected.

4. The scholarship will be forfeited by indifference to scholastic work or by disregard of rules of the College.

5. Scholarships awarded to preparatory schools and to high schools of Baltimore and Washington shall be given on recommendation of the principals direct to the College. Recipients of preparatory school scholarships must be qualified to enter the freshman class.

6. Applicants from Charles, St. Mary's, and Calvert counties may take one of the non-collegiate curriculums or, if entering from another college, may take one of four-year curriculums leading to a degree.

Fellowships

The College also offers a number of fellowships. These may be given either to its own graduates or the graduates of other colleges who desire to pursue courses in the Graduate School leading to advanced degrees. Fellowships are available in the School of Agriculture, School of Engineering and Mechanic Arts, School of Chemistry, and School of Liberal Arts. These fellowships are worth from $500 to $720 per year.

Industrial Scholarships

There are available each year, as they become vacant, a number of industrial scholarships, in which students receive compensation for attending to certain prescribed duties, such as waiting on the tables in the dining hall, janitor service in the dormitory, and postmaster. Students may frequently earn enough in this way to cover board and lodging.

Student Labor

Students may earn a considerable portion of their expenses in College by doing work for the several departments on an hour basis. Services of those who have a good knowledge of stenography, typewriting, electrical, or mechanical work are in demand. Considerable work is available around the buildings and grounds and on the Agricultural Experiment Station farm.

DIVISION OF PLANT INDUSTRY

Closely related subjects dealing with plants are grouped in the Division of Plant Industry in order to bring about the necessary coöperation between the departments concerned.

HORTICULTURE

There are several reasons why the State of Maryland should be preeminent in the different lines of horticulture and offer such excellent opportunities for horticultural enterprises. A few of the more evident ones are the wide variation in soil and climate from the Eastern Shore to the mountainous counties of Allegany and Garrett in the west, the nearness to all of the large eastern markets, the large number of railroads, interurban lines and waterways, all of which combine to make marketing easy and comparatively cheap.

The Department of Horticulture offers four major lines of work, namely: Pomology, Vegetable Gardening, Floriculture and Landscape Gardening. Students wishing to specialize in Horticulture can arrange to take either a general course during the four years or enough work is offered in each division to allow students to specialize during the last two years in any of the four divisions. The courses have been so planned and cover such subject matter that upon their completion students should be fitted either to engage in commercial work, county agent work, or teaching and investigational work in state and federal institutions.

CURRICULA IN HORTICULTURE

Students who intend to specialize in any of the four divisions of Horticulture are required to take the same subjects during the first two years.

SOPHOMORE YEAR. Term:	I	II	III
General Geology (Geol. 101)	3	.....	.....
Soils 101-102	.....	3	3
Plant Anatomy (Morph. and Myc. 101)	3	.....	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
Elementary Pomology (Hort. 101)	4	.....	.....
Elementary Floriculture (Hort. 121)	.....	3	.....
Frame Crops (Hort. 118)	.....	.....	2
Elementary Landscape Gardening (Hort. 131)	.....	3	.....
Forage Crops (Agron. 103)	.....	.....	4
Entomology (Zoo. 103)	.....	.....	3
Feeds and Feeding (A. H. 102)	4	.....	.....
Organic Chemistry (Chem. 123-124)	4	4	.....
Elective	0	0	2

POMOLOGY.

JUNIOR YEAR. Term:	I	II	III
Principles of Economics (Econ. 101-102)	3	3	.....
Technical Composition (Eng. 104-106)	2	2	2
Commercial Fruit Growing (Hort. 102-103)	3	3	.....
Systematic Pomology (Hort. 104)	3	.....	.....
Small Fruit Culture (Hort. 106)	.....	.....	3
Fruit and Vegetable Judging (Hort. 108)	2	.....	.....
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Horticultural Entomology (Zoo. 113)	.....	.....	3
Genetics (Plt. Phy. 108)	3	.....	.....
Elective	0	9	9

SENIOR YEAR.

Farm Management (F. M. 101-102)	3	3	.....
Economic Fruits of the World (Hort. 107)	.....	3	.....
Advanced Fruit Judging (Hort. 109)	1	.....	.....
Advanced Practical Pomology (Hort. 105)	1	.....	.....
Horticultural Breeding Practice (Hort. 142)	.....	.....	1
Horticultural Research and Thesis (Hort. 143-145)	2	2	2
Horticultural Seminar (Hort. 146-148)	1	1	1
Elective	9	8	13

VEGETABLE GARDENING.

JUNIOR YEAR. Term:	I	II	III
Principles of Economics (Econ. 101-102)	3	3	.....
Technical Composition (Eng. 104-106)	2	2	2
Commercial Vegetable Gardening (Hort. 113-115)	3	3	3
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Horticultural Entomology (Zoo. 113)	.....	.....	3
Genetics (Plt. Phy. 108)	3	.....	.....
Elective	3	9	9

SENIOR YEAR.

Farm Management (F. M. 101-102)	3	3	.....
Systematic Olericulture (Hort. 116)	3	.....	.....
Advanced Vegetable Gardening (Hort. 117)	.....	.....	1
Horticultural Breeding Practice (Hort. 142)	.....	.....	1
Greenhouse Construction (Hort. 125)	.....	2	.....
Horticultural Research and Thesis (Hort. 143-145)	2	2	2
Horticultural Seminar (Hort. 146-148)	1	1	1
Elective	8	9	12

FLORICULTURE.

JUNIOR YEAR. Term:	I	II	III
Principles of Economics (Econ. 101-102)	3	3	.....
Technical Composition (Eng. 104-106)	2	2	2
Commercial Floriculture (Hort. 122-123)	3	3	.....
Greenhouse Management (Hort. 124)	3	.....	.....
Garden Flowers (Hort. 126)	.....	.....	3
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Horticultural Entomology (Zoo. 113)	.....	.....	3
Genetics	3	.....	.....
Elective	0	9	9

SENIOR YEAR.

Farm Management (F. M. 101-102)	3	3	.....
Greenhouse Construction (Hort. 125)	.....	2	.....
Floral Decoration (Hort. 127)	.....	1	.....
Plant Materials (Hort. 132)	.....	.....	3
Civic Art (Hort. 136)	2	.....	.....
Horticultural Breeding Practice (Hort. 142)	.....	.....	1
Horticultural Research and Thesis (Hort. 143-145)	2	2	2
Horticultural Seminar (Hort. 146-148)	1	1	1
Elective	9	8	10

LANDSCAPE GARDENING.

JUNIOR YEAR. Term:	I	II	III
Principles of Economics (Econ. 101-102)	3	3	.....
Technical Composition (Eng. 104-106)	2	2	2
Plant Materials (Hort. 132)	.....	.....	3
History of Landscape Gardening (Hort. 137)	.....	1	.....
Greenhouse Management (Hort. 124)	3	.....	.....
Commercial Floriculture (Hort. 122-123)	3	3	.....
Systematic Botany (Bot. 103)	.....	.....	3
Horticultural Entomology (Zoo. 113)	.....	.....	3
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Engineering Drawing (Dr. 104)	1	.....	.....
Surveying	.....	.....	2
Elective	2	8	4

SENIOR YEAR.

Landscape Design (Hort. 133-134)	3	3	.....
Landscape Practice (Hort. 135)	.....	.....	3
Civic Art (Hort. 136)	2	.....	.....
Garden Flowers (Hort. 126)	.....	.....	3
Greenhouse Construction (Hort. 125)	.....	2	.....
Tree Surgery and Repair (Hort. 138)	2	.....	.....
Horticultural Research and Thesis (Hort. 143-145)	2	2	2
Horticultural Seminar (Hort. 146-148)	1	1	1
Elective	7	9	8

DESCRIPTION OF COURSES

POMOLOGY

Hort. 101. Elementary Pomology. Four credit hours; three lectures and one laboratory period. First term, sophomore year.

In this course a study is made of the general practices in Pomology. The proper location and site for an orchard are discussed. Also varieties, planting plans, inter-crops, spraying, cultural methods, fertilizing methods, thinning, picking, packing and marketing are given consideration. In this course these subjects are discussed for apples, peaches, pears, plums, cherries and quinces. The principles of plant propagation as applied to pomology are discussed.

Hort. 102-103. Commercial Fruit Growing. Three credit hours: two lectures and one laboratory period. First term. Three credit hours: two lectures and one laboratory period. Second term. Junior year. prerequisite, Hort. 101.

In this course a study is made of the proper management of commercial orchards in Maryland. Advanced work is taken up on the subjects of orchard culture, orchard fertilization, picking, packing, marketing and storing of fruits, orchard by-products and orchard heating.

Hort. 104. Systematic Pomology. Three credit hours: two lectures and one laboratory period. First term, junior year. Prerequisite, Hort. 101.

The history, botany and classification of fruits and their adaptation to Maryland conditions are discussed in this course. Exercises are given in describing and identifying the leading commercial varieties of fruits. Students in this course are required to help set up the College fruit show each year.

Hort. 105. Advanced Practical Pomology. One credit hour. First term, senior year. Prerequisites, Hort. 102-103 and 104.

A trip occupying one week's time will be made through the principal fruit regions of Eastern West Virginia, Maryland and Pennsylvania. A visit to the fruit markets of several large cities will be made. The cost of this trip should not exceed thirty dollars to each student. Each student will be required to hand in a detailed report covering the trip. The time for taking this trip will be arranged yearly with each class.

Hort. 106. Small Fruit Culture. Three credit hours: two lectures and one laboratory period. Third term, junior year.

The care and management of small fruit plantations are discussed in this course. Varieties and their adaptation to Maryland soils and climate, packing, marketing, and a study of the experimental plots and varieties on the station grounds are made. The following fruits are discussed in the course: the grape, strawberry, blackberry, black cap raspberry, red raspberry, currant, gooseberry, dewberry and loganberry.

Hort. 107. Economic Fruits of the World. Three credit hours: three lectures. Second term, senior year. Prerequisites, Hort. 102-103 and 104.

A study is made of the botanical, ecological and physiological characteristics of all species of fruit-bearing plants of economic importance, such as the date, pineapple, fig, olive, banana, nut bearing trees, citrus fruits, newly introduced fruits and the like, with special reference to their cultural requirements in certain parts of the United States and the insular possessions. All fruits are discussed in this course which have not been discussed in a previous course.

Hort. 108. Fruit and Vegetable Judging. Two credit hours: two laboratory periods. First term, junior year. Prerequisites, Hort. 101, 104 and 111.

This is a course designed to train men for fruit judging teams and practical judging. Students are required to know at least one hundred varieties of fruit, and are given practice in judging single plates, largest and best collections, boxes, barrels and commercial exhibits of fruits and vegetables. Students in this course are required to help set up the College fruit show each year.

Hort. 109. Advanced Fruit Judging. One credit hour: one laboratory period. First term, senior year. Prerequisite, Hort. 108.

VEGETABLE GARDENING

Hort. 111. Elementary Vegetable Gardening. Four credit hours: three lectures and one laboratory period. Third term, freshman year.

This course includes a study of the different types of vegetable gardening, methods of propagation, construction and management of hotbeds and cold-frames. Growing early vegetable plants under glass and the planting, cultivating and harvesting under irrigation and in a large farmer's garden are discussed.

Hort. 112. Tuber, Root Crops and Vegetable Forcing. Three credit hours: two lectures and one laboratory period. First term, junior year. Prerequisite, Hort. 111.

In this course a study of white potatoes and sweet potatoes is made, which includes considerations of seed, varieties, propagation, soils, fertilizers, planting, cultivation, spraying, harvesting, storing and marketing. The principles and practices of forcing vegetables in greenhouses are also discussed. All the vegetables used for forcing are considered, including methods of starting the plants, systems of companion and succession crops and their grading, packing and marketing. Each student is allotted a definite area and is required to plant and manage it.

Hort. 113-115. Commercial Vegetable Gardening. Three credit hours each term. Junior year. Two lectures and one laboratory periods. Prerequisite, Hort. 111.

The methods employed by truckers and market gardeners in commercial production, equipment, use of hotbeds and cold-frames, field planting, rotation of crops and irrigation. Cultural directions for all vegetables are given, including their varieties, requirements, tillage, control of insects and diseases, grading, storing, packing and marketing. Each student plans and manages intensive cropping systems on small areas and under irrigation, and extensive planting on larger areas in a six-year rotation.

Hort. 116. Systematic Olericulture. Three credit hours: one lecture and two laboratory periods. First term, senior year. Prerequisites, Hort. 112 and 113-115.

This course includes a systematic and descriptive study of the leading varieties of the most important vegetables, their origin and botany, adaptation of the various varieties to the different cultural and market conditions, judging and exhibition work.

Hort. 117. Advanced Vegetable Gardening. One credit hour: Third term, senior year. Prerequisites, Hort. 112, 113-115 and 116.

A trip of one week is made to the commercial trucking sections of Maryland, Delaware, New Jersey and Pennsylvania. A study of the markets in several large cities is included in this trip. Students are required to hand in a detailed report of the trip. Such a trip should not exceed thirty dollars per student. The time will be arranged each year with each class.

Hort. 118. Frame Crops. Two credit hours: One lecture and one laboratory period. Third term, sophomore year. Prerequisite, Hort. 111.

The forcing of vegetables to maturity in hotbeds and cold-frames, soil management, composting and sterilizing, use of permanent frames heated with manure, hot water and steam, the use of temporary frames for earlier planting of vegetables that will be cultivated as field crops.

FLORICULTURE

Hort. 121. Elementary Floriculture. Three credit hours: two lectures and one laboratory period. Second term, sophomore year.

An elementary course in the cultivation of greenhouse and home plants, and of the common annuals and perennials used in outdoor work.

Hort. 122-123. Commercial Floriculture. Three credit hours; two lectures and one laboratory period. First term. Three credit hours: two lectures and one laboratory period. Second term. Junior year. Prerequisites, Hort. 121.

Greenhouse plants and flowers, their cultivation and methods of handling and marketing for wholesale and retail markets are discussed in this course. The growing of flowers under field conditions for purposes of seed production is also discussed. Trips to the leading growers in this section are taken.

Hort. 124. Greenhouse Management. Three credit hours; two lectures and one laboratory period. First term, junior year. Prerequisite, Hort. 121.

The preparation of soils, potting, watering, ventilating and fumigating as applied to greenhouse crops is considered in this course.

Hort. 125. Greenhouse Construction. Two credit hours: one lecture and one laboratory period. Second term, senior year. Prerequisite, Hort. 121.

A study of types of forcing structures, their location, arrangement and construction. Costs, methods of heating, and ventilation are discussed. The work includes drawing plans, specifications and practical working construction.

Hort. 126. Garden Flowers. Three credit hours: two lectures and one laboratory period. Third term, junior or senior year. Prerequisite, Hort. 121.

The growing of annuals, bulbous plants and herbaceous perennials for home gardens and for cut flowers and for ornamental plantings.

Hort. 127. Floral Decoration. One credit hour: one laboratory period. Second term, senior year. Prerequisite, Hort. 122-123.

A study of plants and cut flowers and their arrangement in baskets, designs, bouquets, table and house decoration. Also the arrangement of flowers and plants for all types of interior decoration.

Hort. 128. Amateur Floriculture. Three credit hours: two lectures and one laboratory period. Third term, junior year.

Plants and flowers for windows and home gardens. Soils, fertilizers, containers and potting and shifting of plants. The course should be of especial interest to students in Home Economics, but is open to anyone desiring information regarding simple methods of plant culture.

LANDSCAPE GARDENING

Hort. 131. Elementary Landscape Gardening. Three credit hours: two lectures and one laboratory period. Second term, sophomore year.

A study of types, methods and principles underlying landscape gardening. The work is given with special application to farmsteads, cottage grounds and small suburban properties. Students who desire an intelligent point of view in landscape work but who do not intend to take the more technical courses should take this course.

Hort. 132. Plant Materials. Three credit hours: two lectures and one laboratory period. Third term, junior year. Prerequisite, Bot. 103.

A study in laboratory and field, of trees, shrubs and herbaceous plants. Plants are studied in respect to their values, characters, habits, soil requirements and arrangement and planting design.

Hort. 133-134. Landscape Design. Three credit hours: two lectures and one laboratory period. First term. Three credit hours: two lectures and one laboratory period. Second term. Senior year. Prerequisites, Drawing and Surveying.

The composition of gardens, private estates and related problems. This study involves the topographical survey, drainage and grading plans.

Hort. 135. Landscape Practice. Three credit hours: one lecture and two laboratory periods. Third term, senior year. Prerequisite, Hort. 133-134.

Grading plans, construction, drawing, estimates, specifications and contracts.

Hort. 136. Civic Art. Two credit hours: one lecture and one laboratory period. First term, senior year.

A general study of the methods of city planning and their application to village and rural improvement.

Hort. 137. History of Landscape Gardening. One credit hour: one laboratory period. Second term, junior year. Prerequisite, Hort. 131.

A reference course dealing with the literature and different stages of the development of the art.

Hort. 138. Tree Repair and Surgery. Two credit hours: one lecture and one laboratory period. First term, senior year. Prerequisites, Zool. 113 and Plant Path. 101.

Methods of treating trees and shrubs to control attacks of insects and fungous enemies and the repair of injuries done by these enemies. Some attention is given to the technical details of pruning, placing, treatment of wounds and cavity filling.

GENERAL COURSES

Hort. 142. Horticultural Breeding Practice. One credit hour; one laboratory period. Third term, senior year. Prerequisite, Genetics, Plant Phys. 104.

Practice in plant breeding, including pollination, hybridization, selection, note taking, and the general application of the theories of heredity and selection to practice are taken up in this course.

Hort. 143-145. Horticultural Research and Thesis. Two, three or four credit hours each term. Hours to be arranged.

This course is required of seniors. Advanced students in any of the four divisions of horticulture may select some special problem for individual investigation. This may be either the summarizing of all the available knowledge on a particular problem or the investigation of some new problem. Where original investigation is carried on, students

should in most cases start the work during the junior year. The results of the research work are to be presented in the form of a thesis and filed in the horticultural library.

Hort. 146-148. Horticultural Seminar. One credit hour each term. Hours to be arranged.

This course is required of seniors; juniors are permitted to attend. In this course papers are read by members of the class upon subjects pertaining to their research or thesis work, or upon special problems assigned them. Discussions of special topics are given from time to time by members of the departmental staff.

COURSES INTENDED PRIMARILY FOR GRADUATES.

Hort. 201. Experimental Pomology. Three credit hours. Second term. Lectures, three hours.

A systematic study of the sources of knowledge and opinion as to practices in Pomology; methods and difficulties in experimental work in Pomology and results of experiments that have been or are being conducted in all experiment stations in this and other countries. A limited number of seniors will be allowed to take this course with the approval of the head of the department.

Hort. 202. Experimental Vegetable Gardening. Two credit hours. Lectures, two hours. Second term.

A systematic study of the sources of knowledge and opinion as to practices in Vegetable Gardening; methods and difficulties in experimental work in Vegetable Gardening and results of experiments that have been or are being conducted in all experiment stations in this and other countries. A limited number of seniors will be permitted to take this course with the approval of the head of the department.

Hort. 203. Experimental Floriculture. Two credit hours. Lectures, two hours. Second term.

A systematic study of the sources of knowledge and opinions as to practices in Floriculture are discussed in this course. The results of all experimental work in Floriculture which have been or are being conducted will be thoroughly discussed. A limited number of seniors will be permitted to take this course with the approval of the head of the department.

Hort. 204. Methods of Research. Two credit hours. Lecture, one hour, one laboratory period. Second term.

In this course special drill will be given in the making of briefs and outlines of research problems, in methods of procedure in conducting investigational work and in the preparation of bulletins and reports. A study of the origin, development and growth of horticultural research is taken up. A study of the research problems being conducted by the de-

partment of horticulture will be made, and students will be required to take notes on some of the experimental work in the field and become familiar with the manner of filing and cataloging all experimental work.

Hort. 205-207. Advanced Horticultural Research and Thesis. Two, three or four credit hours each term. Hours to be arranged. First, second and third terms.

Students will be required to select problems for original research in either Pomology, Vegetable Gardening, Floriculture or Landscape Gardening. This work is to continue throughout the full year, and final results will be published in the form of a thesis.

Hort. 208-219. Advanced Horticultural Seminar.

This course will be required of all graduate students. Students will be required to give reports either on special topics assigned them or on the progress of their own investigational work being done in course 205. Members of the departmental staff will report special research work from time to time.

REQUIREMENTS OF GRADUATE STUDENTS IN HORTICULTURE

Pomology—Graduate students specializing in Pomology who are planning to take an advanced degree will be required either to take or offer the equivalent of the following courses: Hort. 102-103, 104, 107, 201, 204, 205-207 and 208-210; Advanced Plant Physiology 103-5; and Organic Chemistry.

Vegetable Gardening—Graduate students specializing in Vegetable Gardening who are planning to take an advanced degree will be required either to take or offer the equivalent of the following courses: Hort. 113-115, 116, 202, 204, 205-207, 208-210; Advanced Plant Physiology 103-5; Organic Chemistry.

Floriculture—Graduate students specializing in Floriculture who are planning to take an advanced degree will be required either to take or offer the equivalent of the following courses: Hort. 122-123, 127, 132, 203, 204, 205-207, 208-210; Advanced Plant Physiology 103-5; Organic Chemistry.

Landscape Gardening—Graduate students specializing in Landscape Gardening, who are planning to take an advanced degree, will be required either to take or offer the equivalent of the following courses: Hort. 132, 133, 134, 135, 137, 204, 205-207, 208-210; Advanced Plant Physiology 103-5.

In addition to the above required courses, all graduate students in Horticulture are advised to take Physical Chemistry.

Unless graduate students in Horticulture have had some course work in Entomology, Plant Pathology and Genetics, certain of these courses will be required.

For Short-Course Students

Hort. 1. Practical Pomology. Three lectures and one laboratory period. First term, first year.

This is a general course covering the propagation of our common fruits. Such subjects as orchard site, location, varieties, planting plans, cultural methods, fertilizer requirements, and picking, packing and marketing are discussed. All of the tree fruits are taken up in this course.

Hort. 2-3. Commercial Fruit Growing. Three lectures and one laboratory period. First term. Three lectures and one laboratory period, second term. Second year. Prerequisite, Hort. 1.

This is an advanced course dealing with the proper management of commercial orchards in Maryland. Special attention is given to the subjects of pruning, picking, packing, marketing and storing of the various fruits. Market problems, transportation and shipping associations receive special attention. Students are required to become familiar with all of the leading commercial varieties of all fruits grown in Maryland. Practice is given in fruit judging and the arrangement of fruits for exhibition purposes. Horticultural by-products are given attention in this course.

Hort. 4. Small Fruits. Two lectures and one laboratory period. Third term, second year.

In this course the production of strawberries, bush fruits and grapes is considered. Methods of propagation, selection of sites, soils, pruning, cultivation, picking, packing and marketing are discussed.

Hort. 5. Home Vegetable Gardening. Three lectures and one laboratory period. Third term, first year.

The general principles of vegetable gardening as applied to the growing of vegetables for home use. The laboratory work includes a study of vegetable seeds, seed testing, seed sowing, transplanting and the care of plants in the greenhouses and cold-frames. The students are required to plan, plant and manage a large home garden until the end of the term.

Hort. 6-8. Commercial Vegetable Gardening. Two lectures and one laboratory period. First, second and third terms, second year. Prerequisite, Hort. 5.

This course is planned to run the entire school year. A study of the principles of vegetable gardening, as applied to the growing of vegetables for market and for canning. The course includes the construction and management of hotbeds and cold-frames, sowing and planting, cultivation, growing early vegetable plants, soil preparation, harvesting, grading, packing, marketing, canning and storage. Each student is allotted a definite area and is required to plan, plant and manage it.

Hort. 9. Amateur Floriculture. Two lectures and one laboratory period. Second term, first year.

The propagation and culture in the home of potted plants suitable for window gardening and for outdoor home gardening. The course includes a study of containers, soils, fertilizers and insecticides. The growing of flowers under glass is considered, also the preparation and planting of flower beds.

Hort. 10-12. Commercial Floriculture. Two lectures and one laboratory period. First, second and third terms. Second year. Prerequisite, Hort. 9.

This course is planned to run the full school year. Studies in the propagation and culture of commercial florist crops are taken up in this course. Methods of packing, shipping and marketing will be considered. The course is so organized as to fit students for commercial work.

Hort. 13. Principles of Landscape Gardening. Two lectures and one laboratory period. First term, first year.

A study of the various styles of landscape gardening and the principles which underlie them. Special application is made to the ornamentation of the home grounds.

Hort. 14-15. Landscape Design and Practice. Two lectures and three laboratory periods. First and second terms, second year. Prerequisite, Hort. 13.

The composition of gardens, private estates and related problems. Grading plans, construction, drawing, estimates and laying out of grounds are considered. Plant materials are thoroughly studied in this course also.

AGRONOMY

The course in agronomy aims to give the student the fundamental principles of crop production. Special attempt is made to adapt the course to the young man who wishes to apply scientific principles of field crop culture and improvement on the farm. At the same time enough freedom is given the student in the way of electives so that he can register for subjects which might go along with the growing of crops on his particular farm. A student graduating from the course in agronomy should be well fitted for general farming, investigational work in the State or Federal Experiment Stations, or for county agent work.

The Agronomy Department has a large, well equipped laboratory in the new agricultural building and a greenhouse for student use, besides free access to the experiment station fields and equipment.

AGRONOMY.

SOPHOMORE YEAR. Term:	I	II	III
Forage Crops (Agron. 103)	.....	.....	4
Grain Judging (Agron. 102)	.....	1	.....
Introductory Study of Soils (Soils 101-102)	.....	3	3
General Geology (Geol. 101)	3	.....	.....
Plant Anatomy (Morph. and Myc. 101)	3	.....	.....
Plant Physiology (Plt. Phys. 101-102)	.....	4	3
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Entomology (Zoo. 103)	.....	.....	3
Organic Chemistry (Chem. 123-124)	4	4	.....
Tuber and Root Crops (Hort. 112)	3	.....	.....
Electives	1	5	4

JUNIOR YEAR.

Grading Farm Crops (Agron. 107)	.....	3	.....
Fertilizers (Soils 104)	.....	.....	4
General Bacteriology (Bact. 101-102)	3	3	.....
Soil Bacteriology (Soils 107)	.....	.....	3
Genetics (Plt. Phys. 104)	4	.....	.....
Technical Composition (Eng. 104-106)	2	2	2
Principles of Economics (Rural Econ. 101)	3	3	.....
Agricultural Chemistry (Chem. 116)	.....	.....	4
Electives	5	6	4

SENIOR YEAR.

Crop Breeding (Agron. 104-105)	.....	3	1
Methods of Investigation (Agron. 106)	3	.....	.....
Crop Rotation (Agron. 109)	.....	2	.....
Agronomy Seminar (Agron. 110)	.....	1	.....
Advanced Soils (Soils 105)	3	.....	.....
Farm Management (F. M. 101-102)	3	3	.....
Farm Machinery (Farm Equipment 101)	3	.....	.....
Tractors (Farm Equipment 103)	.....	.....	3
Electives	5	8	13

Description of Courses

Agron. 101. Cereal Crops. Four credit hours: three lectures and one laboratory period. First term. Freshman year.

A study of the history, distribution, culture, and improvement of the cereal crops.

Agron. 102. Grain Judging. One credit hour: one laboratory period. Second term. Sophomore year. Prerequisite, Agron. 101.

Practice in judging the cereal crops for milling, seeding, and feeding purposes.

Agron. 103. Forage Crops. Four credit hours: three lectures and one laboratory period. Third term. Sophomore year.

A study of the history, distribution, adaptation, culture, and uses of forage, pasture, cover, and green manure crops. The laboratory per-

iods are largely devoted to the identification and classification of forage plants and seeds, and purity and viability tests of the seeds.

Agron. 104-105. Crop Breeding. Three credit hours: two lectures and one laboratory period. Second term. One credit hour: one laboratory period. Third term. Senior year. Prerequisites, Agron. 101 and 103, Bot. 101 and Plt. Phy. 104.

In this course the principles of breeding are applied to field crops and detailed studies made of methods used in crop improvement work.

Agron 106. Methods in Crop Investigations. Three credit hours; two lectures and one laboratory period. First term. Senior year. Prerequisites, Agron. 101-103.

This course deals with methods used by experiment stations in crop investigational work. The work of different stations on certain problems is classified with the view of the standardization of methods. Students are required to make reports on and criticise methods used by the different stations in attacking the problems studied.

Agron. 107. Grading Farm Crops. Three credit hours: two lectures and one laboratory period. Second term. Junior year. Prerequisites, Agron. 101, 102, 103.

A study of market classifications and grades as recommended by the United States Bureau of Markets and practice in determining the grades.

Agron. 108. Classification of Farm Crops. One credit hour: one laboratory period. Third term. Senior year. Prerequisites, Agron. 101-103, and Morph. and Myc. 104.

Botanical classification of crops. The course is for students who expect to take up investigational or teaching work in Agronomy.

Agron. 109. Crop Rotation. Two credit hours: two lectures. Second term. Senior year. Prerequisites, Agron. 101-103.

This course is designed to give the student a thorough knowledge of the principles and practice of crop rotation. Rotations used in this and other states and the scientific principles involved are studied.

Agron. 110. Seminar. One credit hour: one lecture. Second term. Senior year.

The seminar is devoted largely to reports by the students on current bulletins and scientific papers dealing with problems in agronomy.

Agron. 111. Research and Thesis. Six credit hours. To be arranged. Senior year.

Here the students are given a chance to do some investigational work either in the way of collecting information on some phase of agronomic work or working some problem in the laboratory, field, or greenhouse.

For Graduate Students

Agron. 201. Biometry. Two credit hours: one lecture and one laboratory period. First term.

A study of statistical methods as applied to problems in Genetics and Plant Breeding. The methods used in the study of variations and correlations are discussed and the biometrical constants worked out by the class for certain assigned or selected data.

Agron. 202. Crop Breeding. Four credit hours: three lectures and one laboratory period. Second term.

The content of this course is similar to the undergraduate course in Crop Breeding, but will be adapted more to graduate students and more of a range will be allowed in choice of material to suit special cases.

Agron. 203. Research. Nine credit hours: to be arranged.

With the approval of the head of the department the student will be allowed to work on any problem in agronomy or he will be given a list of suggested problems from which he may make a selection.

For Short-Course Students

Agron. 1. Cereal Crops. Three credit hours: two lectures and one laboratory period. First term. First year.

A study of the history, distribution, adaptations, uses, and culture of cereal crops, a larger part of the term being spent on corn and wheat.

Agron. 2. Forage Crops. Three credit hours: two lectures and one laboratory period. Third term. First year.

A study of the history, distribution, adaptations, uses, and culture of forage and cover crops adapted to Maryland conditions.

Agron. 3. Grain Judging.—One credit hours: one laboratory period. Second term. Second year.

A laboratory course in judging grains from the standpoint of the grower, the feeder and the miller.

Agron. 4. Advanced Agronomy. Three credit hours: two lectures and one laboratory period each term. Second year.

Students specializing in agronomy are given special work in judging and grading grains, crop improvement and various other phases of crop production. Students are allowed to elect subjects in other departments for part of the time.

BOTANICAL GROUP

The purpose of the group is to supply students in Agriculture and General Science with such information as is thought fundamental to their special work and to train specialists in the different phases of the subject. This training includes such knowledge of plants as would fit one for various positions, such as teachers in high schools, normal

schools, colleges, and investigators in experiment stations and government service.

BOTANY.

SUBJECT. Term:	I	II	III
SOPHOMORE YEAR.			
Plant Anatomy (Morph. and Myc. 101)	3	.....	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
Quantitative Chemistry (Chem. 106-107)	3	3	.....
Organic Chemistry (Chem. 123-125)	4	4	4
Geology (Geol. 101)	3	.....	.....
Introductory Soils (Soils 101-102)	.....	3	3
Systematic Botany (Morph. and Myc. 102)	.....	.....	3
Elective	4	3	4
JUNIOR YEAR.			
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Genetics (Plt. Phy. 108)	3	.....	.....
Methods in Plant Histology (Morph. and Myc. 107)	.....	3	.....
Plant Ecology (Plt. Phy. 106)	.....	.....	3
Mycology (Morph. and Myc. 106)	.....	.....	3
Bacteriology (Bact. 101-103)	3	3	3
Geenral Physics (Phys. 104)	3	3	3
Technical Composition (Eng. 104-106)	2	2	2
Elective	3	6	3
SENIOR YEAR.			
Students specializing in Morphology and Mycology will take Group A; those in Physiology, Group B; and those in Plant Pathology, Group C.			
Group A:			
Plant Morphology (Morph. and Myc. 103-105)	4	4	4
Advanced Taxonomy (Morph. and Myc. 109)	3	.....	.....
Cytology (Morph. and Myc. 108)	.....	3	.....
Elective	10	10	13
Group B:			
Plant Physiology (Plt. Phy. 103-105)	4	4	4
Plant Micro-Chemistry (Plt. Phy. 108)	.....	3	.....
Physiological Chemistry (Chem. 132-133)	.....	4	.....
Elective	13	6	9
Group C:			
Advanced Plant Pathology (Plt. Path. 104-106)	4	4	4
Methods in Pathology (Plt. Path. 102)	.....	3	.....
Seminar in Pathology (Plt. Path. 107)	.....	1	.....
Elective	13	9	13

Description of Courses

Bot. 101. General Botany. Four credit hours: two lectures and two laboratory periods. Third term. Freshman year.

A general introduction to botany touching briefly on all phases of the subjects and planned to give the fundamental prerequisites for study in the special departments.

MORPHOLOGY AND MYCOLOGY

Morp. & Myc. 101. Plant Anatomy. Three credit hours: two lectures and one laboratory period. First term. Sophomore year. Prerequisite, Bot. 101.

An anatomical study of leaves, stems, roots, flowers, and fruits. Where possible plants of economic value are used as type specimens.

Morph. & Myc. 102. Systematic Botany. Three credit hours: one lecture and two laboratory periods. Third term. Prerequisite, Bot. 101.

A study of the local flora. A study is made of floral parts and the essential relations between the groups of flowering plants. Students become familiar with the systematic key used to identify plants.

Morph. & Myc. 103-105. Plant Morphology. Four credit hours each term. Junior year. Prerequisite, Bot. 101.

A course designed to give the student a comprehensive view of the plant kingdom. It treats of the general morphological evolutionary development and relationships of the various groups of plants, based upon the examinations of selected types from each group.

Morph. & Myc. 106. Mycology. Three credit hours: two lectures and one laboratory period. Third term. Junior year.

Introductory comparative study of the morphology, life history, and classification of economic fungi.

Morph. & Myc. 107. Methods in Plant Histology. Three credit hours: one lecture and two laboratory periods. Second term. Prerequisites, Morph. and Myc. 101.

Primarily a study in technique. It includes methods of killing, fixing, imbedding, sectioning, staining, and mounting on slides of plant materials.

Morph. & Myc. 108. Cytology. Three credit hours: one lecture and two laboratory periods. Second term. Prerequisite, Morph. and Myc. 107.

The structure and life history of the plant cell.

Morph. & Myc. 109. Advanced Taxonomy. Three credit hours: one lecture and two laboratory periods. First term.

This course is offered for students who want more proficiency in systematic botany than the elementary course affords. A student who completes the course should be able to classify the grasses and other common plants of the state.

PLANT PHYSIOLOGY

Plt. Phy. 101-102. Plant Physiology. Four credit hours: two lectures and two laboratory periods. Second term. Three credit hours:

two lectures and one laboratory period. Third term. Sophomore year. Prerequisite, Bot. 101.

A summary view of the phenomena occurring in plants; complex life of processes are interpreted in terms of simpler ones and reduced finally to the principles of physics and chemistry. The first term is devoted to a study of the constituents of plants, the synthesis of carbohydrates, fats, proteins, respiration, fermentation, and digestion. The second term deals with water requirements, elements essential to plant growth, transpiration, growth and movement.

Plt. Phy. 103-105: Advanced Plant Physiology. Four credit hours each term: two lectures and two laboratory periods. Prerequisite, Plt. Phy. 101.

A detailed study of all life processes of plants. The laboratory work generally consists of special work on one or more problems that may continue through the year. Students who write theses for their undergraduate degrees, get the data from special problems assigned for the laboratory work.

Plt. Phy. 106. Plant Ecology. Three credit hours: one lecture and two laboratory periods. Third term. Prerequisite, Bot. 101.

A study of plants in relation to their environments. Plant formations and successions in various parts of the country are briefly treated. Much of the work, especially the practical, must be carried on in the field, and for this purpose type regions adjacent to the College are selected. It is generally necessary to take three or four trips at some distance from the College, in which case Saturdays are used for that purpose.

Plt. Phy. 107. Plant Micro-Chemistry. Three credit hours: one lecture and two laboratory periods. Second term. Prerequisite, Plt. Phy. 101, 102.

Micro-technical methods applied to the identification of organic and inorganic substances found in the plant tissues. These methods are of especial value in the localization of plant substances and in the study of metabolism of plants.

Plt. Phy. 108. Genetics. Four credit hours: three lectures and one laboratory period. First term. Junior year. Prerequisite, Morph. and Myc. 101.

A study of heredity. A review is given of the phenomena of evolution and a study made of variation, hybridisation and experimental data. This subject of genetics is fundamental to any advanced study of breeding.

For Graduate Students

Plt. Phy. 201-3. Plant Physiology. Four credit hours each term.

Special problems in physiology and a summary of the most important literature on the subject up to date.

Plt. Phy. 204. Research in Physiology. Credit hours according to work done.

The course requires special training in physiology and the fundamentals of physics and chemistry.

PLANT PATHOLOGY

Plt. Path. 101. General Plant Pathology. Three credit hours: two lectures and onelaboratory period. First term. Junior year.

An introductory study of the disease of plants. Especial attention is given symptoms, control measures, and microscopic study of the parasites causing diseases. As far as possible choice of material includes representatives of the principal orders of parasitic fungi.

Plt. Path. 102. Methods In Pathology. Three credit hours: one lecture and two laboratory periods. Second term. Junior year. Prerequisites, Plt. Path. 101.

A study of methods of sterilization, preparation of culture media, and cultural methods as applied to different groups of parasitic organisms. Some work is done in killing and fixing material, staining, mounting, inoculation, and determination of species.

Plt. Path. 103-105. Advanced Plant Pathology. Four credit hours each term: two lectures and two laboratory periods. Senior year.

A detailed study of diseases of economic plants. Much of the laboratory work is of experimental nature and students who take pathology as a major can easily find a special problem for thesis material.

Plt. Path. 106. Seminar in Pathology. One credit hour Second term.

Conferences and reports on plant pathological research, special problems and literature.

For Graduate Students

Plt. Path. 201. Special Problems In Pathology. Four credit hours each term.

An advanced study of causal agents, symptoms, diagnosis, and treatment of diseases. Offered for students who have had a thorough training in undergraduate pathology and physiology.

Plt. Path. 202. Research In Plant Pathology. Credit arranged according to work done.

Original investigation of special problems.

For Short-Course Students

Bot. 1. General Botany. Three credit hours: two lectures and one laboratory period. First term. First year.

A survey of the field of botany. Effort is made to give the student an understanding of how plants take up water and nutrients from the soil,

how they manufacture foods, and the structures necessary to carry on these processes.

Plt. Path. 1. Plant Diseases. Three credit hours: two lectures and one laboratory period. First term. Second year.

A practical study of diseases of plants to enable the student to recognize them in the field. A course in sprays and spraying is given in cooperation with Zoology Department in which the student is taught methods of disease control.

DIVISION OF ANIMAL INDUSTRY

The work of this division consists in giving instruction along the lines of general animal husbandry, dairy husbandry and animal pathology; also of the live stock disease control of the State and the general betterment of live stock conditions in Maryland. The curriculum offered in this division is prepared with the idea of giving the student an opportunity to specialize along animal industry lines and at the same time give him the broad foundations in general agriculture. He is given such instruction as should enable him (1) to conduct his own farming operations successfully; (2) to secure positions in the various lines of work which demand men trained along animal industry lines.

Equipment and Facilities for Instruction

The facilities offered by the new building are now being made use of and, as rapidly as machinery and apparatus can be provided and installed, the laboratory instruction in market milk and dairy manufacturing will be emphasized in proportion to the demand for this kind of work.

Herds of cattle and swine are maintained at the College and are available for instructional purposes. In addition to these animals, because of the location of the College, it is possible to make use of the excellent herds maintained by Maryland breeders and by the Federal Bureau of Animal Industry, thus giving the student a wide range of material for study. The students are urged, so far as possible, to take advantage of every opportunity to apply in a practical way the instruction given in the classroom. Advanced students are sent throughout the State to supervise advanced registry tests as well as to study general conditions as they exist on some of the leading stock farms of Maryland. These trips give the students an opportunity of observing the most up-to-date farms and farm practices and at the same time bring them into actual contact with the live stock breeders and feeders who are accomplishing the results in this State. Each year a judging team participates in the students' contest in judging dairy cattle at the National Dairy Show. Students in any of the agricultural courses are eligible to compete for a place on this team.

SOPHOMORE YEAR. Term:	I	II	III
Introductory Study of Soils (Soils 101)	.....	4	.....
General Geology (Geol. 102)	4	.....	.....
Principles of Dairying (D. H. 101)	3	.....	.....
Principles of Breeding (A. H. 104)	.....	4	.....
Feeds and Feeding (A. H. 102)	4	.....	.....
Herd Management (A. H. 103)	.....	.....	4
History and Development of Dairy Cattle (D. H. 102)	.....	.....	4
Organic Chemistry (Chem. 123-124)	4	4	.....
Agricultural Chemistry (Chem. 116)	.....	.....	4
Electives	5	5	5

JUNIOR YEAR.

Principles of Economics (R. E. 101)	3	3	.....
Forage Crops (Agron. 103)	.....	.....	4
Technical Composition Eng. 103)	2	2	2
Anatomy and Physiology (V. M. 101)	3	.....	.....
General Bacteriology (Bact. 101-103)	3	3	3
Farm Dairying (D. H. 103)	.....	4	.....
Swine Production (A. H. 106)	3	.....	.....
Farm Poultry (A. H. 105)	.....	.....	4
Elective	3	5	4

SENIOR YEAR.

Farm Management (R. E. 109)	3	3	.....
Animal Diseases (V. M. 102)	.....	4	.....
Research and Thesis	2	2	2
Elective	12	8	15

DESCRIPTION OF COURSES

A. H. 101. Animal Husbandry. Four credit hours: three lectures and one laboratory period. Second term. Freshman year.

Live stock in relation to successful farm practices; types and breeds of farm animals; principles underlying successful live stock husbandry.

A. H. 102. Feeds and Feeding. Four credit hours: three lectures and one laboratory period. First term. Sophomore year.

A study of the composition and digestibility of foodstuffs, the source, characteristics and adaptability of the various food stuffs, feeding standards and the calculation of rations.

A. H. 103. Herd Management. Four credit hours: three lectures and one laboratory period. Third term. Sophomore year.

Breeds of dairy cattle; the care, feeding, breeding and management of dairy cattle. Keeping of herd records and feeding for advanced registry; judging dairy cattle and barn practice from the standpoint of general herd management..

A. H. 104. Principles of Breeding. Four credit hours: three lectures and one laboratory period. Second term. Sophomore year.

This course will cover the practical aspects of animal breeding, including heredity, variation, selection, systems of breeding and pedigree study.

A. H. 105. Farm Poultry. Four credit hours: three lectures and one laboratory period. Third term. Junior year.

Care of poultry on the general farm; breeds of poultry; breeding, feeding, and selection of stock; incubation, brooding, fattening, killing, marketing and construction.

A. H. 106. Swine Production. Three credit hours: two lectures and one laboratory period. First term. Junior year.

Types and breeds of swine. Care, feeding, breeding, management, economics of swine husbandry and judging.

A. H. 107. Meat and Meat Products. Three credit hours: two lectures and one laboratory period. Second term. Junior year.

The slaughtering of farm live stock, curing and care of meats. Classes, grades and cuts of wholesale and retail markets.

A. H. 108. Beef Production. Three credit hours; two lectures and one laboratory period. Second term. Junior and senior years.

Beef and dual purpose breeds. The care, feeding, breeding and management of the beef herds; fattening, fitting for show and economics of the beef industry.

A. H. 109. Sheep Production. Four credit hours: three lectures and one laboratory period. Third term. Junior and senior years.

Breeds of sheep, their history and adaptability. Care, feeding, breeding an management. Grades of wool. Judging and scoring.

A. H. 110. Horse and Mule Production. Three credit hours: two lectures and one laboratory period. First term. Junior and senior years.

Breeds, their history, characteristics and adaptability. Care, feeding, breeding, breaking and training, judging and fitting for show.

A. H. 111-112. Advanced Judging. Two credit hours each term: one lecture and one laboratory period. Second and third terms. Junior or senior years. Prerequisite, A. H. 101 and A. H. 103.

Competitive judging of beef cattle, dairy cattle, sheep and swine. During the course various trips to stock farms throughout the State will be made. Such teams as may be chosen to represent the College will be selected from among those taking this course.

A. H. 113. Advanced Breed Study. Four credit hours: three lectures and one laboratory period. Third term. Senior year. Prerequisite, A. H. 103, 106, 108, 110.

Special consideration of the history, development, and distribution of the more important breeds of live stock; important families and individuals, assigned reading and pedigree work.

A. H. 114. Animal Genetics and Statistical Methods. Four credit hours: three lectures and one laboratory period. First term. Senior year. Prerequisite, A. H. 104.

A study of theories regarding the heredity and transmission of characters, pure lines, Mendelism, etc. Correlation and methods of studying hereditary problems.

A. H. 115. Markets and Marketing. Three credit hours: two lectures and one laboratory period. Second term. Senior year. Prerequisites, A. H. 106, 108, 109.

History, development, organization and status of the meat, wool, and horse industries. The packing industry and its by-products. Market classes and grades of live stock, markets and study of market reports.

A. H. 116. Nutrition. Two credit hours: two lectures. Third term. Seniors or graduates. Prerequisite, A. H. 102.

Composition of the animal body, digestion, assimilation, metabolism, protein and energy requirements. Methods of investigation and studies in the utilization of food nutrients.

For Short-Course Students

A. H. 1. Breeds and Judging. Three credit hours: two lectures and one laboratory period. First term.

The student begins with the breeds of live stock, making a thorough study of their development and characteristics and also of the pedigrees and performances of superior individuals among horses, cattle, sheep and swine. The practical part of the course is devoted to the judging of horses, dairy cattle, beef cattle, sheep and swine.

A. H. 2. Feeds and Feeding. Four credit hours: three lectures and one laboratory period. Third term.

This course embraces the principles and practice of animal feeding. After covering the principles of feeding it takes up the composition of feeding stuffs, their combinations into properly balanced rations and the relation between the sustenance of animals and their products. Problems relating to balanced rations are solved.

A. H. 3. Breeding of Animals. Four credit hours: three lectures and one laboratory period. Second term.

The main object of this course is to direct attention and to stimulate interest in the more tangible, physical basis of heredity. A scientific study of the physical aspects of heredity leads to conclusions which fully accord with the teachings of the work of our master breeders. It is the aim to limit discussion to points upon which scientific opinion is quite well agreed.

A. H. 4-6. Animal Industry. Three credit hours each term: two lectures and one laboratory period. The year.

A study of the successful methods of operating farms devoted chiefly to live stock production and of the systems to be applied to Maryland conditions. The student may arrange with the head of the department to utilize one-half of scheduled time in other departments.

A. H. 7. Herd Management—Breeds of Dairy Cattle. Four credit hours: three lectures and one laboratory period. Third term.

The care, feeding, breeding and management of dairy cattle. The keeping of herd records, advanced registry requirements and judging of dairy cattle.

A. H. 8. Farm Poultry. Three credit hours: two lectures and one laboratory period. Third term. Second year.

A general course dealing with the care of poultry on the farm; feeding and selection of stock; poultry house construction; fattening, killing, marketing, incubation and breeding.

DAIRY HUSBANDRY

D. H. 101. Principles of Dairying. Three credit hours: two lectures and one laboratory period. First term. Sophomore year.

The relationship of dairying to general agriculture; the extent of the dairy business and value of dairy products; milk, its secretion, character and composition, methods of testing for butterfat and for total solids.

D. H. 102. History and Development of Dairy Cattle. Four credit hours: three lectures and one laboratory period. Third term. Sophomore year.

A study of the origin, history, development and characteristics of the dairy breeds; requirements for advanced registry; the value of official records; bull associations, cow testing associations.

D. H. 103. Farm Dairying. Four credit hours: three lectures and one laboratory period. Second term. Junior year.

Composition of milk, butter and cheese; equipping the stable and milk house; how bacteria and dirt get into milk; how they may be kept out; surface coolers and precooling; milk cooling tanks; washing and sterilization of utensils.

D. H. 104. Barn Practice or Dairy Production. Four credit hours: two lectures and two laboratory periods. Third term. Junior or senior year.

Feeding and handling cows for maximum and economic production; the keeping of feed records and production records; cost of milk production; the work of the herdsman from the standpoint of production;

standard rations for dairy cows from the standpoint of feeding practice; barn practices which influence quality and quantity in milk; economic arrangement of dairy plant and construction of the different dairy farm buildings.

D. H. 105. Market Milk. Five credit hours: three lectures and two laboratory periods. First term. Senior year.

A study of market milk conditions; city milk and cream regulations; requirements of city milk trade; improvement of milk supplies from the community standpoint; the production of milk for special trade, as baby's milk, pasteurized, inspected and certified milk; milk and its relation to the public health; the food value of milk; methods of handling market milk and market cream for direct consumption; the transportation of milk; Babcock testing of milk and milk products; testing for acidity, preservatives and adulterations. In this course visits will be made to dairies and to milk plants.

D. H. 106. Advanced Course in Milk Testing. Four credit hours: two lectures and two laboratory periods. Second term. Senior year.

This course includes the determination of moisture and dry matter in milk and dairy products; various tests for fat and casein; testing of butter and oleomargarine; adulterations and preservatives; the scoring of milk and cream.

D. H. 107. Commercial Dairying. Four credit hours: one lecture and three laboratory periods. Second term. Junior or senior year. Given in 1919-1920 if equipment has arrived.

Power separators; pasteurizers; churns and butter workers; the ripening of cream; churning, washing, salting, working, packing, scoring and selling butter.

D. H. 108. Judging Dairy Products. Two credit hours: one lecture and one laboratory period. Third term. Junior year. Prerequisite, D. H. 104, 105.

Competitive judging of milk, butter and cheese. Various outside lecturers on these subjects will address the class and trips will be taken to butter, cheese and milk markets for the purpose of familiarizing the students with the commercial quality of milk, butter and cheese. Such teams as may be chosen to represent the College will be selected from those electing this course.

FOR SHORT-COURSE STUDENTS

D. H. 1. Principles of Dairying. Four credit hours: three lectures and one laboratory period. First term. First year.

Relationship of dairying to general agriculture; the extent of the dairy business and value of dairy products; milk, its secretion; character and composition; methods of testing for butterfat and for total solids.

D. H. 2. Farm Dairying. Four credit hours: two lectures and two laboratory periods. First term. Second year.

Care and handling of milk and cream on the farm; centrifugal separation; practice in farm butter making.

D. H. 3. Barn Practice or Dairy Production. Four credit hours: two lectures and two laboratory periods. Second term. Second year.

Feeding and handling cows for maximum and economic production; the keeping of feed and production records; advanced registry testing; cow testing associations; bull associations; the cost of milk production; the work of the herdsman; barn practices which influence quality and quantity of milk; economic arrangement of dairy plant and construction of the different dairy farm buildings.

Seminar. A forum for the discussion of subjects relating to animal industry. Open to juniors, seniors and graduate students only.

BACTERIOLOGY

Bact. 101-103. General Bacteriology. Three credit hours each term: one lecture and two laboratory periods. Junior year.

This subject includes the following topics: A brief history of bacteriology; microscopy; bacteria and their relation to nature; morphology, classification, identification of species and the different methods of sterilization and disinfection; preparation of culture media, isolation and cultivation of aerobes and anaerobes; examination of cultures; microscopic examination of bacteria; stains with their composition, classification and use; vital activities of bacteria; their relation to disease; use of experimental animals; bacteria in water, milk and soil; cultural characters of representative organisms from the following genera: micrococcus, streptococcus, bacterium, bacillus, pseudomnas and streptothrix, protozoa, filterable viruses and immunity.

Bact. 104-106. Dairy Bacteriology. Three credit hours each term: one lecture and two laboratory periods. Senior year. Prerequisites, Bact. 101-103.

This course deals with the following topics: historical sketch; relation of bacteria to dairy products; prepartion of media; plating by the dilution method; sources of contamination, including stable atmosphere, udder, exterior of cows and attendants; kinds of utensils and their sterilization; kinds of bacteria in milk and their development; direct microscopic examination, sedimentation test and centrifugalization; fresh and old milk, market milk, graded milk; baby and special milks; certified milk, sour milk, whey, cream, butter, cheese, condensed milk, powdered milk and milk starters; pasteurization by flash and slow method; changes in milk due to bacteria and milk as a carrier of disease.

Bact. 107-109. Advanced Bacteriology. Two to three credit hours each term: two to three laboratory periods. Senior year. Prequisite, Bact. 101-103.

This course is intended primarily to give the student a chance to develop his own initiative. He will be allowed to decide upon his project and work it out as much as possible in his own way under proper supervision. In this manner he will be able to apply his knowledge of bacteriology to a given problem. He will also get to know something of the methods of research and will receive a valuable training in obtaining careful and accurate data.

For Short-Course Students

Bact. 1. Agricultural Bacteriology. Two credit hours: two lectures. Second term. Second year.

An elementary course touching upon the following topics: The general characters of micro-organisms; fermentation; putrefaction and decay; nature's food supply; the carbon cycle; decomposition of nitrogenous compounds; nitrification and denitrification; the manure heap and sewage; reclamation of lost nitrogen; bacteria and soil minerals; bacteria in water and milk; control of milk supply; bacteria in butter and cheese making; alcohol, vinegar, sour kraut, tobacco, silage and flax; preservation of food products; resistance against parasitic bacteria; tuberculosis and other germ diseases and parasitic diseases of plants.

VETERINARY MEDICINE

V. M. 101. Anatomy and Physiology. Three credit hours: three lectures. First term. Junior year.

A brief study of the structure of the animal body with a view to recognizing the abnormal as contrasted with the normal and to the gaining of a knowledge of the inter-relationships between the various organs and parts, both as to structure and function.

V. M. 102. Animal Diseases. Four credit hours: three lectures and one laboratory period. Second term. Senior year.

A brief study of diseases of domestic animals, both infectious and non-infectious. Early recognition of disease; hygiene, sanitation, and prevention; first aid.

For Short-Course Students

V. M. 1. Animal Diseases. Three credit hours: two lectures and one laboratory period. Second term. Second year.

Briefer course on the diseases of domestic animals; methods of recognizing disease in its early stages; relation of care and sanitation to disease.

GENERAL ANIMAL INDUSTRY COURSES

Seminar. A forum for the discussion of subjects relating to animal industry. Open to juniors, seniors and graduate students only.

Research and Thesis. The work will be arranged with each student individually. He may select some topic or problem in which he is especially interested and which will require independent investigation.

FARM EQUIPMENT

The Department of Farm Equipment was organized this year from an outgrowth of the increased demands for farm machinery and other farm equipment as labor-saving devices.

The department will have charge of farm machinery, farm automobiles, trucks and tractors, farm motors and gas engines, farm mechanics, farm buildings, conveniences of the home, and other courses as the needs demand.

FARM MANAGEMENT

In this department are grouped courses in farm management, agricultural economics, and markets, together with the kindred subject of rural organization.

Farm management has been defined as the business of the individual farmer to so organize his business as to produce the greatest continuous profit. This can be done, however, only when the organization is in accordance with the broader principles of agricultural economics. It requires not only knowledge of the many factors involved in the production of crops and animals, but also administrative ability to properly coordinate them into the most efficient farm organization.

The aim of the farm management course is to assist the student to perceive the just relationship of the several factors of production and disposition as applicable to local conditions and to develop in him executive and administrative capacity. Students well trained in farm management are in demand for county agent work, experiment station or United States Government investigation, and college or secondary school teaching.

Agricultural economics considers the fundamental principles underlying production, distribution, and consumption, more especially as they bear upon agricultural conditions. Labor, land and capital are considered in their relationship to agriculture. The need for more exact business records on the farm is forcing itself imperatively on the minds of all students of agricultural economics. To meet this demand a course is offered in farm accounting. This course is not elaborate but is designed to meet the demand for a simple yet accurate system of farm business records.

The comparative isolation of country life tends naturally to individual rather than cooperative effort. The course in rural organization aims to show the student the advantages of combined effort in country communities, to sketch the history of rural organization with a discussion of its failures and successes, and to point out practical methods of organizing rural communities for mutual and individual benefit.

FARM MANAGEMENT.

SOPHOMORE YEAR. Term:	I	II	III
Introductory Study of Soils (Soils 101-102)	.....	3	3
General Geology (Geol. 101)	3	.....	.....
Principles of Breeding (A. H. 104)	.....	4	.....
Forage Crops (Agron. 103)	.....	.....	4
Plant Anatomy (Morph. and Myc. 101)	3	.....	.....
Plant Physiology (Plt. Phys. 101-102)	.....	4	3
Feeds and Feeding (A. H. 102)	4	.....	.....
Meats (A. H. 107)	.....	3	.....
Poultry (A. H. 105)	.....	.....	4
Pomology (Hort. 101)	4	.....	.....
Grain Judging (Agron. 102)	.....	1	.....
Electives	3	2	3
JUNIOR YEAR.			
Technical English (Eng. 104-106)	2	2	2
Principles of Economics (A. E. 101-102)	3	3	.....
Agricultural Economics (A. E. 103)	.....	.....	3
Fertilizers (Soils 104)	.....	.....	4
Farm Accounting (A. E. 106)	.....	.....	3
Farm Machinery (M. E. 107)	3	.....	.....
Bacteriology (Bact. 101-102)	3	3	.....
Surveying and Drainage (————————)	4	.....	.....
English, Public Speaking	.....	1	.....
Grading Grain Crops (Agron. 107)	.....	3	.....
Electives	2	5	5
SENIOR YEAR.			
Farm Management (F. M. 101-102)	3	3	.....
Markets and Marketing (A. E. 104)	.....	3	.....
Co-operative Marketing (A. E. 105)	.....	.....	3
Community Study (R. O. 101-103)	2	2	2
Principles of Rural Organization (R. O. 104)	3	.....	.....
History, Comparative and Industrial	.....	.....	4
Electives	9	9	8

Description of Courses

F. M. 101-102. Farm Management. Three credit hours each term: three lectures. First and second term.

A study of the business of farming from the standpoint of the individual farmer. This course aims to connect the principles and practice which the student has acquired in the several technical courses and to apply them to the development of a successful farm business.

AGRICULTURAL ECONOMICS

A. E. 103. Studies in Agricultural Economics. Three credit hours. Third term. Prerequisite, A. E. 101-102.

A study of the economic adaptations and adjustments necessary on the part of the agriculturist to meet the changing economic conditions. Population flows, land tenure, farm incomes, farm labor, agricultural credit, and price movements will receive special consideration.

A. E. 104. Markets and the Marketing of Farm Products. Three credit hours. Second term. Prerequisite, A. E. 101-102.

An analysis of the present system of transporting, storing, and distributing farm products and a basis for intelligent direction of effort in increasing the efficiency of marketing methods.

A. E. 105. Cooperative Marketing. Three credit hours. Third term. Prerequisite, A. E. 101-102.

A study of the cooperative marketing, endeavors of farmers with a view to developing methods of distributing perishable and specialized farm products.

A. E. 106. Farm Accounting. Four credit hours: three lectures and one laboratory period. First term.

A study of the principles underlying farm accounting, emphasizing cost accounting and analysis of farm business.

RURAL ORGANIZATION

R. O. 101-103. Elements of Community Study. Three credit hours each term. The year.

A course dealing with the fundamental principles of community development.

R. O. 104. Principles of Rural Organization. Three credit hours. First term.

A study of the historical and comparative development of farmers' cooperative organizations, stressing particularly present tendencies.

For Short-Course Students

F. M. 1. Farm Management. Two lectures and one laboratory period. First term.

A course parallel with F. M. 101-102 arranged for the students of the short agricultural courses.

A. E. 1. Farm Accounting. Two lectures. Second Term.

A course parallel with A. E. 106. For students of the short agricultural courses.

R. O. 1. Rural Organization. Two lectures. Third term.

A survey of the functions, scope, and present forms of organization of rural interests primarily for economic purposes.

FORESTRY

Instruction in Forestry is planned to give the student who is preparing to take up practical problems in farm management a sufficient knowledge of the principles of Forestry to enable him to apply to the wood lot or timber tract the same degree of intelligent direction which he would give to the tilled lands. At the present time Forestry is not offered as a major course, but is used to supplement the content of the other courses.

Description of Courses

For. 101. Farm Forestry. Three credit hours: two lectures and one laboratory period. Third term. Prerequisite, Bot. 101.

A study of forest botany, wood management, measurements, fire protection, nursery practice, tree planting, valuation and utilization of forest crops. The work is conducted by means of lectures and field work. It may be elected by any student having the necessary prerequisite.

For Short-Course Students

For. 1. Farm Forestry. Three credit hours: two lectures and one laboratory period. Third term.

The content of this course is similar to that of For. 101, but is adapted to the development and needs of students in the short-course work.

GEOLOGY AND SOILS

The courses in Geology and Soils are designed to equip the future farmer with a complete knowledge of the soil which is the basis of all farming, and also to give advanced training to students who desire to specialize in soils. The unusual opportunities offered along these lines fit the graduate to conduct research in soils, to teach soils in agricultural colleges, and to carry on work with the Bureau of Soils, United States Department of Agriculture. If research or teaching is elected, it is advisable that the student take graduate work in addition to the regular courses offered.

GEOLOGY AND SOILS.

SOPHOMORE YEAR. Term:	I	II	III
Forage Crops (Agron. 103)	.....	.....	4
General Geology (Geol. 101)	3	.....	.....
Introductory Study of Soils (Soils 101-102)	.....	3	3
Quantitative Analysis (Chem. 106)	3	.....	.....
Organic Chemistry (Chem. 123-124)	4	4	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
General Physics (Phys. 104)	3	3	3
Agricultural Chemistry (Chem. 116)	.....	.....	4
Elective	4	3	0

JUNIOR YEAR.

Technical Composition (Eng. 104-106)	2	2	2
Principles of Economics (Ru. Ec. 101)	3	3	.....
General Bacteriology (Bact. 101)	3	3	.....
Principles of Soils Management (Soils 103)	.....	3	.....
Fertilizers (Soils 104)	.....	.....	4
Surveying and Drainage	.....	.....	3
Soils Bacteriology (Soils 107)	.....	.....	3
Elective	7	6	5

SENIOR YEAR.

Farm Management (T. M. 101-102)	.....	3	4
Methods Crop Investigations (Agron. 106)	3	.....	.....
Crop Rotation (Agron. 109)	2	.....	.....
Advanced Soils (Soils 105)	3	.....	.....
Soil Chemistry (Soils 106)	.....	.....	3
Research and Thesis (Soils 108-110)	2	2	2
Elective	7	12	8

Description of Courses

Soils 101-102. Introductory Study of Soils. Three credit hours each term; two lectures and one laboratory period. Second and third terms. Prerequisite, Geol. 101.

The physical and chemical properties of soils in their relation to tillage operations, preparation of seed beds, and the maintenance of soil fertility. Field excursions are made to study soil formation and their physical properties. The practical work consists chiefly of experiments and demonstrations in soil physics.

Soils 103. Principles of Soil Management. Three credit hours: one lecture and two laboratory periods. Second term. Prerequisite, Soils, 101-102.

The object of this course is to familiarize the student with the details of soil management. It includes the practical application of principles brought out in soil physics, studies of methods of tillage and cropping. The practical work consists of special studies of soils from the College Farm, which have been subjected to various methods of treatment.

Soils 104. Fertilizers. Four credit hours: three lectures and one laboratory period. Third term. Prerequisite, Soils 101.

The subject of fertilizers is developed logically from the needs of the plant and the condition of the soil to the selection of proper plant food for each crop under varying conditions of soils and climate. Some attention is given to the home mixing of fertilizers.

Soils 105. Advanced Soils. Three credit hours: one lecture and two laboratory periods. First term. Prerequisite, Soils 101-102.

A study of the principal soil regions, series and types of the United States and especially of the soils of Maryland as to formation, composition, and value agriculturally. The practical work consists chiefly in identification of the several soils and in map making.

Soils 106. Soil Chemistry. Three credit hours: one lecture and two laboratory periods. Third term. Prequisites, Soils 101-102, Chem. 101-102-103.

A study of methods used by experiment stations in soil problems and technique of laboratory problems. The laboratory work deals with the analysis of soils from problems assigned in soils brought in by the student, along the lines in which he is interested.

Soils 107. Soil Bacteriology. Three credit hours: two lectures and one laboratory period. Third term. Prerequisite, Bact. 101.

A study of the micro-organisms of the soil in relation to fertility. It includes the study of nitrogen transformers, etc., and the injurious soil organisms. The work is carried on in the laboratory, lectures, and library.

Soils 108-109-110. Research and Thesis. Two credit hours each term. Senior year.

Investigational work of problems pertaining to soils. The work is carried on largely in the laboratory, library, and field, and the results written in thesis form.

For Graduate Students

Soils 201. Advanced Soils. Three credit hours. First term.

A survey of latest investigations in soils and fertilizers, conducted by means of lectures, references, and practical work.

Soils 202. Research in Soils. Four credit hours each term: lectures and practice to be arranged. The year.

Original investigations of problems in soils and fertilizers.

For Short-Course Students

Soils 1. General Soils. Three credit hours: two lectures and one laboratory period. Third term.

A study of the physical and chemical conditions of soils in their relation to profitable agriculture.

Soils 2. Fertilizers. Three credit hours: two lectures and one laboratory period. First term.

The selection of proper plant food for each crop under varying conditions of soil and climate. Special attention is given to the home mixing of fertilizers.

GEOLOGY

Geol. 101. General Geology. Three credit hours: two lectures and one laboratory period. First term.

A text book, lecture, and laboratory course dealing with the principles of geology. It is designed principally for agricultural students in preparing for technical courses, but may be taken as a part of a liberal education.

Geol. 102. Engineering Geology. Three credit hours: two lectures and one laboratory period. First term.

A course dealing with the study of geological materials of importance in engineering. The practical work is carried on partially by field excursions.

DEPARTMENT OF ZOOLOGY

The Department of Zoology is prepared to train specialists in entomology, supplement the work of other departments, and to offer a premedical course.

In the preparation of entomologists, the aim is to give a broad training in zoology and allied sciences, with specialization in the senior year. All the work of the State and Station Entomologist is done through this department, thus offering better opportunities for students desiring to specialize in entomology.

The pre-medical curriculum includes the scheduled subjects as prescribed by the Council on Medical Education of the American Medical Association for the two-year pre-medical course. It is considered highly desirable, however, that prospective students take the four-year course since some leading medical schools require the baccalaureate degree for admission.

In the courses on "Maryland Water Resources" and "Introduction to Aquiculture" a beginning is made looking to the development of trained men who can cope adequately with the intricate scientific problems of development and conservation of the food resources of the waters of the State. This is designed to supplement in a co-operative way the work of the Conservation Commission.

ECONOMIC ZOOLOGY.

FRESHMAN YEAR. Term:	I	II	III
General Zoology (Zool. 101-102)	4	4	.....
Composition and Rhetoric (Eng. 101-103)	3	3	3
General Chem. and Qualitative Chem. (Chem. 101-103)	4	4	4
General Botany (Bot. 101)	.....	.....	4
Electives	6	6	6

SOPHOMORE YEAR.

Histology and Embryology (Zool. 103-105)	4	4	4
General Entomology (Zool. 106)	.....	.....	3
Quant. Chemistry (Chem. 106-107)	3	3	.....
General Physics (Phys. 104)	2	2	2
General Physics Lab. (Phys. 104)	1	1	1
Exposition and Scientific Thought (Eng. 104-106)	2	2	2
Electives	5	5	5

JUNIOR YEAR.

Insect Morphology (Zool. 107)	2	.....	.....
Economic Entomology (Zool. 108-109)	.....	4	4
Insecticides and Their Application (Zool. 117)	.....	2	.....
Seminar (Zool. 124-126)	1	1	1
Organic Chemistry (Chem. 123-125)	4	4	4
General Bacteriology (Bact. 101-103)	3	3	3
Electives	7	3	5

SENIOR YEAR.

Economic Entomology (Zool. 110-112)	5	5	5
Thesis (Zool. 114-116)	2	2	2
Seminar (Zool. 124-126)	1	1	1
Electives	9	9	9

The student must secure the approval of the head of the division in his elections.

PRE-MEDICAL.

FRESHMAN YEAR. Term:	I	II	III
General Zoology (Zool. 101-102)	4	4	.....
Composition and Rhetoric (Eng. 101-103)	3	3	3
General Chem. and Qualitative Chem. (Chem. 101-103)	4	4	4
Language (French or German)	3	3	3
General Botany (Bot. 101)	.....	.....	4
Electives	2	2	2

SOPHOMORE YEAR.

Embryology and Histology (Zool. 102)	4	4	4
General Entomology (Zool. 103)	.....	.....	3
Exposition and Scientific Thought (Eng. 104-106)	2	2	2
Quant. Chemistry (Chem. 106-107)	3	3	.....
Physics 101, 102, 103. (Subdivided according to pages 94 and 95 in catalog)	5	5	5
Language (French or German)	3	3	3
Electives	0	0	0

JUNIOR YEAR.

Comparative Anatomy of Vertebrates (Zool. 114)	.....	.....	4
Organic Chemistry (Chem. 123-125)	4	4	4
General Bacteriology (Bact. 101-103)	3	3	3
Language (French or German)	3	3	3
General and Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Electives	7	5	1

SENIOR YEAR.

Medical Entomology (Zool. 111)	3	.....	.....
Seminar (Zool. 116)	1	1	1
Thesis (Zool. 109)	2	2	2
Advanced Bacteriology (Bact. 104-106)	2	2	2
Language	3	3	3
Electives	6	9	9

Description of Courses

Zool. 101-102. General Zoology. Four credit hours: two lectures and two laboratory periods. First and second terms.

The relationships of animals, their general form and structure, their responses to environing conditions and their development and evolution are discussed in a broad manner.

Zool. 103-105. Histology and Embryology. Four credit hours each term: two lectures and two laboratory periods. The year. Prerequisite, Zool. 101-102.

A study of the normal tissues, chiefly of the mammals; covers the ground usually assigned to general histology. The course in embryology is based on the chick and pig.

Zool. 106. Entomology. Three credit hours: two lectures and one laboratory period. Third term. Prerequisite, Zool. 101-102.

General principles of structural and systematic entomology. Lectures, recitations, laboratory work and field excursions. A collection of insects is required, properly arranged to orders.

Zool. 107. Insect Morphology. Two credit hours: two laboratory periods. First term. Prerequisite, Zool. 106.

A course in morphology designed to prepare students for work in economic entomology.

Zool. 108-109. Economic Entomology. Four credit hours each term: two lectures and two laboratory periods. Second and third terms. Prerequisite, Zool. 106.

Morphology of type insects to acquaint the student with special structures bearing on insect control; insect biology, including methods of study. The theory and practice of insect control.

Zool. 110-112. Economic Entomology. Five credit hours each term: three lecture hours and two laboratory periods. The year. Prerequisite, Zool. 108-109.

Problems in applied entomology, including life history, ecology, distribution, parasitism and control.

Zool 113. Systematic Entomology. Two credit hours: two laboratory periods. First term. Prerequisite, Zool. 107.

The student selects some group in which he is particularly interested and makes a detailed study of it. The course requires considerable field work and is supplemented by laboratory periods and frequent conferences.

Zool. 114-116. Thesis. Two credit hours each term: laboratory periods to be arranged. The year.

The intensive investigation of some zoological subject, the results of which are incorporated in a paper which is submitted as part requirement for graduation.

Zool. 117. Insecticides And Their Application. Two credit hours: one lecture and one laboratory period. Second term.

The principles of insecticides, their chemistry, preparation and application; construction, care and use of spray and dusting machinery; fumigation and mechanical controls.

Zool. 118. Medical Entomology. Three credit hours: three lectures. First term. Prerequisite, Zool. 106.

The relation of insects to disease, directly and as vectors of pathogenic organisms; the control of pests of man.

Zool. 119-120. Scientific Delineation And Preparations. One credit hour each term: one laboratory period. First and second terms.

Photography, photomicrography, drawing freehand and with camera lucida, lantern-slide making, optical projection, preparation of exhibit and museum material.

Zool. 121. Horticultural Entomology. Three credit hours: two lectures and one laboratory period. Third term. Prerequisite, Zool. 106.

Lectures, laboratory and field work on the morphology, biology and control of insect pests of horticultural crops.

Zool. 122. Comparative Anatomy of Vertebrates. Two to four credit hours: laboratory periods to be arranged. Third term. Prerequisite, Zool. 101-102.

Lectures and laboratory work on one or more of the following systems of organs: skeletal, nervous, and circulatory.

Zool. 123. Maryland Water Resources. One credit hour: one lecture. Second term.

A lecture course designed to acquaint students with the immense possibilities of the fish, oyster and crab industries of the State and the measures that are being taken to protect, increase and perpetuate these valuable assets of the State.

Zool. 124-126. Seminar. One credit hour each term: one lecture. The year. The staff.

Meetings to discuss zoological topics; to review the literature of the subject and in general to acquaint the student with his chosen field.

Zool. 127. Introduction to Aquiculture.—Credit hours and laboratory periods to be arranged. Offered in 1920-21. Prerequisite, Zool. 101-102 and Botany 101.

The biology of the fresh and tidal waters of Maryland. A qualitative study of the aquatic organisms with special reference to their possibilities in sustaining aquatic life.

GRADUATE STUDIES

Zool. 201. Investigations in Entomology. Credit according to work done.

Studies of minor problems in morphology, taxonomy and applied entomology under the direction of a member of the staff, with particular reference to preparation for individual research.

Zool. 202. Research in Entomology. Credit according to work done.

Advanced students having sufficient preparation may, with the approval of the head of the division, undertake supervised research in morphology, taxonomy or biology and control of insects. Frequently the

student may be allowed to work on Station or State Horticultural Department projects. The students' work may form a part of the final report on the project and be published in bulletin form.

Zool. 203. Advanced Economic Entomology. One credit hour: one lecture. Second term.

Lectures discussing the latest theories and practices in applied entomology.

For Short-Course Students

Zool. 1. Animal Pests. Two lectures and two hours laboratory Second term.

A study of crop and animal pests with practice in identification; designed to enable the farmer to recognize and intelligently combat them.

Zool. 2. Sprays And Spraying. Two lectures and two hours laboratory. Third term.

Preparation and application of insecticides, together with a consideration of other methods of control.

Zool. 3. Beekeeping. One laboratory period. Third term.

Consideration of the underlying principles of successful beekeeping with practice in preparation of equipment and the manipulation of bees.

SHORT COURSES

Two-Year Agricultural Course

The Two-Year Agricultural Course embraces much of the technical work of the four-year courses and is designed to lay a foundation that will secure success in practical farming. It is planned especially to meet the demands of young men who cannot find time to take the regular courses of the College, or for those who have not had the necessary educational requirements for admission to the longer courses.

Among the most enthusiastic students who have taken the course and give it their hearty endorsement are some of the landowners and best farmers of Maryland. The course is made practical in every sense of the word, and for that reason students having farm experience before entering will derive most benefit from the work. Those taking the course who do not live on home farms are required to spend at least ten weeks between the first and second years on a farm approved by the College.

It is advisable for students to carry on project work where possible. College authorities are always available to supervise such projects, and when satisfactorily carried out credit may be given for the work. Look for a list of projects under the Short Course in Agricultural Practice.

The two-year course has the advantage of being given during the same months that the regular College courses are given. The students can enter into all phases of athletics and other student activities.

To enter the two-year course the applicant must have preparation at least equal to the work given in the seventh grade of the Maryland public schools.

At the conclusion of the course students having completed the regular work as outlined are given a certificate stating the studies pursued during the time spent in the College.

TWO-YEAR AGRICULTURE.

FIRST YEAR. Term:	I	II	III
Cereal Crops (Agron. 1)	2(2)	.....	.....
Forage Crops (Agron. 2)	.....	.....	2(2)
General Soils (Soils 1)	.....	.....	2(2)
Breeds and Judging Live Stock (A. H. 1)	2(2)	.....	.....
Dairying (D. H. 1)	.....	2(2)	.....
Feeds and Feeding (A. H. 3)	.....	.....	2(2)
Agricultural Chemistry (Chem. 1)	2(3)	3(3)	.....
Elementary Pomology (Hort. 1)	2(2)	.....	.....
Horticulture	.....	2(4)	.....
Home Vegetable Gardening (Hort. 5)	.....	.....	2(2)
General Botany (Bot. 1)	2(2)	.....	.....
Entomology (Zool. 1)	.....	2(2)	.....
Sprays and Spraying (Zool. 2)	.....	.....	2(3)
Drawing 1—Farm Drawing	(3)	.....	.....
Shop 1—Farm Wood Work	.....	(3)	.....
Shop 2—Forging and Pipe Fitting	.....	.....	(3)
Composition (Eng. 1-2)	3	3	.....
Vocational Publications (Eng. 3)	.....	.....	3
SECOND YEAR.			
Grain Judging (Agron. 3)	.....	(3)	.....
Breeding of Animals (A. H. 3)	3	.....	.....
Disease of Animals (U. M. 1)	.....	2(3)	.....
Farm Poultry (A. H. 6)	.....	.....	2(3)
Farm Management (F. M. 1)	4	.....	.....
Farm Accounts	.....	3	.....
Rural Organization	.....	.....	3
Business Law	.....	3	.....
Fertilizers (Soils 2)	2(2)	.....	.....
Plant Diseases (Plt. Patt. 1)	2(2)	.....	.....
Bacteriology (Bact. 1)	.....	1(3)	.....
Forestry 1—Farm Forestry	.....	.....	2(3)
Structural Design 1—Farm Buildings	1(3)	.....	.....
Mechanical Engineering 1—Farm Machinery	.....	1(3)	.....
Hydraulics 1—Drainage	.....	.....	2(6)
Elect one or a portion of each:			
Advanced Agronomy	2(4)	2(3)	3(4)
Animal Industry Advanced	2(4)	2(3)	3(4)
Horticulture — Vegetable Gardening, or Pomology, or Floriculture	2(4)	2(3)	3(4)
Gas Engines	.....	.....	2(3)
Beekeeping	.....	.....	(3)

SHORT COURSE IN AGRICULTURAL PRACTICES

(Three Years of Three months Each—December, January and February)

There has been a long-felt need for an agricultural course for the rural men and women that will not take them away from the farm during the greater part of the growing season. There never has been a time when it is more necessary that the farmers of this country produce maximum crops. For these reasons a new course in Agriculture has been initiated which will take the farmer away from his home work only three winter months—December, January and February—when he is least needed on the farm.

The short course is organized entirely from the practical point of view. The content embodied deals largely with farm-crop production, vegetable gardening, pomology, animal industry and mechanics. The methods employed show the new ways of handling old problems and the best ways to increase production with the least possible expense.

This course should appeal to men who are actually up and doing and should make farm life more interesting, pleasant and profitable. One big feature is that this course affords an opportunity to come shoulder to shoulder with a multitude of splendid young men of Maryland and other States.

The only requirement for admission is a common school education. A high school education will be very helpful, and the course is planned so that it is elastic enough to fit students with various degrees of training.

Permission is given for students to elect largely subjects pertaining to their own interest. If the plan outlined is followed, all students will take the general work during the first year and then elect their special work during the second and third years. Each year should make a unit so that a student who can attend only one or two years will still have a rounded course. Special supervised project work is offered for all who want to keep in touch with the College during the summer.

At the suggestion of students, college specialists go to the home farms to ascertain what the greatest difficulties are and then lay plans for the correction. A list of projects to select from is given elsewhere.

Students who have completed the regular work as outlined and have carried supervised project work through two summers are given a certificate stating the studies pursued while registered at the College.

Registration for this course will take place on Tuesday, December 3. The term will close on Friday, March 1. Those who expect to attend should request the authorities to send registration blanks as early in the year as possible.

Outline of Courses

FIRST YEAR.

Agronomy 1 and 3—Cereal Crop Production and Grain Judging	2(2)
Animal Husbandry 1—Breeds and Judging of Live Stock	2(2)
Animal Husbandry 2—Dairying	2(2)
Vegetable Gardening 1—Home Vegetable Gardening	2(2)
Pomology 1	2(2)
Shop 1 and 2—Wood Work, Forging and Pipe Fitting	(3)
Supervised Farm Project for Summer Months.	
Elective (elect one):	
Chemistry 1—Agricultural Chemistry	2(2)
English 1 and 2—Composition and Farm Literature	3

SECOND YEAR.

Agronomy 2—Forage Crops	2(2)
Animal Husbandry 3—Feeds and Feeding of Live Stock	2(2)
Mechanical Engineering 1—Farm Machinery	1(3)
Zoology 2—Sprays and Spraying	1(2)
Soils 2—Fertilizers	2
Economics 2—Farm Accounts	2
Supervised Farm Project During Summer Months.	
Elective (elect enough to make a normal schedule):	
Botany 2—Plant Diseases	1(2)
Zoology 1—Entomology	1(2)
Vegetable Gardening 2—Commercial Vegetable Gardening	2(2)
Pomology 2—Practical Fruit Growing	2(2)
Animal Husbandry 6—Farm Poultry	2(2)
Rural Economics 4—Business Law	2
Soils1—General Soils	2(2)

THIRD YEAR.

Animal Husbandry 5—Animal Diseases	2
Rural Economics 1—Farm Management	2(2)
Hydraulics 1—Drainage	(3)
Rural Economics 3—Rural Organization	2
General Science 1—Bacteriology	1(3)
Elective (elect enough to make a normal schedule):	
Agronomy 4—Advanced Agronomy	3(4)
Animal Husbandry 7—Animal Industry	3(4)
Vegetable Gardening 5—Advanced Vegetable Gardening	3(4)
Pomology 2—Practical Fruit Growing	3(4)
Mechanical Engineering 3—Gas Engines	2(3)
Structural Design 1—Farm Buildings	1(3)
Zoology 3—Beekeeping	(3)

FARM PRACTICE

To entirely satisfy the requirements of the Short Course in Agricultural Practice, students who are working for certificates are required to carry out farm projects during the summer between the first and second years and between the second and third years.

Students are at liberty to invite College specialists to their home farms to point out the difficulties which may be used as farm projects, or they may select a project for the list.

The work will be supervised and inspected by the department in which the project has been chosen.

Projects may be selected from the following departments:

Farm Crops,
Horticulture,
Animal Industry,
Farm Forestry,
Rural Economics,
Farm Equipment,
Agricultural Engineering.

SUGGESTED ELECTIVES FOR STUDENTS IN THE SCHOOL OF AGRICULTURE*

SUBJECT. Term:	I	II	III
SOPHOMORE YEAR.			
Feeds and Feeding (A. H. 102)	4	.....	.....
Principles of Dairying (D. H. 101)	4	4	.....
Principles of Breeding (A. H. 103)	.....	.....	4
Herd Management (A. H. 115)	.....	5	.....
Mechanical Drawing (Draw. 107)	1	.....	.....
Woodwork (Shop 104)	.....	1	.....
Forging and Pipe-fitting (Shop 107)	.....	.....	1
General Physics (Phy. 104)	3	3	3
Quantitative Analysis (Chem. 106-107)	3	3	.....
Organic Chemistry (Chem. 125)	.....	.....	.....
Entomology (Zool. 103)	.....	.....	3
Plant Ecology (Plt. Phy. 103)	.....	.....	3
Plant Anatomy (Morph. and Myc. 101)	4	.....	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
Modern Language	3	3	3
Advanced Composition (Eng. 1)	2	2	2
Survey of English Literature (Eng. Lit. ————)	2	2	2
Public Speaking (Pub. Sp. ————)	1	1	1
Introductory Study of Soils (Soils 101-102)	.....	3	3
Grain Judging (Agron. 102)	.....	1	.....
Foreage Crops (Agron. 103)	.....	.....	4
Elementary Pomology (Hort. 101)	4	.....	.....
Frame Crops (Hort. 118)	.....	.....	2
Elementary Floriculture (Hort. 121)	.....	3	.....
Elementary Landscape Gardening	.....	3	.....
History of Modern Education (Prin. of Ed. 101)	2	.....	.....

*Subjects not elected in sophomore year may be elective in the junior or senior year.

JUNIOR YEAR.

Grading Farm Crops (Agron. 107)	.....	3	.....
Fertilizers (Soils 104)	.....	.....	4
Genetics (Plt. Phy. 108)	4	.....	.....
Advanced Plant Physiology (Plt. Phy. 103-105)	4	4	4
Systematic Botany (Morph. and Myc. 102)	.....	.....	3
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Farm Poultry (A. H. 105)	.....	.....	4
Swine Production (A. H. 106)	3	.....	.....
Beef Production (A. H. 108)	.....	3	.....
Sheep Production (A. H. 109)	.....	.....	4
Horse and Mule Production (A. H. 110)	3	.....	.....
Advanced Judging (A. H. 111-112)	.....	2	2
General Bacteriology (Bact. 101-103)	3	3	3
Commercial Fruit Growing (Hort. 102-103)	3	3	.....
Soil Bacteriology (Soil 107)	.....	.....	3
Fruit and Vegetable Judging (Hort. 108)	2	.....	.....
Principles of Soil Management (Soils 103)	.....	3	.....
Tuber and Root Crops (Hort. 112)	3	.....	.....
Systematic Pomology (Hort. 104)	3	.....	.....
Commercial Vegetable Gardening (Hort. 113-115)	3	3	3
Small Fruit Culture (Hort. 106)	.....	.....	3
Commercial Floriculture (Hort. 112-123)	3	3	.....
Plant Materials (Hort. 132)	.....	.....	3
Greenhouse Management (Hort. 124)	3	.....	.....
Garden Flowers (Hort. 126)	.....	.....	3
Amateur Floriculture (Hort. 126)	.....	.....	3
Agricultural Chemistry (Chem. ——)	.....	.....	4
Educational Psychology (Prin. Ed. 105)	5	.....	.....
General and Applied Psychology (Prin. Ed. 103-104)	.....	2	2

SENIOR YEAR.

Advanced Soils (Soils 105)	3	.....	.....
Soil Chemistry (Soils 106)	.....	.....	3
Plant Micro-Chemistry (Plt. Phy. 107)	.....	3	.....
Advanced Practical Pomology (Hort. 105)	1	.....	.....
Economic Fruits of the World (Hort. 107)	.....	3	.....
Advanced Fruit Judging (Hort. 109)	1	.....	.....
Advanced Vegetable Gardening (Hort. 117)	.....	.....	1
Greenhouse Construction (Hort. 125)	.....	2	.....
Floral Decorations (Hort. 127)	.....	1	.....
Landscape Design (Hort. 133-134)	3	.....	.....
Landscape Practice (Hort. 135)	.....	.....	3
Crop Breeding (Agron. 104-105)	.....	3	1
Methods in Crop Investigation (Agron. 106)	3	.....	.....
Crop Rotation (Agron. 109)	.....	2	.....
Advanced Drainage (Hyd. 110)	.....	.....	2
Farm Machinery (Farm Equip. 101)	3	.....	.....
Tractors (Farm Equip. 103)	.....	.....	3
Farm Building (Struct. Design 109)	2	.....	.....

ELECTIVES OFFERED IN THE ANIMAL INDUSTRY DIVISION

SUBJECT. Term:	I	II	III
Meat and Meat Products (A. H. 107)	.....	3	.....
Beef Production (A. H. 108)	.....	3	.....
Sheep Production (A. H. 109)	.....	.....	3
Horse and Mule Production (A. H. 110)	3	.....	.....
Advanced Judging (A. H. 111-112)	.....	2	2
Advanced Breed Study (A. H. 113)	.....	.....	4
Animal Genetics and Statistical Methods (A. H. 114)	4	.....	.....
Markets and Marketing (A. H. 115)	.....	3	.....
Nutrition (A. H. 116)	.....	.....	2
Barn Practice or Dairy Production (D. H. 104)	.....	.....	4
Market Milk (D. H. 105)	4	.....	.....
Advanced Milk Testing (D. H. 106)	.....	4	.....
Commercial Dairying (D. H. 107)	.....	2	.....
Judging Dairy Products (D. H. 108)	.....	.....	2
Dairy Bacteriology (Bact. 104-106)	3	3	3
Advanced Bacteriology (Bact. 107-109)	2–3	2–3	2–3

THE SCHOOL OF CHEMISTRY

Curricula offered in the School of Chemistry prepare students for practical work as research, general analytical, and manufacturing chemists, or to be teachers. Contributory instruction also is given, as most of the students enrolled in other schools of the College are required to take a year or more of chemistry.

Four coördinate departments make up the School of Chemistry. They are organized as follows:

Department of General Chemistry,
Department of Industrial Chemistry,
Department of Biological Chemistry,
Department of Fertilizer and Food Analysis and Inspection.

The chemical building contains laboratories, offices, and balance room for the State fertilizer, feed and lime control work, lecture rooms, supply room and four student laboratories. In addition, classrooms in Morrill Hall are used as needed. The laboratories are well equipped with standard apparatus and chemicals, chemical and assay balances, polariscopes, refractometers, spectroscopes, microscopes, etc. Each student is provided with a locker, reagents, and apparatus, and has the use of a working desk.

The school is provided with a library of standard reference books on chemistry and related subjects, to which necessary additions are made from time to time.

GENERAL CHEMISTRY

The curriculum offered by the Department of General Chemistry leading to the degree of Bachelor of Science presents the opportunity for a broad training in chemistry. In order that students may become not merely capable analytical chemists, but also may be grounded as deeply as possible in the fundamental principles of all departments of chemical work, practical laboratory manipulation is brought into close relationship with lectures, demonstrations and the work of the classroom. The work prepares students to fill positions in analytical or manufacturing chemistry, as chemists in technical industry, as chemical, sanitary, or consulting experts. The course is well adapted for students wishing to take graduate work in chemistry, as it gives a broad and general knowledge of the science.

GENERAL CHEMISTRY.

FRESHMAN YEAR. Term:	I	II	III
Composition and Rhetoric (Eng. 101-103)	3	3	3
Public Speaking (P. S. 101-103)	1	1	1
Trigonometry (Math. 101)	5	.....	.....
Analytics (Math. 103)	.....	5	5
Modern Language (M. L. 101-103 or 121-123)	3	3	3
Gen'l Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Mechanical Drawing (Dr. 101)	1	1	1

SOPHOMORE YEAR.

Modern Language (M. L. 104-106 or 121-123)	3	3	3
Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	.....	3	3
Mechanics and Sound (Phys. 101, Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102, Phys. Lab. 102)	.....	5	.....
Light and Heat (Phys. 103, Phys. Lab. 103)	.....	.....	5
Agr'l Chemistry (Chem. 116)	.....	.....	4
Inorganic Chemistry (Chem. 104-105)	3	3	.....
Quantitative Analysis (Chem. 106-108)	3	3	3

JUNIOR YEAR.

Organic Chemistry (Chem. 123-125)	4	4	4
Adv. Quantitative Analysis (Chem. 109-111)	5	5	5
Economics (Econ. 101-102)	3	3	.....
Economics (Econ. 106)	.....	.....	3
Bacteriology (Bact. 101-103)	3	3	3
United States Government (Pol. Sci. 105-106)	2	2	.....
Political Science (Pol. Sci. 110)	.....	.....	3

SENIOR YEAR.

Adv. Agr'l Chemistry (Chem. 120)	4	.....	.....
Physical Chemistry (Chem. 129-131)	3	3	3
Physiological Chemistry (Chem. 132-133)	.....	4	4
Industrial Chemistry (Chem. 126-128)	5	5	5
Electro Chemistry (Chem. 134)	.....	.....	3
Constitutional Law (Pol. Sci. 115-116)	2	2	.....
English (Eng. 104-106)	2	2	2
Public Speaking (P. S. 104-106)	1	1	1

INDUSTRIAL CHEMISTRY

Curricula in the Department of Industrial Chemistry are Chemical Engineering and Agricultural Chemistry. The former is designed to equip students with a highly specialized knowledge of the construction and management of manufacturing establishments involving chemical principles; the latter prepares for research and analytical work that have to do with the relationship of chemistry to agriculture. Technical and educational positions are open to men and women trained in various phases of chemical engineering, in plant and animal chemistry, in the analysis of soils, fertilizers, and spray materials, and in food and dairy studies.

In addition to many of the subjects in chemistry, chemical engineering

includes the study of boilers, steam engines, drawing and design, elements of machinery, measurement of power, and work in the engineering laboratory. It also includes advanced courses in electricity and magnetism, dynamos and motors, and experimental practice in the electrical and dynamo laboratories. However, the graduates primarily are chemists with a good knowledge of mechanical and electrical engineering, and with additional training in the special mechanical and electrical appliances of industrial chemistry.

CHEMICAL ENGINEERING.

FRESHMAN YEAR. Term:	I	II	III
Composition and Rhetoric (Eng. 101-103)	3	3	3
Public Speaking (P. S. 101-103)	1	1	1
Gen'l Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Trigonometry (Math. 101)	5	.....	.....
Analytics (Math. 102-103)	.....	5	5
Plane Surveying (Surv. 101-102)	.....	2	1
Freehand Drawing (Dr. 101)	1	.....	.....
Mechanical Drawing (Dr. 102-103)	2	1	.....
Engineering Drawing (Dr. 104)	.....	1	.....
Descriptive Geometry (Dr. 105)	.....	.....	3
Woodwork (Shop 103)	1	.....	.....

SOPHOMORE YEAR.			
Modern Language (M. L. 101-103 or 121-123)	3	3	3
Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105-106)	.....	3	3
Inorganic Chemistry (Chem. 104-105)	3	3	.....
Quantitative Analysis (Chem. 106-108)	3	3	3
Steam Engines (M. E. 102)	3	.....	.....
Electricity and Magnetism (E. E. 101-102)	.....	3	3
Min. and Assaying (Chem. 136)	.....	.....	3
English (Eng. 104-106)	2	2	2

JUNIOR YEAR.			
Organic Chemistry (Chem. 123-125)	4	4	5
Mechanics and Sound (Phys. 101, Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102, Phys. Lab. 102)	.....	5	.....
Heat and Light (Phys. 103, Phys. Lab. 103)	.....	.....	5
Technical Analysis (Chem. 112-114)	4	4	4
Dynamos and Motors (E. E. 111, E. E. Lab. 112)	3	3	.....
Hydraulics (Hyd. 101)	.....	.....	3
Public Speaking (P. S. 104-105)	1	1	1

SENIOR YEAR.			
Economics (Econ. 101-102)	3	3	.....
Economics (Econ. 106)	.....	.....	3
Physical Chemistry (Chem. 129-131)	3	3	3
Industrial Chemistry (Chem. 126-128)	5	6	5
Hydromechanics (Hyd. 103)	3	.....	.....
Mechanical Engineering (M. E. 104-105)	2	3	3
Experimental Engineering (Exp. Lab. 104)	1	1	1
Electro Chemistry (Chem. 134)	.....	.....	3

AGRICULTURAL CHEMISTRY.

FRESHMAN YEAR. Term:	I	II	III
Composition and Rhetoric (Eng. 101-103)	3	3	3
Public Speaking (P. S. 101-103)	1	1	1
Gen'l Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Trigonometry (Math. 101)	5	.....	.....
Analytics (Math. 102-103)	.....	5	5
Zoology (Zool. 101-102)	4	4	.....
Botany (Bot. 101)	.....	.....	4

SOPHOMORE YEAR.

Modern Language (M. L. 101-103 or 121-123)	3	3	3
Quantitative Analysis (Chem. 106-108)	3	3	3
Agr'l Chemistry (Chem. 116)	.....	.....	4
Geology (Geol. 101)	3	.....	.....
Plant Physiology (Bot. 102)	.....	4	.....
English (Eng. 104-106)	2	2	2
Public Speaking (P. S. 104-106)	1	1	1
Mechanical Drawing (Dr. 102)	1	.....	.....
Elective in Agriculture	4	4	4

JUNIOR YEAR.

Organic Chemistry (Chem. 123-125)	4	4	5
Agr'l Chemical Analysis (Chem. 117-119)	4	4	4
Modern Language (M. L. 104-106 or 124-126)	3	3	3
Physics (Phys. 104-106, Phys. Lab. 104-106)	3	3	3
Electives in Agriculture	3	3	3

SENIOR YEAR.

Adv. Agr'l Chemistry (Chem. 120-122)	4	4	4
Physical Chemistry (Chem. 129-131)	3	3	3
Economics (Econ. 101-102)	3	3	.....
Economics (Econ. 110)	.....	.....	3
Bacteriology (Bact. 101-103)	3	3	3
Physiological Chemistry (Chem. 132-133)	.....	4	4
Chemistry of Foods (Chem. 135)	4	.....	.....

BIOLOGICAL CHEMISTRY

In arranging the curriculum in the Department of Biological Chemistry has borne in mind the many calls for men trained in chemistry with a working knowledge in general biology. The course should meet the needs of several classes of men: those desiring to follow chemical studies of a biological nature; those preparing for the study of medicine, for which a college training in biology, chemistry and allied subjects, as well as in liberal studies, is almost essential; and those preparing to become teachers.

BIO-CHEMISTRY.

FRESHMAN YEAR. Term:	I	II	III
Composition and Rhetoric (Eng. 101-103)	3	3	3
Public Speaking (P. S. 101-103)	1	1	1
Gen'l Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Trigonometry (Math. 101)	5	.....	.....
Analytics (Math. 102-103)	.....	5	5
Zoology (Zool. 101-102)	4	4	.....
Botany (Bot. 101)	.....	.....	4

SOPHOMORE YEAR.

Modern Language (M. L. 101-103 or 121-123)	3	3	3
Plant Physiology (Bot. 102-103)	.....	4	3
Inorganic Chemistry (Chem. 104-105)	3	3	.....
Agr'l Chemistry (Chem. 116)	.....	.....	4
Quantitative Analysis (Chem. 106-108)	3	3	3
Geology (Geol. 101)	3	.....	.....
Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	.....	3	3
Mechanical Drawing (Dr. 102-103)	2	1	1

JUNIOR YEAR.

Mechanics and Sound (Phys. 101 and Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102, Phys. Lab. 102)	.....	5	.....
Light and Heat (Phys. 103, Phys. Lab. 103)	.....	.....	5
Organic Chemistry (Chem. 123-125)	4	4	5
Modern Language (M. L. 104-106 or 124-126)	3	3	3
Adv. Quantitative Analysis (Chem. 109-111)	5	5	5

SENIOR YEAR.

Economics (Econ. 101-102)	3	3	.....
Economics (Econ. 106)	.....	.....	3
Adv. Agr'l Chemistry (Chem. 120)	4	.....	.....
Physiological Chemistry (Chem. 132-133)	.....	5	5
Physical Chemistry (Chem. 129-131)	3	3	3
Bacteriology (Bact. 101-103)	3	3	3
English (Eng. 104-106)	2	2	2
Chemistry of Foods (Chem. 135)	3	.....	.....
Public Speaking (P. S. 104-106)	.....	1	1

DEPARTMENT OF FERTILIZER AND FOOD ANALYSIS AND INSPECTION

Under the jurisdiction of the Department of Fertilizer and Food Analysis and Inspection is conducted the State's inspection work, including sampling, analysis, and the publication of results on fertilizers, stock foods, and agricultural lime.

Description of Courses

Chem. 101-103: General Chemistry and Qualitative Analysis. Four credit hours each term: three lectures and one laboratory period.

The first term. Two lectures and two laboratory periods. The second and third terms.

A study of the non-metals and metals. The non-metals are first considered. Special attention is given those elements and compounds which are of industrial importance. The laboratory work accompanying this course in the first term consists, chiefly, of experiments illustrative of the work in the class. During the last two terms systematic qualitative analysis of the more common bases and acids is the laboratory work pursued.

Chem. 104-105. Inorganic Chemistry. Three credit hours each term: three lectures. The first and second term. Prerequisite, Chem. 101-103.

An advanced course covering more in detail the subject matter set forth in the general chemistry offered in the freshman year.

Chem. 106-108. Quantitative Analysis. Three credit hours each term: one lecture and two laboratory periods. The year. Prerequisite, Chem. 101-103.

The principal operations of quantitative analysis. Standardization of chemical balance. Standardization of weights and apparatus used in chemical analysis. Typical gravimetric, volumetric, colorimetric and electrolytic methods are taken for study.

Chem. 109-111. Advanced Quantitative Analysis. Five credit hours each term: two lectures and three laboratory periods. The year. Prerequisite, Chem. 101-103, 106-108.

A continuation of courses 106-108. An advanced course of quantitative analysis where the student may elect to study the methods used in agricultural, biological, or industrial chemistry.

Chem. 112-114. Technical Analysis. Four credit hours each term: two lectures and two laboratory periods. The year. Prerequisite, Chem. 101-103, 106-108.

The analysis of ores, oils, fuels, gases, boiler waters, etc., for students in industrial chemistry.

Chem. 115. Quantitative Analysis. Three credit hours: one lecture and two laboratory periods. The first term. Prerequisite, Chem. 101-103.

Same as Chem. 106-108, but abbreviated for agricultural students.

Chem. 116. Agricultural Chemistry. Four credit hours, three lectures and one laboratory period. The third term. Prerequisite, Chem. 101-103. Chem. 115.

A course including lectures, recitations, and laboratory in the chemistry of air, soils, feeds, fertilizers, plants and animals.

Chem. 117-119. Agricultural Chemical Analysis. Four credit hours each term: two lectures and two laboratory periods. The year. Prerequisite, Chem. 101-103, 115-116.

Lectures, laboratory work, analysis of soils, fertilizers, plant and animal products.

Chem. 120-122. Advanced Agricultural Chemistry. Four credit hours each term: two lectures and two laboratory periods. The year. Prerequisite, Chem. 116-119.

A continuation of chemistry 116-119. Special problems in agricultural chemistry.

Chem. 123-125. Organic Chemistry. Four credit hours. First and second terms. Five credit hours. Third term: three lectures and one laboratory period. First and second terms: three lectures and two laboratory periods. The second term. Prerequisite, Chem. 101-103.

A study of the aliphatic and aromatic compounds.

Chem. 126-128. Industrial Chemistry. Five credit hours each term: three lectures and two laboratory periods. The year. Prerequisite, Chem. 101-103, 104-105, 106-108, 123-125.

The study of practical methods employed in the various inorganic and organic chemical industries. Visits are made to ice, fermentation and gas plants, also to fertilizer, glass, coke, iron and steel works. The laboratory work accompanying this course consists of the analysis of industrial products.

Chem. 129-131. Physical Chemistry. Three credit hours each term: two lectures and one laboratory period. The year. Prerequisite, Chem. 101-103, 106-108.

A study of the advanced theories of chemistry. Laboratory work consists of the determination of the boiling and melting points, lowering the freezing point by substances in solution. Determination of vapor densities, study of refractometer, polariscope, etc.

Chem. 132-133. Physiological Chemistry. Five credit hours each term: three lectures and two laboratory periods. Second and third terms. Prerequisite, Chem. 101-103, 106-108, 123-124.

Recitations, lectures, laboratory in general physiological chemistry.

Chem. 134. Electrochemistry. Three credit hours: three lectures. The third term. Prerequisite, Chem. 101-103, 129-131.

In this course the various factors which govern the action of electrolytes when subject to the action of the electric current and the factors which determine electromotive force are taken up.

Chem. 135. The Chemistry of Foods and Nutrition. Four credit hours: three lectures and one laboratory period. First term. Prerequisite, Chem. 101-103, 123-125.

Lectures and recitations dealing with human foods and nutrition, the composition of foods, energy values, etc.

Chem. 136. Determinative Mineralogy and Assaying. Three credit hours: one lecture and two laboratory periods. Third term. Prerequisite, Chem. 101-103, 106-108.

This is a course of determinative mineralogy. The more important minerals are identified by their characteristic physical and chemical properties. Assays of gold, silver, copper and lead, etc., are made.

For Short-Course Students

Chem. 1. Farm Chemistry. Two lectures and one laboratory period. The year.

This course consists of an elementary study of general chemistry with special reference to the chemistry of plants, animals, soils, fertilizers, etc., for students in the two-year course in agriculture.

SCHOOL OF EDUCATION

The school of Education consists of an organization of the various activities of the College which are concerned with the professional preparation of teachers. Its courses are planned to serve three classes of students: First, those preparing to teach agriculture, home economics, industrial and general subjects in secondary schools; second, prospective principals of high schools, educational supervisors, county agents, home demonstrators, boys' and girls' club workers, and other extension workers; third, those majoring in other lines of work who desire courses in education and psychology for their professional and informational value.

CURRICULA

Two general classes of curricula leading to the degrees of Bachelor of Science and Bachelor of Arts are offered.

The first of these provides fixed courses permitting comparatively little election for the definite purpose of preparing teachers and supervisors of agriculture, home economics, manual training, and industrial subjects.

The second class provides a wide range of electives and seeks to train superintendents, principals and teachers of general high school subjects. Although there are definite and fixed basic requirements, the student may choose from a number of subjects the major subject in which he expects to qualify for teaching. Correlated with this may be other subjects which he may wish to teach.

All students wishing to prepare for teaching should consult the Dean of the School of Education regarding the arrangement of their work. Upon matriculation each student is required to state his major interest and in the election of courses to secure the advice and approval of the head of the department in which his major falls. The previous training of the student, his experience, and his future needs govern the head of the department in his recommendations.

TEACHERS' SPECIAL DIPLOMAS

The degrees granted for work done in the School of Education indicate primarily the quantity of work completed. Teachers' special diplomas certify to the professional character of such work. Teachers' special diplomas will be granted only to those who, besides qualifying for a degree, give promise of superior professional ability as evidenced by their personality, character, experience, and success in supervised teaching. Teachers' special diplomas will be granted in agricultural education, home economics education, manual training, industrial education, and in general education.

The recipient of a teacher's special diploma is eligible for certification by the State Superintendent of Schools without examination.

SPECIAL COURSES

By a system of extension teacher training, special courses in education are offered in evenings and on Saturdays to teachers in service and to those who may qualify for teaching in the schools of Maryland after having had such work. College credit will be granted for this work if taken in course. Only a limited amount of service of this character can be undertaken by the faculty of the School of Education in any year. School officials should make application for this wrok before arranging for it in their counties.

As the need for evening classes in industrial and home economics education arises, special courses will be offered at centers throughout the State. The number and location of these centers will depend entirely upon the need and demand for such instruction. The courses will be organized on the short unit basis and will be maintained only as long as the demand justifies it. Upon the satisfactory completion of such special curricula, students will be issued certificates of proficiency.

In summer special courses are offered for the benefit of teachers in service and such individuals as may be able to qualify for teaching upon the completion of the work.

AGRICULTURAL EDUCATION

In addition to the regular entrance requirements of the College, involving graduation from a standard four-year high school, students electing the agricultural education curriculum must present evidence of having acquired adequate farm experience after reaching the age of fourteen years.

The electives allowed by this curriculum may be selecetd from any of the courses offered by the College for which the student has the necessary prerequisites.

A student is expected, however, to confine his elections to subjects related to farming and to teaching. Though opportunity is afforded for specialization in a particular field of agriculture, such as animal husbandry, agronomy, pomology, vegetable gardening and farm management, students should arrange their work so that at least forty per cent of their time will have been spent on technical agriculture, twenty-five per cent on scientific subjects, twenty per cent on subjects of a general educational character and from twelve to fifteen per cent on subjects in professional education.

AGRICULTURAL EDUCATION.

FRESHMAN YEAR. Term:	I	II	III
Gen'l Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
General Zoology (Zool. 101-102)	4	4	.....
General Botany (Bot. 101)	.....	.....	4
Educational Guidance (Prin. Ed. 101-103)	1	1	1
Public Speaking (Pub. Sp. 101-103)	1	1	1
Library Science	1	.....	.....
Composition and Rhetoric (Eng. 101-103)	3	3	3
AND ONE OF THE FOLLOWING GROUPS:			
Group I—			
Cereal Crops (Agron. 101)	4	.....	.....
Animal Husbandry (An. Hb. 101)	.....	4	.....
Elementary Vegetable Gardening (Hort. 101)	.....	.....	4
Group II—			
Social and Economic History of the United States (Hist. 118-120)	3	3	3
Group III—			
Language (French, German or Spanish)	3	3	3
Group IV—			
Mathematics	3	3	2
SOPHOMORE YEAR.			
History of Modern Education (Prin. Ed. 104)	2	.....	.....
General and Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Elementary Pomology (Hort. 102)	4	.....	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
Principles of Dairying (D. H. 101)	4	4	.....
Forage Crops (Agron. 103)	.....	.....	4
Geology (Geol. 101)	3	.....	.....
Soils (Soils 101-102)	.....	3	3
Electives	4–6	4–6	5–8
JUNIOR YEAR.			
Educational Psychology (Prin. Ed. 107)	5	.....	.....
Survey of Teaching Methods (Prin. Ed. 108)	.....	3	.....
Schoolroom Observation (Prin. Ed. 109)	.....	2	.....
Methods in Secondary Vocational Agr'l (Ag. Ed. 101)	.....	.....	3
Observation and Teaching Problems (Ag. Ed. 102)	.....	.....	2
Feeds and Feeding (An. Hb. 102)	4	.....	.....
Grain Judging (Agron. 102)	.....	1	.....
Farm Poultry (An. Hb. 104)	.....	.....	4
Technical Composition	2	2	2
Economics (Econ. 101-102)	3	3	.....
Elective	4–6	6–9	6–9
SENIOR YEAR.			
Seminar in Agricultural Education (Ag. Ed. 103)	3	.....	.....
The Rural Community and It's Education (Ag. Ed. 104)	.....	3	.....
Principles of Secondary Education (Prin. Ed. 110)	.....	.....	3
*Supervised Teaching (Ag. Ed. 105)	.....	.....	.....
Farm Management	3	3	.....
Electives	11–14	11–14	14–17

*Given any term. Credit not to exceed five hours.

Requirements for a Degree

Upon the satisfactory completion of two hundred and four trimester hours under the restrictions and requirements prescribed above, a student will be recommended for the degree of Bachelor of Science.

SUGGESTED ELECTIVES FOR STUDENTS IN AGRICULTURAL EDUCATION

SUBJECT. Term:	I	II	III
Organic Chemistry (Chem. 123-124)	4	4	.....
Entomology (Zool. 103)	.....	.....	3
Mechanical Drawing (Draw. 107)	1	.....	.....
Woodwork (Shop 104)	.....	1	.....
Forging and Pipe-fitting (Shop 107)	.....	.....	1
Farm Buildings (Struc. Des. 109)	.....	2	.....
Cement Work	.....	.....	1
Swine Production (A. H. 106)	3	.....	.....
Principles of Breeding (A. H. 104)	.....	4	.....
Herd Management (A. H. 103)	.....	.....	4
Beef Production (A. H. 108)	.....	3	.....
Sheep Production (A. H. 109)	.....	.....	3
Advanced Judging (A. H. 111)	.....	2	2
Market Milk (D. H. 105)	5	.....	.....
Advanced Milk Testing (D. H. 106)	.....	4	.....
Dairy Production (D. H. 104)	.....	.....	4
Bacteriology (Bact. 101-102)	3	3	.....
Animal Diseases (V. M. 192)	.....	4	.....
General Physics (Phys. 104)	3	3	3
Farm Machinery	3	.....	.....
Motors and Trucks	.....	.....	3
Drainage (Hyd. 108)	.....	.....	1
Elementary Surveying (Surv. 110-111)	.....	.....	2
Genetics (Plt. Phys. 108)	4	.....	.....
Crop Rotation (Agron. 108)	2	.....	.....
Marketing and Grading Farm Crops (Agron. 106)	.....	2	.....
Crop Breeding (Agron. 10)	.....	3	1
General Plant Pathology (Plt. Path. 101)	3	.....	.....
Advanced Soils (Soils 105)	3	.....	.....
Systematic Entomology (Zool. 104)	2	.....	.....
Economic Entomology (Zool. 105)	.....	4	4
Insecticides and Their Application (Zool. 110)	.....	2	.....
Horticultural Entomology (Zool. 113)	.....	.....	3
Principles of Soil Management (Soils 103)	.....	3	.....
Fertilizers (Soils 104)	.....	.....	3
Systematic Pomology (Hort. 104)	3	.....	.....
Fruit and Vegetable Judging (Hort. 108)	2	.....	.....
Advanced Fruit Judging (Hort. 109)	.....	1	.....
Tuber Root Crops and Vegetable Forcing (Hort. 112)	3	.....	.....
Commercial Vegetable Gardening (Hort. 113-115)	3	3	3
Frame Crops (Hort. 118)	.....	.....	2
Elementary Floriculture (Hort. 121)	.....	3	.....
Commercial Floriculture (Hort. 122-123)	3	3	.....
Greenhouse Management (Hort. 124)	3	.....	.....
Elementary Landscape Gardening (Hort. 131)	.....	3	.....
Tree Repair and Surgery (Hort. 138)	2	.....	.....
Agricultural Economics (Econ. 103)	.....	.....	3
Markets and the Marketing of Farm Products (Econ. 108)	3	.....	.....
Co-operative Marketing (Econ. 109)	.....	3	.....
Farm Accounting (Econ. 107)	.....	.....	3
Public Speaking	1	1	1
Current History (H. 113-115)	1	1	1
History	3	3	3
Political Science	2	2	2
Literature	3	3	3
Language	3	3	3
Methods in Agricultural Extension Work (Ag. Ed. 106)	.....	.....	2

SUBJECT. Term:	I	II	III
*Agricultural Extension Practice (Ag. Ed. 107)	.....	.....	.....
Methods in Elementary School Agriculture and Club Work (Ag. Ed. 108)	3	.....	.....
Methods of Teaching General and Biological Sciences in High Schools (Arts and Sc. Ed. 104)	2	.....	.....
Methods of Teaching Chemistry in High Schools (Arts and Sc. Ed. 105)	.....	2	.....
Methods of Teaching Physics in High Schools (Arts and Sc. Ed. 106)	.....	.....	2
Theory of Vocational Education (Prin. Ed. 111)	3	.....	.....
School Administration (Prin. Ed. 112)	.....	3	.....
School Hygiene (Prin. Ed. 113)	.....	.....	3
Recreational Leadership in High Schools (Prin. Ed. 114)	2	.....	.....
Philosophy of Education (Prin. Ed. 113-116)	.....	2	2
Seminar in Education (Prin. Ed. 117-118)	.....	1	1

*Given any term. Credit not to exceed two hours.

HOME ECONOMICS EDUCATION

In addition to the regular entrance requirement of the College, involving graduation from a standard four-year high school, students electing home economics education must present evidence of two years' experience in the home as a house daughter during which time a large share of the responsibility in the management of the home was assumed.

Students may elect from the general college such courses as they may be qualified to enter. They are expected, however, to confine their elections primarily to subjects related to home making and teaching. The course should be so arranged that approximately forty per cent of the student's time will be spent on technical home economics subjects, twenty-five per cent on subjects of general academic character and from twelve to fifteen per cent on subjects of a professional character.

HOME ECONOMICS EDUCATION.

FRESHMAN YEAR. Term:	I	II	III
General Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Composition and Design (Art 101)	2	.....	.....
Freehand Perspective (Art 102)	.....	2	.....
Food Industries (Foods 101)	.....	.....	3
Textiles (Textiles 101-102)	1	1	.....
Garment Construction (Cloth. 101)	3	.....	.....
Drafting and Elementary Dress Design (Cloth. 102)	.....	3	.....
Dressmaking (Cloth. 103)	.....	.....	3
Composition and Rhetoric (Eng. 101-103)	3	3	3
Educational Guidance (Prin. Ed. 101-103)	1	1	1
Library Science	1	.....	.....
AND ONE OF THE FOLLOWING:			
Social and Economic History of the U. S. (H. 119-120)	3	3	3
Language (French, Spanish, or German)	3	3	3
Mathematics	3	3	3

SOPHOMORE YEAR.			
History of Modern Education (Prin. Ed. 104)	2	.....	.....
General and Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Problems in Preparation and Service of Food (Foods 103-105)	3	3	3
Food Economics (Foods 105-107)	2	2	2
Costume Design (Art 103)	2	.....	.....
Advanced Dressmaking (Cloth. 104-105)	.....	2	2
Organic Chemistry (Chem. 108-109)	4	4	.....
General Zoology (Zool. 101-102)	4	4	.....

JUNIOR YEAR.			
Educational Psychology (Prin. Ed. 107)	5	.....	.....
Survey of Teaching (Prin. Ed. 108)	.....	3	.....
Schoolroom Observation (Prin. Ed. 109)	.....	2	.....
Methods in Secondary Vocational Home Economics (H. E. Ed. 101)	.....	.....	3
Observation and Teaching Problems (H. E. Ed. 102)	.....	.....	2
Household Administration (H. M. 101-102)	3	3	.....
Home Architecture and Decoration (Art 105)	.....	.....	3
Advanced Textiles (Textiles 103-105)	2	2	2
English (Eng. 104-106)	2	2	2
Bacteriology (Bact. 101)	3	.....	.....

SENIOR YEAR.			
Seminar in Home Economics Education (H. E. Ed. 103)	3	.....	.....
The Rural Community and Its Education (Ag. Ed. 104)	.....	3	.....
Principles of Secondary Education (Prin. Ed. 110)	.....	.....	3
*Supervised Teaching (H. E. Ed. 104)	.....	.....	.....
*Home Management (H. M. 103)	.....	.....	.....
Nutrition (Foods 109)	.....	.....	2
Nutrition (Foods 110)	.....	.....	3
Clothing Economics (Cloth. 109)	.....	3	.....
Child Care and Welfare (H. E. Ed. 110)	3	.....	.....

*Given anl term. Credit not to exceed five hours.

Requirements for a Degree

Upon the satisfactory completion of two hundred and four trimester hours, under the restrictions and requirements prescribed above, a student will be recommended for the degree of Bachelor of Science.

SUGGESTED ELECTIVES FOR STUDENTS IN HOME ECONOMICS EDUCATION

SUBJECT. Term:	I	II	III
Quantitative Analysis (Chem. 106-108)	3	3	3
Art and Handicraft (Art 104)	2	.....	.....
Millinery (Cloth. 106)	.....	.....	2
Camp Cookery (Foods 108)	.....	.....	3
General Botany (Bot. 101)	.....	.....	4
Tailoring (Cloth. 107)	.....	3	.....
Dietetics (Foods 111-113)	3	3	3
Draping and Advanced Technique of Clothing (Cloth. 110)	.....	.....	5
Advanced Millinery (Cloth. 111)	.....	2	.....
Bacteriology (Bact. 102-103)	.....	3	3
Language	3	3	3
Current History (H. 113-115)	1	1	1
History	3	3	3
Political Science	2	2	2
Economics	3	3	3
Mathematics	3	3	3
Literature	3	3	3
Public Speaking	1	1	1
Public Speaking	2	2	2
Methods in Home Economics Extension (H. E. Ed. 107)	.....	.....	2
*Home Economics Extension Practice (H. E. Ed. 108)	.....	.....	.....
Methods in Elementary School Home Economics Extension and Club Work (H. E. Ed. 109)	.....	.....	3
Methods of Teaching General and Biological Science (Arts and Sc. Ed. 104)	2	.....	.....
Methods of Teaching Chemistry (Arts and Sc. Ed. 105)	.....	2	.....
Methods of Teaching Physics (Arts and Sc. Ed. 106)	.....	.....	2
History of the Family (H. E. Ed. 105)	.....	3	.....
Education of Women (H. E. Ed. 106)	2	.....	.....
Theory of Vocational Education (Prin. Ed. 111)	3	.....	.....
School Administration (Prin. Ed. 112)	.....	3	.....
School Hygiene (Prin. Ed. 113)	.....	.....	3
Recreational Leadership in High Schools (Prin. Ed. 114)	2	.....	.....
Philosophy of Education (Prin. Ed. 115-116)	.....	2	2
Seminar in Education (Prin. Ed. 117-118)	.....	1	1

*Given any term. Credit not to exceed two hours.

INDUSTRIAL EDUCATION

The curriculum in Industrial Education is designed to prepare teachers of related industrial subjects and fulfills the requirements of the Maryland State Law for manual training teachers in state-aided high schools.

INDUSTRIAL EDUCATION.

FIRST YEAR. Term:	I	II	III
English (Eng. 101-103)	3	3	3
General Physics (Phys. 1)	4	4	4
Trigonometry (Math. 4)	4	.....	.....
Algebra (Math. 2)	.....	4	.....
Shop Arithmetic (Math. 5)	.....	.....	4
Freehand Drawing (Draw. 101)	1	.....	.....
Mechanical Drawing (Draw. 2)	2	2	2
Woodworking Shop (Shop 3)	2	2	2
Forge Shop (Shop 106)	.....	1	1
General and Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Library Science	1	.....	.....
SECOND YEAR.			
Mechanics of Teaching (Ind. Ed. 101)	3	.....	.....
Shop Teaching Methods (Ind. Ed. 102)	.....	3	.....
Prin. of Industrial Education (Ind. Ed. 103)	3	.....	.....
Observation and Practice Teaching (Ind. Ed. 104-105)	.....	2	3
Elements of Sociology (Econ. 113)	3	.....	.....
Industrial History (Hist. 138)	.....	3	.....
Industrial Geography (Econ. 115)	.....	3	.....
Elementary Mechanics (M. E. 5)	3	2	4
Advanced Woodworking (Shop 112)	1	.....	.....
Machine Shop Practice (Shop 7)	2	2	2
Automobile Shop Practice (Shop 113)	2	2	2
Electrical Shop Practice (E. E. 11)	.....	1	1

REQUIREMENTS FOR A TEACHER'S SPECIAL DIPLOMA

Upon the satisfactory completion of the curriculum as outlined, under the restrictions and regulations presented above, the student, who gives promise of superior professional ability, will be recommended for the teacher's special diploma.

GENERAL EDUCATION

Since the student electing this curriculum may become a candidate for either the Bachelor of Arts or the Bachelor of Science degree, he should upon his matriculation state the degree for which he wishes to qualify. Students wishing to prepare for the teaching of English, history, and the social sciences, language, and mathematics should become candidates for the degree of Bachelor of Arts. Those wishing to teach general and biological sciences, chemistry, and physics, should become candidates for the degree of Bachelor of Science.

Students should also state the subjects in which they expect to qualify for teaching, designating a major and a minor interest; they should complete approximately sixty-three hours in their major and related subjects and twenty-seven hours in their minor and related subjects.

Candidates for the Bachelor of Arts degree must complete in addition to the requirements of the curriculum a total of twenty-four credit hours of science, at least twelve of which must be in biology. Candidates for the Bachelor of Science degree must complete in addition to the requirements of the curriculum nine hours of history and nine hours of language.

GENERAL EDUCATION.

FRESHMAN YEAR. Term:	I	II	III
Composition and Rhetoric (Eng. 101-103)	3	3	3
Language (Spanish, French, German or Latin)	3	3	3
Educational Guidance (Prin. Ed. 101-103)	1	1	1
Public Speaking (Pub. Spk. 101-103)	1	1	1
Library Science (Lib. Sci. 101)	1	.....	.....
AND TWO OF THE FOLLOWING GROUPS:			
Group I—			
General Chemistry (Chem. 101-102)	4	4	.....
Qualitative Analysis (Chem. 103)	.....	.....	4
Group II—			
General Zoology (Zool. 101-102)	4	4	.....
General Botany (Bot. 101)	.....	.....	4
Group III—			
History	3	3	3
Group IV—			
Mathematics	3	3	3

SOPHOMORE YEAR.			
History of Modern Education (Prin. Ed. 104)	2	.....	.....
General Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Economic and Social History of the U. S. (Hist. 118-120)	3	3	3
Technical Composition (Eng. 104-106)	2	2	2
Major	5	5	5
Minor	2	2	2
Electives	3–6	3–6	3–6

JUNIOR YEAR.

Educational Psychology (Prin. Ed. 107)	5	.....	.....
Survey of Teaching Methods (Prin. Ed. 108)	.....	3	.....
Schoolroom Observation (Prin. Ed. 109)	.....	2	.....
School Hygiene (Prin. Ed. 113)	.....	.....	3
Arts and Science Education 103 or 106 or 107	.....	.....	2
Principles of Economics (Econ. 101-102)	3	3	.....
Public Finance (Econ. 106)	.....	.....	3
Major	5	5	5
Minor	2	2	2
Electives	2–5	2–5	2–5

SENIOR YEAR.

Theory of Vocational Education (Prin. Ed. 111)	3	.....	.....
School Administration (Prin. Ed. 112)	.....	3	.....
Principles of Secondary Education (Prin. Ed. 110)	.....	.....	.....
Recreational Leadership in High Schools (Prin. Ed. 114)	2	.....	3
Philosophy of Education (Prin. Ed. 115-116)	.....	2	2
Arts and Science Education 101 or 104	2	.....	.....
Arts and Science Education 102 or 105	.....	2	.....
*Supervised Teaching (Arts and Sci. Ed. 108)	.....	.....	.....
Major	5	5	5
Electives	5–8	5–8	7–10

*Given any term. Credit not to exceed five hours.

Requirements for a Degree

Upon the satisfactory completion of two hundred and four trimester hours, under the restrictions and requirements prescribed above, the student will be recommended for the degree of Bachelor of Arts or for the degree of Bachelor of Science, depending upon the character of the work elected.

SUGGESTED ELECTIVES FOR STUDENTS IN GENERAL EDUCATION

SUBJECT. Term:	I	II	III
Nineteenth Century Poetry (Eng. 107-108)	3	3	.....
The Essay (Eng. 109)	.....	.....	3
English Words (Eng. 110)	3	.....	.....
Literature in America (Eng. 111-112)	.....	3	3
Novelists of the Nineteenth Century (Eng. 113-114)	3	3	.....
The Short Story (Eng. 115)	.....	.....	3
Early English Drama (Eng. 116)	3	.....	.....
Elizabethan Drama (Eng. 117-118)	.....	3	3
Modern English Drama (Eng. 119-120)	3	3	.....
Technique of the Drama (Eng. 121)	.....	.....	3
Reading and Speaking (P. S. 101-103)	1	1	1
Oratory (P. S. 104-106)	1	1	1
Extempore Speaking (P. S. 107-109)	1	1	1
Debate (P. S. 110-112)	1	1	1
Oral Reading (P. S. 113-115)	2	2	2
History of Ancient Peoples (H. 101)	3	.....	.....
Continental European History (H. 102-103)	.....	2	2
Modern and Contemporary European History (H. 104-105)	2	2	.....
History of the United States (H. 106-107)	2	2	.....
History of Maryland (H. 111)	.....	.....	3
History of Agriculture (H. 112)	.....	3	.....
Current History (H. 113-115)	1	1	1
*English Social and Industrial History (H. 116-117)	2	2	.....
Latin American Republics (H. 118-119)	.....	2	2
Origin of the State (Pol. Sc. 101-102)	2	2	.....
Governments of Europe (Pol. Sc. 103-104)	.....	2	2
Government of United States (Pol. Sc. 105-106)	2	2	.....
*Federal State and Municipal Government (Pol. Sc. 107-8)	2	2	.....
Contemporary Political Problems of the U. S. (Pol. Sc. 109)	.....	.....	3
Constitutional Law of U. S. (Pol. Sc. 112-113)	2	2	.....
Political Parties and Practical Politics (Pol. Sc. 117)	.....	.....	3
Beginning French (M. L. 101-103)	3	3	3
Scientific French (M. L. 107)	3	.....	.....
French (M. L. 108-110; 104-106; 111-113)	3	3	3
Beginning German (M. L. 121-123)	3	3	3
German (M. L. 124-126; 128-130; 131-133)	3	3	3
Scientific German (M. L. 127)	3	.....	.....
Beginning Spanish (M. L. 141-143; 144-146)	3	3	3
Trades Course (M. L. 147-149; 150-152)	3	3	3
Literary Course (M. L. 153-155)	3	3	3
Latin (A. L. 121-123; 124-126)	4	4	4
General Botany (Bot. 101)	.....	.....	4
Plant Anatomy (Morph. and Myc. 101)	4	.....	.....
Plant Physiology (Plt. Phy. 101-102)	.....	4	3
Plant Ecology (Plt. Phy. 106)	.....	.....	3
Genetics (Plt. Phy. 108)	4	.....	.....
General Plant Pathology (Plt. Path. 101)	3	.....	.....
General Zoology (Zool. 101-102)	4	4	.....
Histology and Embryology (Zool. 103-105)	4	4	4
Entomology (Zool. 106)	.....	.....	3
Systematic Entomology (Zool. 113)	2	.....	.....
Economic Entomology (Zool. 108-109)	.....	4	4
General Chemistry (Chem. 101-102)	4	4	.....
Qualitative Analysis (Chem. 103)	.....	.....	4
Organic Chemistry (Chem. 123-125)	4	4	4
Quantitative Analysis (Chem. 106-108)	3	3	3
Agricultural Chemistry (Chem. 116)	.....	.....	4
Physics	3	3	3
Physics	5	5	5
Mathematics	3	3	3
Mathematics	5	5	5

*Not given in 1919–20.

DESCRIPTION OF COURSES

Principles of Education

Prin. Ed. 101-103. Educational Guidance. One credit hour each term. Freshman year. Mr. Cotterman, with the co-operation of the President and the Deans.

This course is designed to assist freshman students in adjusting themselves to the demands and problems of college life, and to aid them in the selection of courses in subsequent years. Among the topics discussed are the following: the purposes of the College; principles and methods of study; the use of a library; general reading; mental recreation; student finances; student welfare; health; athletics; the relation of the College to the community; the choice of a vocation; and the election of courses. Lectures, assigned readings, and reports.

Prin. Ed. 104. History of Modern Education. Two credit hours. First term. Open to sophomores, juniors and seniors. Required of sophomores in Education. Mr. Cotterman.

It is the purpose of this course to introduce the student to present day problems of education by means of a study of the development of educational theory and practice from the Renaissance to the present time, with a consideration of the historical development of American secondary education and existing school systems.

Prin. Ed. 105-106. General and Applied Psychology. Two credit hours each term. Second and third terms. Open to sophomores, juniors and seniors. Required of sophomores in Education. Mr. Cotterman.

An introductory course embracing a study of human life from the biological point of view. The nervous system; attention; sensation; perception; imagination; memory; the formation of concepts; judgment; reasoning; reflexes; instincts; emotions; interest; effort; personality; and the psychology of efficiency.

Prin. Ed. 107. Education Psychology. Five credit hours. First term. Open to juniors and seniors. Required of juniors in Education. Prerequisite, Prin. Ed. 105-106. Mr. Cotterman, Miss Saunders.

A study of attention and interest; instincts and their appearance; the mental development of children during the successive school ages, stressing particularly adolescence; the psychology of learning; individual differences and their causes; mental tests and measurements.

Prin. Ed. 108. Survey of Teaching Methods. Three credit hours. Second term. Open to juniors and seniors. Required of juniors in Education. Prerequisite, Prin. Ed. 107. Mr. Cotterman and Miss Saunders.

A course dealing with the nature of teaching; the nature of subject matter; types of learning; types of lessons; methods of adding new knowledge; methods of developing skill; methods of habit formation;

the use of the question; lesson planning; moral training; discipline; the teacher's relation to the supervisor and to the course of study.

Prin. Ed. 109. Schoolroom Observation. Two credit hours: one lecture and one laboratory period. Second term. Open to juniors and seniors. Required of juniors in Education. This course must parallel Prin. Ed. 108. Mr. Cotterman and Miss Saunders.

A study of methods as exemplified in the classroom teaching of high school teachers in Maryland and in the City of Washington; critiques; and lesson plans.

Prin. Ed. 110. Principles of Secondary Education. Three credit hours. Third term. Open to seniors and graduate students. Required of seniors in Education. Mr. Cotterman.

A study of the evolution of secondary education and of high schools; influence of traditions, of higher institutions, of associations, of secondary schools and colleges, and of state departments of education; articulation with elementary schools, colleges, technical schools, the community and the home; programs of study and the reconstruction of curriculums; the teaching staff; student activities.

Prin. Ed. 111. Theory of Vocational Education. Three credit hours. First term. Open to advanced undergraduate and graduate students by special arrangement. Mr. Emerson, Miss Saunders and Mr. Cotterman.

A study of the development of vocational education; educational and social forces behind the movement; terminology; types of industrial schools; trade unions and industrial education; technical high schools; vocational education for girls; vocational education in rural communities; recent legislation.

Prin. Ed. 112. School Administration. Three credit hours. Second term. Open to advanced undergraduate and graduate students by special arrangement. Mr. Emerson and Mr. Cotterman.

A study of state, county and city school systems; administrative control; the problems of centralization in administration; duties of boards; problems of officials; taxation for schools; the distribution of school funds; inspections and supervision; the training of teachers; physical equipment; records and reports; measuring educational products; qualities of merit and causes of failure in teachers; meetings and other agencies for improving the educational service.

Prin. Ed. 113. School Hygiene. Three credit hours. Third term. Open to advanced undergraduate and graduate students by special arrangement. Miss Saunders, Dr. Griffith.

A study of school architecture and equipment from the standpoint of health; heating; ventilation and lighting; posture; exercise and fatigue; rest periods; communicable diseases and their detection; first aid; school lunches; relation of school authorities to health authorities.

Prin. 1d. 114. Recreational Leadership in High Schools. Two credit hours. First term. Open to advanced undergraduates and graduate students by special arrangement. Mr. Byrd.

A study of the aim and organization of extra-curriculum activities in representative schools. Special emphasis will be placed on those phases of student affairs which provide a definite training in citizenship. A detailed study will be made of types of student activities in schools in Maryland and in the city of Washington. Such activities as are represented in student councils and in general organizations for directing the social, literary, athletic, and musical affairs of schools and for organzing students to co-operate with the life of the community will receive special attention.

Prin. Ed. 115-116. Philosophy of Education. Five credit hours each term. Second and third terms. Open to advanced undergraduates and graduates by special arrangement. Mr. Cotterman.

A study of the theory of education in a democratic society; the function of educational institutions in a democracy; the nature of education; the basis of method; and the relation between educational objectives and group needs.

Prin. Ed. 117-118. Seminar in Education. One credit hour each term. Second and third terms. Open to advanced undergraduates and graduates by special arrangement. Mr. Cotterman and members of the staff.

A consideration of problems and methods, investigations, reports, and discussions.

AGRICULTURAL EDUCATION

Ag. Ed. 101. Methods in Secondary Vocational Agriculture. Three credit hours. Third term. Open to juniors and seniors. Required of juniors in Agricultural Education. Mr. Cotterman.

This course embraces a thorough study of the home project method of teaching agriculture, covering such topics as the purpose of the project; the organization of project activities; project agreements; project study; project study outlines and reports; project work, supervision and records; final project reports; aims in secondary vocational agriculture; high school courses in agriculture; the correlation of project work with high school courses; methods of presenting high school agricultural instruction; practice in applying the methods studied as suitable for use in giving high school instruction in agriculture; a brief consideration of the purposes and methods in such related agricultural subjects as plant and animal physiology, agricultural chemistry, agricultural physics, and farm shop.

Ag. Ed. 102. Observation and Teaching Problems. Two credit hours. One lecture and one laboratory period. Open to juniors and

seniors. Required of juniors in Agricultural Education. This course must accompany Ag. Ed. 101. Mr. Cotterman.

A study of methods as exemplified in classroom presentations of agricultural material; critiques; and lesson plans.

Ag. Ed. 103. Seminar in Agricultural Education. Three credit hours. First term. Senior year. Required of seniors in Agricultural Education. Prerequisite, Ag. Ed. 101. Mr. Cotterman.

The work of this course embraces a study of problems in administration, organization, materials, and equipment.

Ag. Ed. 104. The Rural Community and its Education. Three credit hours. Second term. Open to seniors and graduate students by special arrangement. Required of seniors in Agricultural Education. Mr. Cotterman.

A study of the history, structure, and forces at work in rural communities as a basis for determining the educational needs of such communities.

Ag. Ed. 105. Supervised Teaching. Credit not to exceed five hours, determined by the amount and character of work done. Required of seniors in Agricultural Education. Prerequisite, Ag. Ed. 101. Mr. Cotterman.

Class teaching; conferences; lesson plans; and critiques.

Ag. Ed. 106. Methods in Agricultural Extension. Two credit hours. Third term. Open to juniors and seniors. Prerequisite, Prin. Ed. 108. Given under the supervision of the Extension Service, T. B. Symons, director.

This course is designed to equip young men to enter the broad field of extension work. The course will cover methods of assembling and disseminating the agricultural information that is available for the practical farmer. It will include administration, organization, supervision, and the practical details connected with the work of a successful county agent.

Ag. Ed. 107. Agricultural Extension Practice. Credit not to exceed two hours, determined by amount and character of work done. Given any term. Open to a limited number of seniors in Agricultural Education. Prerequisite, Ag. Ed. 106. Given under the supervision of the Extension Service, T. B. Symons, director.

This practice course is especially designed to give young men practical experience in the conduct of extension work. Students will be required to engage in specialists', county agents' and boys' club work as assistants always under the guidance of experienced men in the respective fields. Traveling expenses for this course will be adjusted according to circumstances, the ability of the man, and the service rendered.

Ag. Ed. 108. Methods in Elementary School Agriculture and Club Work. Three credit hours. Third term. Open to juniors and seniors. Prerequisite, Prin. Ed. 108. Mr. Cotterman.

This course is intended primarily for those who expect to be called upon to advise rural teachers in the teaching of agriculture in the elementary rural schools and covers such topics as purposes, content, methods, materials, the organization of club project activities, project supervision, reports based on the boys' and girls' club work of the extension service, and school exhibits.

Ag. Ed. 109. History of Husbandry as Social Control. Two credit hours. Third term. Open to advanced undergraduates and graduates by special arrangement. Prerequisite, Ag. Ed. 104. Mr. Cotterman.

This course attempts to trace the evolution of ideals in rural living and is intended primarily for those who expect to be called upon to assist in the shaping the destinies of rural people. It embraces the study of the literature—poetic, legislative, and pedagogic—in which the life of the farmer is used as basis of social culture. It traces a recognition of country life in moral and intellectual training from the earliest records—Biblical, classic, and historical.

HOME ECONOMICS EDUCATION

H. E. Ed. 101. Methods in Secondary Vocational Home Economics. Three credit hours. Third term. Open to juniors and seniors. Miss Saunders.

This course considers the relation of home economics to education; the methods of teaching; relation to high school curriculum; the planning of lessons and courses of study suitable to the methods and purpose of vocational home economics; studies and experiments with materials and subjects leading to operations involving household occupations in preparation for organization of project work.

H. E. Ed. 102. Observation and Teaching Problems. Two credit hours: one lecture and one laboratory period. Open to juniors and seniors. Prerequisite, H. E. Ed. 101. Miss Saunders.

A study of types of classroom exercises teaching plans, and management as observed in high schools visited.

H. E. Ed. 103 Seminar in Home Economics Education. Three credit hours. First term. Senior year.

This course includes the study of problems in administration, organization, materials, and equipment.

H. E. Ed. 104. Supervised Teaching. Credit not to exceed five hours, determined by the amount and character of work done. Prerequisite, H. E. Ed. 101.

Practice in planning and presenting of courses; conferences and critiques.

H. E. Ed. 105. History of the Family. Three credit hours. Any term. Senior year.

This course includes the history of the family from early ages to the present time; the industrial revolution and its effects upon family life; and an examination of the present situation and tendencies as they affect the life of the American family.

H. E. Ed. 106. Education of Women. Two credit hours. First term. Senior year.

Woman's work and her industrial and economic conditions are studied with reference to the home and to society. Opening of occupations and professions to women; a study of modern problems of woman and the home, suffrage, education, economic function of woman and the family.

H. E. Ed. 107. Methods in Home Economics Extension Work. Two credit hours. Third term. Senior year. Open to juniors and seniors. Given under the supervision of the Extension Service, T. B. Symons, director.

The course will take up the study of subject matter and administrative problems in home economics extension, demonstrations, and the use of graphic materials. Emphasis will be placed upon the improvement of the country home through organization and practical demonstrations as conducted in this State.

H. E. Ed. 108. Home Economics Extension Practice. Credit not to exceed two hours, determined by amount and character of work done. Given any term. Open to a limited number of seniors in Home Economics Education.

Students will be given an opportunity to work as assistants to county agents and specialists in order to acquaint them with the practical phases of extension work in home economics. Traveling expenses for this course will be adjusted according to circumstances, the ability of the student, and the service rendered.

H. E. Ed. 109. Methods in Elementary School Home Economics and Club Work. Three credit hours. Third term. Open to juniors and seniors. Miss Saunders.

This course is intended primarily for those who expect to be called upon to advise rural teachers in the teaching of home economics in the rural schools. The aim of the course will be to deal with such phases of home economics as may be correlated and given with the elementary school subjects.

INDUSTRIAL EDUCATION

Ind. Ed. 101. Mechanics of Teaching. Three credit hours: three lectures. First term. Mr. Emerson.

Methods of classroom instruction, lesson and term plans, instructional materials, discipline, etc.

Ind. Ed. 102. Shop Teaching Methods. Three credit hours: three lectures. Second term. Mr. Emerson.

A study of shop methods, toolroom and stockroom practice, care of the tools and equipment, project plans, shop organization, producing a useful product, etc.

Ind. Ed. 103. Principles of Industrial Education. Three credit hours: three lectures. First term. Mr. Emerson.

Aims of industrial education; comparison with manual training; types of industrial schools; the all-day school; evening classes; part-time schools; corporation schools, etc.

Ind. Ed. 104-105. Observation and Practice Teaching. Two credit hours: practice and conference. Second term. Three credit hours: practice and conference. Third term. Mr. Emerson.

In this course the student observes the work of expert teachers in secondary classes in the College and nearby schools and does practice teaching in one or two secondary subjects under a critic teacher.

GENERAL EDUCATION

Arts & Sc. Ed. 101. Methods of Teaching English in Secondary Schools. Two credit hours. First term. Senior year. Written English, Mr. Reed; oral English, Mr. Richardson.

The study of oral and written English requirements in representative secondary schools. Lectures and papers and the choice, interpretation, arrangement, and presentation of material. Approximately two-thirds of the course will be devoted to a study of the methods of teaching written English and one-third to a study of methods of teaching oral English.

Arts & Sc. Ed. 102. Methods of Teaching History and the Social Sciences in Secondary Schools. Two credit hours. Second term. Senior year. Prerequisite, Prin. Ed. 108. Mr. Schulz.

This course embraces the study of the requirements in history and social sciences in representative secondary schools; aims, materials; methods; lesson plans; and the presentation of type lessons.

Arts & Sc. Ed. 103. Methods of Teaching Foreign Languages in Secondary Schools. Two credit hours. Third term. Open to juniors and seniors. Prerequisite, Prin. Ed. 108. Mr. Spence, Mr. Stinson, and Mr. Kramer.

It is the aim of this course to organize the various kinds of knowledge used in the teaching of foreign languages in the secondary schools. It deals with the subject matter and the apparatus of foreign language teaching and embraces the study of methods, text-books, pronunciation, conversation, grammar, reading, pictures, and charts.

Arts & Sc. Ed. 104. The Teaching of General and Biological Sciences in Secondary Schools. Two credit hours. First term. Senior year. Prerequisite, Prin. Ed. 108. Mr. Zimmerman.

Aims, materials, and methods; a survey of text-books; the preparation of a course of study; securing of material and special equipment; writing of lesson plans and presentation of type lessons.

Arts & Sc. Ed. 105. Methods of Teaching Chemistry in Secondary Schools. Two credit hours. Second term. Senior year. Prerequisite, Prin. Ed. 108. Mr. Broughton.

This course covers the selection, arrangement, and treatment of subject matter suitable for secondary schools and embraces the study of methods, materials, equipment, and management of laboratories.

Arts & Sc. Ed. 106. Methods of Teaching Physics in Secondary Schools. Two credit hours. Third term. Open to juniors and seniors. Prerequisite, Prin. Ed. 108. Mr. Creese.

This course embraces the study of aims, materials, and methods; the selection of subject matter suitable for secondary schools; and the management of laboratories; practical laboratory projects that may be introduced into the average high school.

Arts & Sc. Ed. 107. Methods of Teaching Mathematics in Secondary Schools. Two credit hours. Third term. Open to juniors and seniors. Prerequisite, Prin. Ed. 108. Mr. Spann.

It is the purpose of this course to present the best modern practice of the teaching of algebra, plane and solid geometry, and trigonometry in secondary schools; the possible adaptation of mathematics to meet the needs of all classes of people; tendencies and curriculum requirements; the management of a mathematics department.

Arts & Sc. Ed. 108. Supervised Teaching. Credit not to exceed five hours, depending on the amount and character of work done. Given any term. Senior year. Mr. Cotterman, in co-operation with the instructor in charge of the specialty.

Class teaching, conferences, lesson plans, and curriculums.

SCHOOL OF ENGINEERING AND MECHANIC ARTS

The engineering group includes, in addition to the departments of Civil, Electrical and Mechanical Engineering, the departments of Mathematics and Physics.

Courses leading to the degree of Bachelor of Science are offered in Civil, Electrical, Mechanical and Rural Engineering, respectively. An outline of each is found on the succeeding pages. The four-year courses are arranged with a view to preparing the student for immediate usefulness in the technical world. The fundamental principles are emphasized through lectures, recitations and practical exercises in the laboratory, drafting room, shop and field. The courses allow some latitude in the selection of subjects in the senior year, particularly in Civil Engineering in which an opportunity to specialize in Highway or Sanitary Engineering is afforded, but in the main they are fixed in character, since experience indicates that the faculty is better qualified to select the subjects to be studied than the average undergraduate. The curriculums include studies which provide a broad general culture as well as a good foundation for technical engineering. Emphasis is placed on the necessity for the development of self-reliance, honest and accurate methods of work, and good judgment in addition to the mastering of the scientific laws underlying the profession of engineering and applying them.

INSTRUCTION

The school is organized, first, to instruct the students who desire to practice engineering as a profession, and, second, to teach students interested in agriculture and applied science, such branches of mechanic arts and engineering as will promote their individual interests. Instruction in certain subjects required under the provision of the Smith-Hughes Act for the training of teachers in the industrial arts will be given.

The demand for instruction in the mechanic arts and the elementary applications of engineering on the part of those who, for any reason, are unable to enter the four-year courses is met by the establishment of the two-year course in which several options are allowed. This is a practical course for which College credit is not given. Full information regarding this course will be found on pages 146, 147, 148.

An opportunity is afforded each year for practicing road engineers to take an intensive course in road building and maintenance, and for persons attending the short courses in agriculture to obtain instruction in farm machinery, woodwork, the mixing and placing of concrete, etc.

The work in the departments of Mathematics and Physics is developed with a view both to its cultural and its utilitarian value. The utilitarian

point of view is probably more emphasized because scientific training is so largely dependent on these subjects, particularly mathematics. Their value, however, in mental training and in general culture is clearly presented to the students.

SUMMER WORK AND INSPECTION

In addition to the work given during the regular session, summer work covering 100 hours of field, laboratory, shop or office practice is required of members of the freshman class. This work will be developed to include also a specified amount of time at the close of the sophomore and junior years. Summer employment will be accepted as a substitute for this work, if found to be equivalent.

The proximity of the College to Baltimore and Washington and to other places where there are great industrial enterprises offers an excellent opportunity for engineering students to observe what is being done in their chosen field. An instructor accompanies students on all trips of inspection.

Information and advice is given to farmers and others interested concerning drainage, sanitation, water supply, lighting, farm machinery and other small engineering problems whenever possible, although neither an experiment station nor an extension department in engineering has as yet been established.

OUTLINE OF COURSES OFFERED

The normal curriculum of each four-year course is outlined on the following pages. Students are also required to attend and take part in the meetings of the Engineering Society at which problems relating to engineering in its many phases are discussed.

CIVIL ENGINEERING.

FRESHMAN YEAR. Term:	I	II	III
Trigonometry or Solid Geometry (Math. 101 or 102)	5	.....	.....
Analytics (Math 103)	.....	5	5
Composition and Rhetoric (Eng. 101)	3	3	3
Public Speaking (P. S. 101)	1	1	1
General Chem. and Qualitative Anal. (Chem. 101-103)	4	4	4
Plane Surveying (Surv. 101-102)	.....	2	1
Freehand Drawing (Dr. 101)	1	.....	.....
Mechanical Drawing (Dr. 101)	2	1	.....
Engineering Drawing (Dr. 104)	.....	1	.....
Descriptive Geometry (Dr. 105)	.....	.....	3
Woodwork (Shop 103)	1	.....	.....

SOPHOMORE YEAR.

Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	2	5	5
Mechanics and Sound (Phys. 101 and Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102 and Phys. Lab. 102)	.....	5	.....
Light and Heat (Phys. 103 and Phys. Lab. 103)	.....	.....	5
Determinative Mineralogy (Min. 101)	.....	.....	2
Plane Surveying (Surv. 103-104)	3	.....	.....
Advanced Surveying (Surv. 105-106)	.....	4	1
Graphic Statics (Mech. 101)	.....	3	.....
Analytical Mechanics (Mech. 102)	.....	.....	3
Descriptive Geometry (Dr. 106)	4	.....	.....
Drafting (Dr. 108)	.....	.....	1

JUNIOR YEAR.

Technical Composition (Eng. 104) / Technical Public Speaking (P. S. 104)	1	1	1
Principles of Economics	3	3	.....
Law of Contracts (Gov. 104)	.....	.....	3
Topographic Surveying (Surv. 107)	1	.....	.....
Railway Curves and Earth Work (Rwys. 101-102)	.....	3	2
Railway Surveying (Rwys. 103)	.....	.....	2
Highways (Hwys. 101)	2	.....	.....
Mechanics of Engineering (Mech. 103-104)	5	2	2
Materials of Construction (Mech. 105)	.....	2	.....
Hydraulics (Hyd. 101-102)	.....	.....	4
Shades, Shadows, Perspective (Dr. 109-110)	2	2	.....
Elementary Structural Design (Str. Des. 101)	.....	3	3
Dynamos and Motors (E. E. 111)	2	.....	.....
Electrical Engineering Laboratory (El. Lab. 102)	1	.....	.....
Testing (Exp. Lab. 101)	.....	1	.....

SENIOR YEAR.			
Differential Equations (Math. 107)	.....	3†	.....
Least Squares (Math. 108)	.....	.....	2†
Estimates of Cost (Math. 110)	1	.....	.....
Astronomy (Math. 111)	.....	3†	.....
Technical Composition (Eng. 105) and Technical Public Speaking (P. S. 106)	1	1	1
French 104	5*	5*	5*
German 104	5*	5*	5*
Spanish 103	5*	5*	5*
Engineering Geology (Geol. 102)	.....	.....	3†
Geodesy (Surv. 108-109)	.....	.....	3†
Highway Engineering (Hwys. 102)	.....	3†	4†
Materials Laboratory (Hwys. 103)	.....	.....	1†
Hydromechanics (Hyd. 103)	3	.....	.....
Elements of Sanitary Engineering (Hyd. 104)	3	.....	.....
Water Supply (Hyd. 105)	.....	3†	.....
Sewerage (Hyd. 106)	.....	.....	4†
Hydraulic Design (Hyd. 107)	.....	.....	1†
Structural Design (Str. Des. 102)	3	3	3
Masonry and Concrete (Str. Des. 104)	.....	5	.....
Heating and Ventilation (M. E. 106)	.....	.....	3†
Cement Testing (Exp. Lab. 103)	1	.....	.....

*Alternative.

†Electives to be selected with the approval of the Dean to supply the necessary credits.

MECHANICAL ENGINEERING.

FRESHMAN YEAR. Term:	I	II	III
Trigonometry or Solid Geometry (Math. 101 or 102)	5	.....	5
Analytics (Math. 103)	.....	5	.....
Composition and Rhetoric (Eng. 101)	3	3	3
Public Speaking (P. S. 101)	1	1	1
General Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Freehand Drawing (Dr. 101)	.....	1	.....
Mechanical Drawing (Dr. 102)	1	1	.....
Descriptive Geometry (Dr. 105)	.....	.....	3
Technical Instruction (M. E. 101)	2	.....	.....
Woodwork (Shop 101)	1	2	1
SOPHOMORE YEAR.			
Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	2	5	5
Mechanics and Sound (Phys. 101 and Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102 and Phys. Lab. 102)	.....	5	.....
Heat and Light (Phys. 103 and Phys. Lab. 103)	.....	.....	5
Graphic Statics (Mech. 101)	.....	3	.....
Analytical Mechanics (Mech. 102)	.....	.....	3
Descriptive Geometry (Dr. 106)	4	.....	.....
Drafting (Dr. 108)	.....	.....	1
Steam Engines (M. E. 102)	3	.....	.....
Technical Mechanics (M. E. 103)	.....	2	.....
Blacksmithing (Shop 105)	.....	2	.....
Foundry (Shop 108)	.....	.....	2
Machine Work (Shop 109)	.....	.....	1
JUNIOR YEAR.			
Technical Composition (Eng. 104) / Technical Public Speaking (P. S. 104)	1	1	1
Principles of Economics	3	3	.....
Law of Contracts (Gov. 104)	.....	.....	3
Mechanics of Engineering (Mech. 103-104)	5	2	2
Materials of Construction (Mech. 105)	.....	2	.....
Hydraulics (Hyd. 101)	.....	.....	3
Dynamos and Motors (E. E. 111-112)	2	2	.....
Electrical Engineering Laboratory (El. Lab. 102-103)	1	1	.....
Elementary Machine Design (M. Des. 101)	2	.....	.....
Machine Design (M. Des. 102-103)	.....	3	4
Kinematics of Machinery (M. Des. 104)	.....	.....	3
Machine Work (Shop 110)	3	2	.....
Testing (Exp. Lab. 101)	.....	1	.....
Experimental Engineering (Exp. Lab. 102)	.....	.....	1
SENIOR YEAR.			
Differential Equations (Math. 107)	.....	3†	.....
Technical Composition (Eng. 105) / Technical Public Speaking (P. S. 106)	1	1	1
French 104	5*	5*	5*
German104	5*	5*	5*
Spanish 103	5*	5*	5*
Hydromechanics (Hyd. 103)	3	.....	.....
Water Supply (Hyd. 105)	.....	3†	.....
Structural Design (Str. Des. 103)	4	3	4
Heat Engineering (M. E. 104-105)	2	3	3
Heat and Ventilation (M. E. 106)	.....	.....	3
Cement Testing (Exp. Lab. 103)	1	.....	.....
Experimental Engineering (Exp. Lab. 104)	1	2	1

*Alternative.

†Electives to be selected with the approval of the Dean to supply the necessary credits.

ELECTRICAL ENGINEERING.

FRESHMAN YEAR. Term:	II	I	III
Trigonometry or Solid Geometry (Math. 101 or 102)	5	.....	.....
Analytics (Math. 103)	.....	5	5
Composition and Rhetoric (Eng. 101)	3	3	3
Public Speaking (P. S. 101)	1	1	1
General Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Plane Surveying (Surv. 101-102)	.....	2	1
Freehand Drawing (Dr. 101)	1	.....	.....
Mechanical Drawing (Dr. 103)	2	1	.....
Descriptive Geometry (Dr. 105)	.....	.....	3
Woodwork (Shop 102)	1	1	.....
SOPHOMORE YEAR.			
Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	2	5	5
Mechanics and Sound (Phys. 101 and Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102 and Phys. Lab. 102)	.....	5	.....
Heat and Light (Phys. 103 and Phys. Lab. 103)	.....	.....	5
Graphic Statics (Mech. 101)	.....	3	.....
Analytical Mechanics (Mech. 102)	.....	.....	3
Descriptive Geometry (Dr. 106)	4	.....	.....
Drafting (Dr. 108)	.....	.....	1
Electricity and Magnetism (E. E. 101)	.....	2	2
Electrical Engineering Laboratory (El. Lab. 101)	.....	1	1
Steam Engines (M. E. 102)	3	.....	.....
Blacksmithing (Shop 106)	.....	1	.....
JUNIOR YEAR.			
Technical Composition (Eng. 104) / Technical Public Speaking (P. S. 104)	1	1	1
Principles of Economics	3	3	.....
Law of Contracts (Gov. 104)	.....	.....	3
Mechanics of Engineering (Mech. 103)	5	.....	.....
Hydraulics (Hyd. 101)	.....	.....	3
Direct Current Theory (E. E. 102)	3	3	.....
Dynamos and Alternating Currents (E. E. 103)	.....	.....	3
Wireless Telegraphy (E. E. 108)	.....	1	.....
Primary and Secondary Batteries (E. E. 110)	.....	2	.....
Direct Current Design (E. Des. 101)	.....	.....	5
Electrical Engineering Laboratory (El. Lab. 104)	2	1	2
Wireless Laboratory (El. Lab. 107)	.....	1	.....
Elementary Machine Design (M. Des. 101)	2	.....	.....
Machine Design (M. Des. 102)	.....	3	.....
Machine Work (Shop 111)	1	1	.....
Testing (Exp. Lab. 101)	.....	1	.....
SENIOR YEAR.			
Technical Composition (Eng. 105) / Technical Public Speaking (P. S. 106)	1	1	1
French 104	5*	5*	5*
German 104	5*	5*	5*
Spanish 103	5*	5*	5*
Hydromechanics (Hyd. 103)	3	.....	.....
Alternating Currents (E. E. 104)	3	3	3
Lights and Illumination (E. E. 105)	.....	.....	3
Electric Power Plants (E. E. 106)	.....	3	.....
Telephones and Telegraphs (E. E. 107)	.....	2	.....
Electric Railways (E. E. 108)	.....	.....	3
Alternating Current Design (E. Des. 102)	1	.....	.....
Electrical Laboratory (El. Lab. 105)	2	2	2
Telephone Laboratory (El. Lab. 106)	.....	1	.....
Heat Engineering (M. E. 104)	2	.....	.....

*Alternative.

†Electives to be selected with the approval of the Dean to supply the necessary credits.

RURAL ENGINEERING.

FRESHMAN YEAR. Term:	I	II	III
Trigonometry or Solid Geometry (Math. 101 or 102)	5	.....	.....
Analytics (Math. 103)	.....	5	5
Composition and Rhetoric (Eng. 101)	3	3	3
Public Speaking (P. S. 101)	1	1	1
General Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Plane Surveying (Surv. 101-102)	.....	2	1
Freehand Drawing (Dr. 101)	1	.....	.....
Mechanical Drawing (Dr. 102)	1	1	.....
Engineering Drawing (Dr. 104)	1	.....	.....
Descriptive Geometry (Dr. 105)	.....	.....	3
Woodwork (Shop 102)	1	1	.....

SOPHOMORE YEAR.

Advanced Algebra (Math. 104)	3	.....	.....
Calculus (Math. 105)	2	5	5
Mechanics and Sound (Phys. 101 and Phys. Lab. 101)	5	.....	.....
Electricity and Magnetism (Phys. 102 and Phys. Lab. 102)	.....	5	.....
Heat and Light (Phys. 103 and Phys. Lab. 103)	.....	.....	5
Plane Surveying (Surv. 103-104)	3	.....	.....
Graphic Statics (Mech. 101)	.....	3	.....
Analytical Mechanics (Mech. 101)	.....	.....	3
Descriptive Geometry (Dr. 106)	4	.....	.....
Drafting (Dr. 108)	.....	.....	1
Electricity and Magnetism (E. E. 101)	.....	2	2
Electrical Engineering Laboratory (El. Lab. 101)	.....	1	1
Blacksmithing (Shop 106)	.....	1	.....

JUNIOR YEAR.

Technical Composition (Eng. 104) / Technical Public Speaking (P. S. 104)	1	1	1
Principles of Economics (————)	3	3	.....
Law of Contracts (Gov. 104)	.....	.....	3
Cereal Crops (Agro. ————)	4	.....	.....
Introductory Soils (Soils 101)	.....	4	.....
Vegetable Gardening (Veg. G. 101)	.....	.....	4
Mechanics of Engineering (Mech. 102)	5	.....	.....
Hydraulics (Hyd. 101)	.....	.....	3
Elementary Structural Design (Str. Des. 101)	.....	3	3
Lights and Illumination (E. E. 105)	.....	.....	3
Electrical Engineering Laboratory (El. Lab. 102)	1	.....	.....
Elementary Machine Design (M. Des. 101)	2	.....	.....
Farm Equipment (————)	.....	4	.....
Machine Work (Shop 111)	1	1	.....
Testing (Exp. Lab. 101)	.....	1	.....

SENIOR YEAR.			
Estimates of Cost (Math. 108)	1	.....	.....
Technical Composition (Eng. 105) / Technical Public Speaking (P. S. 106)	1	1	1
French 104	5*	5*	5*
German 104	5*	5*	5*
Spanish 103	5*	5*	5*
Soils (————)	3†	.....	.....
Farm Forestry (For. ————)	.....	.....	3
General Animal Husbandry (A. H. ————)	4	.....	.....
Farm Dairying (A. H. ————)	.....	.....	2†
Poultry (A. H. ————)	.....	3†	.....
Engineering Geology (Geol. 102)	.....	.....	3†
Highways (Hwys. 101)	2	.....	.....
Hydromechanics (Hyd. 103)	3†	.....	.....
Elements of Sanitary Engineering (Hyd. 104)	3†	.....	.....
Advanced Drainage (Hyd. 110)	.....	.....	2†
Design of Farm Structures (Str. Des. 105)	.....	3†	3†
School Architecture (Str. Des. 106)	.....	.....	4†
Telephones and Telegraphs (E. E. 107)	.....	2†	.....
Primary and Secondary Batteries (E. E. 110)	.....	2	.....
Telephone Laboratory (El. Lab. 106)	.....	1†	.....
Design of Farm Machinery (M. Des. 105)	.....	3†	3†
Steam Engines (M. E. 102)	3†	.....	.....
Heating and Ventilation (M. E. 106)	.....	.....	3
Cement Testing (Exp. Lab. 103)	1	.....	.....

*Alternative.
†Electives to be selected with the approval of the Dean to supply the necessary credits.

DESCRIPTION OF SUBJECTS OFFERED

The subjects offered in the different departments of the school are divided into groups, each of which is given a title more or less indicative of the subjects included in it. An abbreviation of this title is placed before each subject in the group. This is used with the subject title in the tabulated outline of the curriculum of each course.

DRAWING AND DESCRIPTIVE GEOMETRY

Dr. 101. Freehand Drawing. Elementary practice; lettering, exercises in sketching, both in pencil outline and pencil rendering; line drawing, composition, proportion and comparative measurements; exercises in sketching of technical objects, and pen and ink shading. Plates upon completion are bound and properly titled. Required of students in engineering.

Practice, 3 hours; 1st or 2d term. Credit 1.

Dr. 102. Mechanical Drawing. Practice in plain lettering; use of instruments, projection and simple working drawings, the plates upon completion being enclosed in covers properly titled by the students. Required of students in mechanical and rural engineering.

Practice, 3 hours; 1st and 2d terms. Credit 2.

Dr. 103. Mechanical Drawing. A course similar to Dr. 102 for students in civil and electrical engineering.

Practice, 6 hours, 1st term; 3 hours, 2d term. Credit 3.

Dr. 104. Engineering Drawing. Conventional signs used in mapping. Scale making, contours, hachures. Profiles and mapping. Required of students in civil and rural engineering.

Practice, 3 hours; 1st or 2d term. Credit 1.

Dr. 105. Descriptive Geometry. Detailing of machinery and drawing to scale from blue-prints. Tracing and blue-printing, and representation of flat and round surfaces by ink shading. Its relation to mechanical drawing and the solution of such problems relating to magnitudes in space as bear directly upon those which present themselves to civil, electrical, mechanical and rural engineers. Prerequisites, Dr. 102 and Solid Geometry.

Lectures and recitations, 2 hours; practice, 3 hours; 3d term. Credit 3.

Dr. 106. Descriptive Geometry. A continuation of Dr. 105.

Lectures and recitations, 2 hours; practice, 6 hours; 1st term. Credit 3.

Dr. 107. Mechanical Drawing. Practice in plain lettering, use of instruments, geometrical constructions and plans of simple buildings. Elective for non-engineering students.

Practice, 3 hours; 1st term. Credit 1.

Dr. 108. Drafting. In this course problems pertinent to the work of students in each branch of engineering are selected. Drawings are made to scale. Empirical formulas for determining dimensions are used whenever possible. Prerequisites, Dr. 102 and 103.

Practice, 3 hours; 3d term. Credit 1.

Dr. 109. Shades, Shadows, Perspective. Theory of shadows and perspective of objects, and of shadows in perspective. Prereq., Dr. 106. Must be taken with Dr. 110. Required of students in civil engineering.

Lectures and recitations, 1 hour; 1st and 2d term. Credit 1.

Dr. 110. Shades and Shadows. Development and application of Dr. 109 in the drawing room. Prerequisites, Dr. 106. Must be taken with Dr. 109. Required of students in civil engineering.

Practice, 3 hours; 1st and 2d term. Credit 1.

Dr. 1. Farm Drawing. A course similar to Dr. 107, for students in the two-year course in agriculture.

Practice, 3 hours; 1st term.

Dr. 2. Mechanical Drawing. Instruction in commercial drafting. This is preceded by a study of drafting instruments and freehand lettering. Projection applied to shop drafting of machine parts. Tracing and blue-printing. The making of detail and assembly drawings. Freehand sketching of machine tools.

Practice, 6 hours; 1st, 2d and 3d terms.

Dr. 3. Freehand Drawing. A course similar to Dr. 101. Practice, 6 hours; 3d term.

ELECTRICAL ENGINEERING

E. E. 101. Electricity and Magnetism. The elementary theories of electrical and magnetic phenomena are carefully developed, the course being correlated with the technical work taken up later. Required of students in electrical and rural engineering. Must be taken with El. Lab. 101.

Lectures and recitations, 2 hours; 2d and 3d terms. Credit 4.

E. E. 102. Direct Current Theory. The study of the principles involved in the construction and operation of direct and alternating current generators and motors. Also the characteristic curves and efficiencies of the various types of machines, the selection of machines for specific duties and the proper methods of installing and operating. Required of students in electrical engineering. Must be taken with El. Lab. 104.

Lectures and recitations, 3 hours; 1st and 2d terms. Credit 6.

E. E. 103. Dynamos and Alternating Currents. This is a continuation of E. E. 102, which covers the characteristics of direct current machinery. A number of analytical and graphical problems are required to give a clear conception of the effects of inductance and capacity in alternating current circuits. Required of students in electrical engineering. Must be taken with El. Lab. 104.

Lectures and recitations, 3 hours; 3d term. Credit 3.

E. E. 104. Alternating Currents and Alternating Current Machinery. The theory, construction and practical applications of single phase and polyphase alternating current machinery, including generators, synchronous, induction, and repulsion motors, converters, transformers, etc., are taken up in detail. Required of students in electrical engineering. Must be taken with El. Lab. 105.

Lectures and recitations, 3 hours; 1st, 2d and 3d terms. Credit 9.

E. E. 105. Lights and Illumination. A study of the various systems of distribution used in arc and incandescent lighting. Lectures on the manufacture and characteristics of the many forms of electric lamps; the selection of lamps for commercial work; and the principles of correct interior and exterior illumination. Required of students in electrical and rural engineering.

Lectures and recitations, 3 hours; 3d term. Credit 3.

E. E. 106. Electric Power Plants and Transmission. This course includes the principles governing the installation and operation of powerhouse and substation machinery and systems. A number of practical

problems are given to illustrate the principles. Required of students in electrical engineering.

Lectures and recitations, 3 hours; 2d term. Credit 3.

E. E. 107. Telephones and Telegraphs. The application of electricity to telephones and telegraphs, with a study of the construction and operation of the apparatus required for the magneto, common battery and automatic exchanges. The principles of the operation of simple, duplex, quadruplex and simultaneous telegraph. Required of electrical and elective for rural engineering students. Must be taken with El. Lab. 106.

Lectures and recitations, 2 hours; 2d term. Credit 2.

E E. 108. Wireless Telegraphy. The principles of the application of electric waves to wireless telegraphy and telephony are followed by a study of the various systems in commercial use. Required of students in electrical engineering. Must be taken with El. Lab. 107.

Lectures and recitations, 1 hour; 2d term. Credit 1.

E. E. 109. Electric Railways. The course includes the consideration of the design and operation of the electric railway systems, powerplants and substations. Many problems are given which involve the engineering features of modern railway development. Required of students in electrical engineering.

Lectures and recitations, 3 hours; 3d term. Credit 3.

E. E. 110. Primary and Secondary Batteries. A study of the various types of primary batteries and their application to commercial work. The theory, construction and application of lead storage cells and Edison storage batteries. A short outline of the auxiliary apparatus used in connection with storage cells. Required of students in electrical and rural engineering.

Lectures and recitations, 2 hours; 2d term. Credit 2.

E. E. 111. Dynamos and Motors. A general course in direct and alternating currents, covering the principles of construction and operation of machines used in commercial practice. Required of civil and mechanical engineering students. Must be taken with El. Lab. 102.

Lectures and recitations, 2 hours; 1st term. Credit 2.

E. E. 112. Dynamos and Motors. A continuation of E. E. 111. Required of mechanical engineering students. Must be taken with El. Lab. 103.

Lectures and recitations, 2 hours; 2d term. Credit 2.

E. E. 1. Elements of Direct Current Machinery. The study of the fundamental principles involved in the construction and operation of direct current generators and motors. Characteristic curves and the se-

lection of machines for specific purposes. Methods for installing and maintaining various types of generators and motors. The laboratory includes the installation of generators and motors with the necessary auxiliary apparatus, and commercial tests of the various types of direct current machines.

Recitations, 2 hours; practice, 3 hours; 1st and 2d terms.

E. E. 2. Elements of Alternating Current Machinery. This course includes the study of fundamental principles and the design and construction of alternating machinery. The laboratory work consists of commercial tests of single phase and polyphase machinery, including generators, motors, converters, transformers, etc.

Recitations, 4 hours; practice, 3 hours; 3d term.

E. E. 3. Illumination. Lectures on the manufacture and characteristics of the various forms of arc and incandescent lamps; the selection of lamps and reflectors for commercial work; the principles of correct interior and exterior illumination. The laboratory work includes the determination of the operating characteristics, the measuring of the candle-power of lamps, and the measurement of the efficiency of actual lighting installations.

Recitations, 2 hours; practice, 3 hours; 2d term.

E. E. 4. Electric Power Plants and Transmission. The principles governing the installation and operation of power-house and substation machinery, transmission and distribution systems.

Recitations, 2 hours; 3d term.

E. E. 5. Telephones and Telegraphs. A study of the construction and operation of the apparatus required for magneto, common battery and automatic exchange. The principles of the operation of simple, duplex and quadruplex telegraphy. The laboratory work includes experiments with the various types of apparatus and the operation of exchanges.

Recitations, 3 hours; practice, 3 hours; 3d term.

E. E. 6. Primary and Secondary Batteries. The study and testing of various types of primary batteries and their application to commercial work. The theory and construction of lead storage cells and Edison storage batteries. Actual testing of batteries in operation.

Recitations, 2 hours; practice, 3 hours; 1st term.

E. E. 7. Electrical Measuring Instruments. The theory governing the design, construction and application of all types of direct and alternating current instruments. The repairing, testing and calibration of the different types of instruments.

Recitations, 2 hours; practice, 3 hours; 1st term.

E. E. 8. Electrical Equipment Repairs. This course includes the rewinding of armature and field coils, testing of commutators, repairs for signal systems, etc.

Recitation, 1 hour; practice, 3 hours; 2d term.

E. E. 10. Switchboards. Lectures on the design and construction of standard switchboards of various types.

Recitations, 2 hours; 3d term.

E. E. 9. Interior Wiring. A thorough study of the Underwriters' Rules concerning all classes of interior wiring. Calculations for circuits and the design of interior light and power systems. The practice includes the installation of residence and commercial light and power systems.

Recitations, 2 hours, 1st term, 1 hour, 2d term; practice, 6 hours, 1st term, 3 hours, 2d term.

E. E. 10. Outside Line Construction. The design and construction of short transmission and distribution systems.

Recitation, 1 hour; practice, 6 hours; 3d term.

ELECTRICAL ENGINEERING DESIGN

E. Des. 101. Direct Current Design. This course covers the design of direct current generators and motors, including the use of the different conducting, magnetic and insulating materials. Required of students in electrical engineering.

Lectures and recitations, 2 hours; practice, 9 hours; 3d term. Credit 5.

E. Des. 102. Alternating Current Design. The complete design of an alternating current generator or a transformer. Required of students in electrical engineering.

Pratice, 3 hours; 1st term. Credit 1.

ELECTRICAL ENGINEERING LABORATORY

El. Lab. 101. Electrical Engineering Laboratory. A laboratory course designed to verify the laws and principles outlined in E. E. 101. Required of students in electrical and rural engineering. Must be taken with E. E. 101.

Practice, 3 hours; 2d and 3d terms. Credit 2.

El. Lab. 102. Electrical Engineering Laboratory. This course includes the methods of measuring resistance, current and electromotive force; photometry; and elementary testing of generators and motors. Required of civil and mechanical engineering students. Must be taken with E. E. 111.

Practice, 3 hours; 1st term. Credit 1.

El. Lab. 103. Electrical Engineering Laboratory. A continuation of El. Lab. 102. Required of students in mechanical engineering. Must be taken with E. E. 112.

Practice, 3 hours; 2d term. Credit 1.

El. Lab. 104. Electrical Engineering Laboratory.—Study and calibration of instruments. Measurement of resistance, current and electromotive force; commercial tests on generators and motors; arc lamp testing and photometry. Required of students in electrical engineering. Must be taken with E. E. 102 and 103.

Practice, 6 hours, 1st and 3d terms; 3 hours, 2d term. Credit 5.

El. Lab. 105. Electrical Engineering Laboratory. Measurement of inductance, impedance, condensance, etc.; power measurements in alternating current circuits; regulation and efficiency tests of alternators and transformers; operating characteristics of synchronous and induction motors. Required of students in electrical engineering. Must be taken with E. E. 104.

Practice, 6 hours; 1st, 2d and 3d terms. Credit 6.

El. Lab. 106. Telephone Laboratory. This course covers experimental work with all types of telephone apparatus and the operation of the magneto and common battery exchanges. Required of students in electrical engineering and elective for students in rural engineering. Must be taken with E. E. 107.

Practice, 3 hours; 2d term. Credit 1.

El. Lab. 107. Wireless Laboratory. At present this course is confined to practice in sending and receiving signals in the Continental Code by means of radio instruction sets. Required of students in electrical engineering. Must be taken with E. E. 108.

Practice, 3 hours; 2d term. Credit 1.

EXPERIMENTAL LABORATORY

Exp. Lab. 101. Testing. Study of testing machines and accessories. Operation of steam engine. Study of planimeter and indicator. Test of gas engines. Tension tests of wrought iron and steel. Transverse tests of cast iron and timber. Compression tests of long and short wood and concrete columns. Prereq. Mech. 103. Required of all engineering students.

Practice, 3 hours; 2d term. Credit 1.

Exp. Lab. 102. Experimental Engineering. Determining the amount of moisture in steam; the efficiency of the injector; the transit and its uses; indicator practice; slide valve setting; the slide rule and micrometer; the analysis of boiler feed water; flue gases; lubricating oils; and

the determination of the heating value of fuels and moisture in steam. Required of students in mechanical engineering.

Practice, 3 hours; 3d term. Credit 1.

Exp. Lab. 103. Cement Testing. Standard tests of cement and concrete mortars. Time of setting. Tension and compression tests. Required of students in civil, mechanical and rural engineering.

Practice, 3 hours; 1st term. Credit 1.

Exp. Lab. 104. Experimental Engineering.—A continuation of Exp. Lab. 102. Required of students in mechanical engineering.

Practice, 3 hours, 1st and 3d terms; 6 hours, 2d term. Credit 4.

Exp. Lab. 1. Experimental Laboratory.—Tests of steam, gas and oil engines. Determining the strength of iron and steel. The efficiency of pumps and injectors. Tests of heating values of fuels.

Practice, 3 hours; 3d term.

HIGHWAY ENGINEERING

Hwys. 101. Highways. Principles of location, construction and maintenance of country roads and city streets and pavements. Required of civil and rural engineering students.

Lectures and recitations, 2 hours; 1st term. Credit 2.

Hwys. 102. Highway Engineering. Advanced course in highway design, construction and maintenance. Fieldwork in making the necessary surveys for the preparation of the plans, specifications and estimates of cost for the building of a short stretch of improved road. Study of highway construction machinery. Study of highway economics, administration and legislation. Elective for students in civil engineering.

Lectures and recitations, 2 hours, 2d and 3d terms; practice, 3 hours, 2d term; 6 hours, 3d term. Credit 7.

Hwys. 103. Materials Laboratory. Tests of oils, alphalts, tars and road binders. Prereq. Chem. 102. Elective for students in civil engineering.

Practice, 3 hours; 3d term. Credit 1.

Hwys. 1. Country Roads. Elementary course in the location, construction and maintenance of country roads and bridges. Theory and field practice in location, establishing grades, drainage, computation of earthwork, methods of construction and road machinery. Study of the utilization of local road and bridge materials.

Lectures and recitations, 2 hours; practice, 3 hours; 3d term.

HYDRAULIC AND SANITARY ENGINEERING

Hyd. 101. Hydraulics. Principles of Hydraulics. Flow in open channels and pipes and through orifices. Methods of measurement,

steam gauging, etc. Prereq. Mech. 102. Required of all students in engineering.

Lectures and recitations, 3 hours; 3d term. Credit 3.

Hyd. 102. Hydraulics. Determination of the coefficient of discharge, velocity and contraction in pipes, orifices and weirs. Stream gauging methods. Flow measurements. Prereq. Hyd. 101. Required of students in civil and rural engineering.

Practice, 3 hours; 1st term. Credit 1.

Hyd. 103. Hydromechanics. Pumps, pumping machinery, water wheels and turbines. Friction losses in plants and water systems. Study of distribution systems. Prereq. Hyd. 101. Required of students in civil, electrical and mechanical engineering. Elective for rural engineering students.

Lectures and recitations, 3 hours; 1st term. Credit 3.

Hyd. 104. Elements of Sanitary Engineering. In this course the principles underlying water supply and sewerage are discussed and the general problems which present themselves to an engineer in practice are emphasized. Required of civil engineering and elective for rural engineering students.

Lectures and recitations, 3 hours; 1st term. Credit 3.

Hyd. 105. Water Supply. This course deals with the principles of water supply engineering. It includes the methods of obtaining a good supply, its purification, and the design and operation of distribution systems and filtration plants. Elective for students in civil engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 2d term. Credit 3.

Hyd. 106. Sewerage. This course takes up the principles involved in and methods of sewage disposal and the design of sewerage systems and septic tanks. House connections and plumbing are also considered. Elective for students in civil engineering.

Lectures and recitations, 2 hours; practice, 6 hours; 3d term. Credit 4.

Hyd. 107. Hydraulic Design. Design of small sewerage system and disposal plant. Elective for students in civil and rural engineering. Must be taken with Hyd. 106.

Practice, 3 hours; 3d term. Credit 1.

Hyd. 108. Drainage. Study of the principles of underground flow. Drainage of farm lands. Planning of the systems. Elective for non-engineering students. Must be taken with Surv. 110.

Lecture or recitation, 1 hour; 3d term. Credit 1.

Hyd. 109. Drainage. Field practice in study of drainage conditions. Planning the system from notes in field. Elective for non-engineering students. Must be taken with Hyd. 108.

Practice, 3 hours; 3d term. Credit 1.

Hyd. 110. Advanced Drainage. Elective for rural engineering and plant industry students.

Lecture, 1 hour; practice, 3 hours. Credit 2.

Hyd. 1. Drainage. Elementary course in farm drainage for students in two-year course in agriculture. Theory and field practice in farm drainage. Surveying, designing and constructing drainage systems for the improvement of agricultural lands.

Lectures and recitations, 2 hours; practice, 6 hours.

Hyd. 2. Drainage. Principles of underground flow and the relation of soils to drainage. Land drainage systems and methods. Field practice in the surveying of drainage areas, plotting of maps, designing systems, estimating costs and setting stakes for construction. Drainage laws and assessments.

Lectures and recitations, 3 hours; practice, 6 hours; 3d term.

Hyd. 3. Water Supply. In this course consideration is given to applications of the principles of hydraulics, methods of purifying water, and design of small water supply systems and filtration plants.

Lectures and recitations, 2 hours; practice, 3 hours; 1st term.

Hyd. 4. Sanitation. This course has for its object the consideration of the principles involved in the design of small sewerage systems for individual houses or for small towns, supplemented by discussions relative to house drainage and plumbing. Methods for the disposal of sewage and garbage are also considered.

Lectures and recitations, 2 hours; practice, 3 hours; 2d term.

MACHINE DESIGN

M. Des. 101. Elementary Machine Design. Freehand sketching of the details of machinery and making working drawings of same. Calculations and drawings of a simple type punching press. Prereq. Dr. 108. Required of students in electrical, mechanical and rural engineering.

Lecture or recitation, 1 hour, 1st term; practice, 3 hours; 1st term. Credit 2.

M. Des. 102. Machine Design. A continuation of M. Des. 101. Required of students in electrical and mechanical engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 2d term. Credit 3.

M. Des. 103. Machine Design. A continuation of M. Des. 102. Required of students in mechanical engineering.

Lectures and recitations, 2 hours; practice, 6 hours; 3d term. Credit 4.

M. Des. 104. Kinematics of Machinery. Centrodes. Determination of the instantaneous axis and instantaneous center. Preparation of

displacement, velocity and acceleration diagrams. Design of cams. Slow advance and quick return motion for machine tools. Form of tooth outlines in the epicycloidal and involute systems. Prereq. M. Des. 101. Required of students in mechanical engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 3d term. Credit 3.

M. Des. 105. Design of Farm Machinery. The design and drafting of those portions of farm machinery common to engines, and to harvesting, pumping and fertilizing machinery, such as levers, shafts, gears and frames. Prereq. M. Des. 101. Elective for students in rural engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 2d and 3d terms. Credit 6.

M. Des. 1. Machine Drafting and Design. The designing and detailing of a complete machine, including the determination of the stresses and the calculations for the various parts. Both empirical and rational methods are used.

Practice, 6 hours; 1st, 2d and 3d terms.

MATHEMATICS

Math. 101. Trigonometry. Plane and Spherical Trigonometry. Deduction of formulas and their application to the solution of triangles, trigonometric equations, etc. Required of students in engineering who have offered Math. 102 for entrance.

Lectures and recitations, 5 hours; 1st term. Credit 5.

Math. 102. Solid Geometry. In this course emphasis is placed on the relation of the subject to descriptive geometry and on areas and volumes of solids. Required of engineering students who have offered Math. 101 for entrance. Elective for other students.

Lectures and recitations, 5 hours; 1st or 3d term. Credit 5.

Math. 102. Trigonometry. An abbreviated course similar to Math. 101. Required of chemical and elective for agricultural students.

Lectures and recitations, 5 hours; 1st term. Credit 5.

Math. 103. Analytic Geometry. Geometry of two and three dimensions, loci of general equations of second degree, higher plane curves, etc. Prerequisite, Math. 101 and 102. Required of students of chemistry and engineering.

Lectures and recitations, 5 hours; 2d and 3d terms. Credit 10.

Math. 104. Advanced Algebra. Algebra beyond that required for admission. Elementary theory of equations, partial fractions, permutations, etc. Required of engineering students.

Lectures and recitations, 3 hours; 1st term. Credit 3.

Math. 105. Calculus. A discussion of the methods used in differentiation and integration and the application of these methods in determining maxima and minima, areas, volumes, moments of inertia, etc. Prereq. Math. 103. Required of engineering students.

Lectures and recitations, 2 hours, 1st term; 5 hours, 2d and 3d terms. Credit 12.

Math. 106. Mathematics. A general course in algebra and calculus suited to the needs of the students of chemistry. Prereq. Math. 103.

Lectures and recitations, 3 hours; 1st, 2d and 3d terms. Credit 9.

Math. 107. Differential Equations. The solution of the simpler differential equations is discussed. Prereq. Math. 105. Elective for students in civil and mechanical engineering.

Lectures and recitations, 3 hours; 2d term. Credit 3.

Math. 108. Least Squares. A short course in which stress is laid on the application to geodesy. Elective.

Lectures and recitations, 2 hours; 3d term. Credit 2.

Math. 109. Algebra. Quadratic equations, simultaneous quadratic equations, progressions, graphs, logarithms, etc. Elective.

Lectures and recitations, 5 hours; 2d term. Credit 5.

Math. 110. Estimates and Costs. Methods of estimating costs, supplemented by problems of a practical nature. Required of students in civil and rural engineering.

Practice, 3 hours; 1st term. Credit 1.

Math. 111. Astronomy. A course in descriptive astronomy. Elective.

Lectures and recitations, 3 hours; 2d term. Credit 3.

Math. 1. Shop Mathematics. Advanced arithmetic. Preliminary review. Common and decimal fractions. Short methods and checks. Percentage. Ratio and proportion. Powers and roots. These are based on their relation to shop problems.

Recitations, 4 hours; 1st term.

Math. 2. Shop Mathematics. Algebra. Notation and definitions. Addition and subtraction. Multiplication and divisions. Exponents. Powers and roots. Formulas. Equations. Sufficient drill is given to make direct applications to practical problems in the shop and drawing room.

Recitations, 4 hours; 2d term.

Math. 3. Shop Mathematics. Geometry. Plane surfaces, lines and angles. Triangles. Circles. Pyramids. Prisms. Cones and frustums. Spheres. Some elementary proofs are required of the students. Facts

or principles are discussed in ways to show their reasonableness. Devices and methods used by practical men are applied to the solution of problems pertaining to the various trades.

Recitations, 3 hours; 3d term.

Math. 4. Shop Mathematics. Trigonometry and Logarithms. An introduction to trigonometry covering the functions of angles and the solution of right triangles. Logarithms. Trigonometric tables and their uses. Emphasis is placed upon applications to practical problems.

Recitations, 4 hours; 1st term.

Math. 5. Shop Mathematics. Engineering mathematics. The correlation of arithmetic, algebra, geometry and trigonometry is clearly shown in this course and such problems are involved as include a combination of all the student's mathematics in the solution.

Recitations, 4 hours; 3d term.

Math. 6. Estimates and Costs. The object of this course is to teach the student to analyze the probable cost of the construction of machines from the drawings and how to deal with such items as profits, overhead charges and depreciation.

Recitations, 1 hour; practice, 3 hours; 3d term.

MECHANICAL ENGINEERING

M. E. 101. Technical Instruction. Explanation of the reading of mechanical drawings; the proper cutting angles, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to correct and prevent. Drill in problems in arithmetic, algebra and drawing by notes and lectures. Required of students in mechanical engineering.

Lectures and recitations, 2 hours; 1st term. Credit 2.

M. E. 102. Steam Engines, Boilers and Dynamos. The principles of steam and the steam engine. The slide valve and valve diagrams. The indicator and its diagram. Steam boiler, the various types and their advantages. Each student taking this course is required to spend certain hours in the power plant actually operating the engine, boilers and dynamos. Required of students in electrical and mechanical engineering. Elective for rural engineering students.

Lectures and recitations, 3 hours; 1st term. Credit 3.

M. E. 103. Technical Mechanics. Elementary principles of applied mechanics, calculation of gear and pulley trains, bent levers, calculation of belt lengths, lacing belts, the suction pump, and bolts and screws. Required of students in mechanical engineering.

Lectures and recitations, 2 hours; 2d term. Credit 2.

M. E. 104. Heat Engineering. Laws of fundamental equations; perfect gases; compound, hot-air and gasoline engines; theory of vapors; relation between pressure, volume, temperature, work and heat for special changes of state; calculation and drawing of Carnot's cycle and temperature entropy diagram. The steam turbine. Compressed air and refrigeration machinery. Prereq. M. E. 102. Required of students in electrical and mechanical engineering.

Lectures and recitations, 2 hours; 1st term. Credit 2.

M. E. 105. Heat Engineering. A continuation of M. E. 104. Required of mechanical engineering students.

Lectures and recitations, 3 hours; 2d and 3d terms. Credit 6.

M. E. 106. Heating and Ventilation. The principles of ventilating; amount of heat required for warming; radiating surfaces; steam, hot-water and hot-air systems; vacuum and vapor systems; pipe and pipe systems; appliances; specifications and contracts. Prereq. Dr. 108. Required of mechanical and rural and elective for civil engineering students.

Lectures and recitations, 2 hours; practice, 3 hours; 3d term. Credit 3.

M. E. 107. Gas Engines. The fundamental principles concerning the gas engine. Its applications to agricultural operations. Elective for students in agricultural courses.

Lectures and recitations, 3 hours; practice, 3 hours; 2d term. Credit 4.

M. E. 1. Gas Engines. A course similar to M. E. 109, for students in the two-year course in agriculture. Elective.

Lectures and recitations, 2 hours; practice, 3 hours; 3d term.

M. E. 2. Technical Instruction. Explanation of the reading of mechanical drawings; the proper angles for wood-cutting tools, care and adjustment of carpenter tools; relative strength of wood joints; wood, its shrinking and warping, and how to prevent and correct. Sketching by freehand of tools and apparatus.

Recitations, 2 hours; 1st, 2d and 3d terms.

M. E. 3. Heat Engines. Elementary laws of steam and gases. Principles of the steam, gas and oil engine. The steam turbine. Compressed air and refrigeration machinery.

Recitations, 4 hours; 1st term.

M. E. 4. Technical Mechanics.—Mechanics of materials with applications to strength of machine parts, power transmission, belting, gears, cams, rope and chain drives, boilers and pumps.

Recitations, 4 hours; 1st, 2d and 3d terms.

M. E. 5. Power Plant Operation. The actual operation of boilers, engines, pumps and electric generators. This includes heating systems. The work will be done on Friday nights.

Practice, 3 hours; 1st term.

MECHANICS AND MATERIALS OF CONSTRUCTION

Mech. 101. Graphic Statics. The theory and practice of the method of determining stresses in cranes, roof trusses and bridges, and stresses on beams and girders due to traveling loads. Analysis of the stresses in roof trusses by the force polygon. Application of the equilibrium polygon to beams and girders. Analysis of stresses in bridge trusses. Prereq. Phys. 101 and Dr. 102 or 103. Required of engineering students.

Lectures and recitations, 2 hours; practice, 3 hours; 2d term. Credit 3.

Mech. 102. Analytical Mechanics. A study of statics dealing with the composition and resolution of forces, moments, couples, machines and laws of friction; and of dynamics, dealing with velocity, acceleration, laws of motion, work, energy and applications to problems. Prereq. Phys. 101 and Math. 105. Required of engineering students.

Lectures and recitations, 3 hours; 3d term. Credit 3.

Mech. 103. Mechanics of Engineering. The mechanics of solids. Statics of material point and of rigid bodies. Chains and cords. Centrifugal and centripetal forces. Work. Power. Energy. Sliding friction, friction of journals, friction of pivots, friction of ropes and belts. Analysis of stresses in thick cylinders. Prereq. Mech. 102. Required of students in engineering.

Lectures and recitations, 5 hours; 1st term. Credit 5.

Mech. 104. Mechanics of Engineering. A continuation of Mech. 103. Required of students in civil and mechanical engineering.

Lectures and recitations, 2 hours; 2d and 3d terms. Credit 4.

Mech. 105. Materials of Constructon. A study of the manufacture, composition and properties of the various materials used in engineering. Required of students in civil and mechanical engineering. Prereq. Mech. 103.

Lectures and recitations, 2 hours; 2d term. Credit 2.

Mech. 1. Concrete. Consideration is given in this course to the materials used in making concrete, the properties of concrete, both plain and reinforced, and its use in the construction of simple structures. The practical work includes the mixing and placing of concrete and the application of formulas to the design of beams, girders, etc.

Lectures and recitations, 2 hours; practice, 3 hours; 1st term.

PHYSICS

Phys. 101. Mechanics and Sound. Lectures, recitations and demonstrations on mechanics and sound. Prereq. Math. 101. Required of students in engineering and chemistry. Must be taken with Phys. Lab. 101.

Lectures and recitations, 4 hours; 1st term. Credit 4.

Phys. 102. Electricity and Magnetism. The elementary theory of electricity and magnetism and the practical application of the various laws. Required of students in engineering and chemistry. Must be taken with Phys. Lab. 102.

Lectures and recitations, 4 hours; 2d term. Credit 4.

Phys. 103. Heat and Light. Nature of heat; expansion, change of state; transmission and radiation of heat, and the elements of thermodynamics. Theory of light; reflection, refraction; dispersion, etc.; use of prisms, lenses and mirrors. Required of students in engineering and chemistry. Must be taken with Phys. Lab. 103.

Lectures and recitations, 4 hours; 3d term. Credit 4.

Phys. 104. General Physics. A discussion of such branches of physics as are suited to the needs of students in the agricultural courses. Elective. Must be taken with Phys. Lab. 104.

Lectures and recitations, 2 hours; 1st, 2d and 3d terms. Credit 6.

Phys. 1. General Physics. An elementary course including lectures, recitations and laboratory work in mechanics, heat, light, electricity and magnetism. Special attention is paid to practical application.

Recitations, 3 hours; practice, 3 hours; 1st, 2d and 3d terms.

PHYSICS LABORATORY

Phys. Lab. 101. Mechanics and Sound. Quantitative experiments illustrating the laws and principles studied under Phys. 101. Required of students in engineering and chemistry. Must be taken with Phys. 101.

Practice, 3 hours; 1st term. Credit 1.

Phys. Lab. 102. Electricity and Magnetism. The study of magnetic fields and the measurement of current, electromotive force, resistance, etc. Required of students in engineering and chemistry. Must be taken with Phys. 102.

Practice, 3 hours; 2d term. Credit 1.

Phys. Lab. 103. Heat and Light.—Quantitative experiments in heat and light. Required of students in engineering and chemistry. Must be taken with Phys. 103.

Practice, 3 hours; 3d term. Credit 1.

Phys. Lab. 104. General Physics. Experiments illustrating the subjects discussed in Phys. 104. Elective for students in the agricultural courses. Must be taken with Phys. 104.

Practice, 3 hours; 1st, 2d and 3d terms. Credit 3.

RAILWAY ENGINEERING

Rwys. 101. Railway Curves. Simple and compound curves, frogs, turnouts and crossings. Spirals. Prereq. Surv. 105. Required of students in civil engineering.

Lectures and recitations, 3 hours; 2d term. Credit 3.

Rwys. 102. Railway Earthwork. Cross-sectioning. Earthwork computations. Haul. Overhaul. Mass diagrams. Prereq. Rwys. 101. Required of students in civil engineering.

Lectures and recitations, 2 hours; 3d term. Credit 2.

Rwys. 103. Railway Surveying. Preliminary surveys, location surveys, taking of cross-sections. Computation of quantities. Estimates. Prereq. Rwys. 101. Must be taken with Rwys. 102. Required of students in civil engineering.

Practice, 6 hours; 3d term. Credit 2.

Rwys. 104. Railway Economics. Ballasting, track fastenings, rails, buildings and structures, terminals, signaling, rolling stock. Promotion, operating expenses, effects of curvature and grade. Valuation, repairs and renewals. Prereq. Rwys. 101. Required of students in civil engineering.

Lectures and recitations, 2 hours; 2d term. Credit 2.

SHOP PRACTICE

Shop 101. Woodwork. During the first term is taught the use and care of bench tools, exercise in sawing, mortising, tenoning and laying out work from blue-prints. The second term is devoted to projects involving construction, decoration and wood-turning. During the third term the principles and processes of pattern-making are taught, together with enough foundry work to demonstrate the uses of pattern-making. Required of students in mechanical engineering.

Practice, 3 hours; 1st and 3d terms; 6 hours, 2d term. Credit 4.

Shop 102. Woodwork. A course similar to Shop 101 for students in electrical and rural engineering.

Practice, 3 hours; 1st and 2d terms. Credit 2.

Shop 103. Woodwork. A short course similar to the first term of Shop 101 for students in civil engineering.

Practice, 3 hours; 1st term. Credit 1.

Shop 104. Woodwork. A course for students in agricultural courses, in which emphasis is laid on the types of woodwork used on the farm. Elective.

Practice, 3 hours; 2d term. Credit 1.

Shop 105. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing out, upsetting and bending of iron and steel, including the calculations of stock for bent shapes. Welding. Construction of steel tools for use in the machine shop, including tool dressing and tempering. Annealing. Prereq. Shop 101.

Practice, 6 hours; 2d term. Credit 2.

Shop 106. Blacksmithing. A course similar to Shop 105, for students in electrical and rural engineering.

Practice, 3 hours; 2d term. Credit 1.

Shop 107. Forging and Pipefitting. A course fitted to meet the needs of students in agriculture. Elective.

Practice, 3 hours; 3d term. Credit 1.

Shop 108. Foundry Work. Molding in iron and brass. Core-making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals. Prereq. Shop 105. Required of students in mechanical engineering.

Practice, 6 hours; 3d term. Credit 2.

Shop 109. Machine Work. Elementary principles of vise and machine work, which include turning, planing, drilling, screw-cutting and filing. This is preceded by study of the different machines used in machine shops. Required of students in mechanical engineering.

Practice, 3 hours; 3d term. Credit 1.

Shop 110. Machine Work. A continuation of Shop 109. Required of students in mechanical engineering.

Practice, 9 hours, 1st term; 6 hours, 2d term. Credit 5.

Shop 111. Machine Work. A course suited to the needs of students in electrical engineering.

Practice, 3 hours; 1st and 2d terms. Credit 2.

Shop 1. Farm Woodwork. Use of tools in constructing trestles, gates and frames. Required of students in the two-year course in agriculture.

Practice, 3 hours; 2d term.

Shop 2. Forging and Pipefitting. Similar to Shop 107, for students in the two-year course in agriculture.

Practice, 3 hours; 3d term.

Shop 3. Carpentry and Pattern-Making. Joinery. Pattern and core-box construction. Wood-turning.

Practice, 6 hours; 1st term.

Shop 4. Advanced Woodwork. In this course the special needs of the student are considered in laying out the work.

Practice, 3 hours; 3d term.

Shop 5. Blacksmithing. The making of the fire and how to keep it in order. The operations of drawing out, upsetting and bending of iron and steel, including calculation of stock for bent shapes. Welding. Making, tempering and annealing of steel tools.

Practice, 6 hours; 2d term.

Shop 6. Foundry. Molding in iron and brass. Core-making. The cupola and its management. Lectures on the selection of irons by fracture, fuels, melting and mixing of metals.

Practice, 6 hours; 3d term.

Shop 7. Machine Work. Elementary principles of vise and machine work, which includes chipping, filing, turning, planing, drilling, screw-cutting and polishing. The study of the different machines precedes the operations.

Practice, 6 hours; 1st term.

Shop 8. Advanced Machine Work. Milling, gear-cutting, tool-making, including taps, dies and reamers. Plain and differential indexing. Pipe cutting and fitting.

Practice, 9 hours, 2d term.

Shop 9. Shop Work. Students will be permitted to specialize in any of the shop courses. The work is of an advanced nature.

Practice, 9 hours; 3d term.

Shop 10. Machine Work. A course similar to Shop 7 for students in electricity.

Practice, 3 hours; 3d term.

STRUCTURAL DESIGN

Str. Des. 101. Elementary Structural Design. This course includes the complete design and detailing of a steel roof truss and a plate girder; the detailing from standard commercial drawing sheets of floor beams, girders and columns, and the complete design of a bridge truss of either the Warren or Pratt type. The stresses are determined by both analytical and graphic methods. Prereq. Mech. 103. Required of students in civil and rural engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 2d and 3d terms. Credit 6.

Str. Des. 102. Structural Design. Analysis of stresses in structural steel buildings. Design of roof trusses. Design of truss bridges and highway bridges. Design of plate girders under dead and live loads. Design of riveted connections. Both analytical and graphical methods are used. Prereq. Str. Des. 101. Required of students in civil engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 1st, 2d and 3d terms. Credit 9.

Str. Des. 103. Structural Design. Analysis of stresses in traveling cranes and derricks. Design of crane girders and lattice girders. Design of cranes. Both analytical and graphical methods are used. Design of riveted connections. Prereq. M. Des. 102. Required of students in mechanical engineering.

Lectures and recitations, 2 hours; 1st, 2d and 3d terms; practice, 6 hours, 1st and 3d terms; 3 hours, 2d term. Credit 11.

Str. Des. 104. Masonry and Concrete. A study of the materials used in masonry construction, the design and construction of foundations and retaining walls, and the elementary theory of reinforced concrete construction with its application in the design of beams, slabs, girders and columns. Required of students in civil engineering.

Lectures and recitations, 4 hours; practice, 3 hours; 2d term. Credit 5.

Str. Des. 105. Design of Farm Structures. The design and arrangement of farm buildings and equipment. Lectures also cover the heating, lighting, ventilation, plumbing and costs. Prereq. Str. Des. 101. Elective for students in rural engineering.

Lectures and recitations, 2 hours; practice, 3 hours; 2d and 3d terms. Credit 6.

Str. Des. 106. School Architecture. The planning and detailing of moderate-priced and medium-sized school buildings, including the heating, ventilation, lighting and plumbing. Prereq. Str. Des. 101. Elective for students in rural engineering.

Lectures and recitations, 3 hours; practice, 3 hours; 3d term. Credit 4.

Str. Des. 107. Farm Buildings. Design and specifications of a simple typical building in timber or concrete and lectures upon the details. The course is very practical and latitude is permitted the student to develop his ideas. Prereq. Dr. 107. Elective for non-engineering students.

Lectures and recitations, 1 hour; practice, 3 hours; 1st term. Credit 2.

Str. Des. 1. Farm Buildings. An elementary course similar to Str. Des. 109. Prereq. Dr. 1. Required of students in the two-year course in agriculture and in engineering (surveying option).

Lectures and recitations, 1 hour; practice, 3 hours; 1st term.

Str. Des. 2. Concrete Structures. Design of simple concrete houses, bridges and culverts. Estimate of bills of material and cost. Prereq. Str. Des. 1. Required of students in two-year course in engineering (surveying option).

Lectures and recitations, 1 hour; practice, 3 hours; 2d term.

SURVEYING

Surv. 101. Surveying. Elements of surveying. Measurement of horizontal and level lines. Errors, use of compass, transit and level. Prereq. Math. 101. Required of students in civil, electrical and rural engineering.

Lectures and recitations, 2 hours; 2d term. Credit 2.

Surv. 102. Surveying. Application of the principles of elementary surveying to practical operations in the field. Measurement of lines, angles, elevations. Introductory use of the transit and level. Prereq. Surv. 101. Required of students in civil, electrical and rural engineering.

Practice, 3 hours; 3d term. Credit 1.

Surv. 103. Surveying. Theory of adjustment of instruments. Determination of direction. Measurement of angles. Land survey methods and computations. Prereq. Surv. 102. Required of students in civil and rural engineering. Must be taken with Surv. 104.

Lectures and recitations, 2 hours; 1st term. Credit 2.

Surv. 104. Surveying. Transit lines, level lines, traversing, mapping, computation of areas. Required of students in civil and rural engineering. Must be taken with Surv. 103.

Practice, 3 hours; 1st term. Credit 1.

Surv. 105. Advanced Surveying. Theory of stadia. General surveying methods. Topographic surveying. Plane table. Earthwork computations. City surveying. Hydrographic surveying. Theory of sextant. Field practice when weather permits. Prereq. Surv. 103. Required of students in civil engineering.

Lectures and recitations, 3 hours; practice, 3 hours; 2d term. Credit 4.

Surv. 106. Advanced Surveying. Field work in adjustment of instruments. Use of plane table. Topographic mapping. Use of sextant. Solar observations. Prereq. Surv. 105. Required of students in civil engineering.

Practice, 3 hours; 3d term. Credit 1.

Surv. 107. Topographic Surveying. Field work in topographic methods. Base-line measurements. Elements of triangulation and adjustment of quadrilaterals. Prereq. Surv. 106. Required of students in civil engineering.

Practice, 3 hours; 1st term. Credit 1.

Surv. 108. Geodesy. Applications of the method of least squares to precise surveying, leveling and triangulation. Astronomical observations for azimuth, latitude, time and longitude. Prereq. Surv. 105. Elective for students in civil engineering.

Lectures and recitations, 2 hours; 3d term. Credit 2.

Surv. 109. Geodesy. Practice in problems developed in Surv. 108. Elective for students in civil engineering.

Practice, 3 hours; 3d term. Credit 1.

Surv. 110. Elementary Surveying. Measurement of lines, angles and elevations. Elementary use of transit and level. Prereq. Math. 101. Elective for non-engineering students. Must be taken with Hyd. 108.

Lecture or recitation, 1 hour; 3d term. Credit 1.

Surv. 111. Elementary Surveying. Application of principles of plane surveying to practical operations in the field. Profiles and traverses, computations of areas. Elective for non-engineering students. Must be taken with Surv. 110.

Practice, 3 hours; 3d term. Credit 1.

Surv. 1. Elementary Surveying. Theory and practice of elementary surveying. Use and care of chain, tape, compass, transit and level. Determination of direction and of elevation. Keeping of field notes. Land survey methods, computations and mapping.

Lectures and recitations, 3 hours; practice, 6 hours; 1st term.

Surv. 2. Elementary Surveying. Continuation of Surv. 1.

Lectures and recitations, 2 hours; practice, 3 hours; 2d term.

FACILITIES FOR INSTRUCTION

The Engineering Building is well equipped with lecture-rooms, recitation-rooms, drafting-rooms, laboratories and shops for engineering work. The departments of Mathematics and Physics also are located in the Engineering Building.

Drafting-rooms. The three drafting-rooms are well equipped for practical work. Two of these are used by the junior and senior classes, each student being provided with a separate desk. The third room is used jointly by the freshman and sophomore students and contains 15 drawing tables, accommodating about 90 students.

Engineering students are to provide themselves with approved drawing outfit, materials and book, cost of which during the freshman year amounts to about $25. The College does not furnish these, but they are purchased by the student and are his property.

The combined blue-print and dark room, with its commodious printing frames, affords splendid opportunities for sun-printing, which is so useful to engineering students.

Electrical Engineering Laboratory. This laboratory is fitted with such appliances as may be used to the best advantage in engineering practice. These include a potentiometer and standard voltmeter and ammeter for calibrating the various measuring instruments used in the

laboratory. A Sharp-Miller portable photometer and a standard photometer for measuring the candle-power of lamps and for determination of illumination intensities. A large number of portable ammeters, voltmeters and indicating wattmeters for direct and alternating current measurements, standard curve drawing voltmeter and ammeter, electrostatic voltmeter, frequency meters, silver and copper voltameters, Siemen's type electrodynaomometer, watthour meters and an oscillograph. A standard portable testing set, heating devices, condensers, tachometers, multiple circuit ammeter and voltmeter switches. D'Arsonval galvanometers, standard resistance boxes and bridges. The lamps used for experimental purposes include direct and alternating current multiple carbon arc, metallic arc, mercury vapor and nernst lamps.

A Curtis steam turbine, direct connected to a 35-kilowatt compound generator, has been installed for testing purposes. This may be used in connection with the College lighting plant when needed and will be used for light and power service in the Engineering Building.

The laboratory is so wired that connection may be made readily between any part of the College lighting plant and the turbo-generator or any of the apparatus in the dyamo-room.

The apparatus in the dynamo-room includes the following: A 10-kilowatt rotary converter of the latest type, with speed limit and end play devices; a five-horse-power variable speed, commutating pole motor; a 7.5-kilowatt, 60-cycle, 220-volt alternator designed to operate either as a polyphase generator, synchronous motor, frequency changer, constant speed induction motor or variable speed induction motor. The following parts are supplied with the set to make possible its operation in any of the above-named ways: a stationary armature for use either as an alternating current generator or as an induction motor field; a revolving field, a squirrel cage induction motor rotor with starting compensator having self-contained switches; an induction motor rotor with 3-phase collector rings, external resistance and controller; a 2-kilowatt booster set; a five-horse-power compound direct current motor and a 1.5-horse-power shunt motor fully inclosed; a 7.5-kilowatt, 120-volt, 3-phase self-excited generator direct connected to a 115-volt compound direct current motor; a motor-generator set consisting of a 3.6-horse-power shunt motor direct connected to a 2-kilowatt generator; several small D. C. and A. C. motors and generators; two 2-kilowatt transformers to transform power from 110 or 220 volts to 1100 or 2200 volts; various types of starting rheostats with automatic overload and no voltage release; field rheostats.

The main switchboards are used to mount the necessary circuit apparatus to control the generators and motors as well as the various circuits in the dynamo-room and testing laboratory. Wire and water rheostats are arranged for load and regulation. Portable lampboards and portable switchboards have been constructed for use in machine tests. In addition to the special electrical engineering equipment, the College light-

ing plant will be used for illustrative and experimental purposes. This plant contains, together with other apparatus useful in teaching electrical engineering, two Bullock generators of 40 kilowatts total capacity.

An eight-inch Waltham bench lathe, with all the necessary attachments, has been installed in the dyamo-room for the use of students in making small articles, such as binding posts, connecters, etc., for use in the laboratories.

The telephone laboratory is well equipped with apparatus for the magneto and common battery systems.

Mechanical Engineering Laboratory. Among the apparatus installed in the laboratory are a cross compound condensing Corliss engine of 50-horse-power, equipped with brake, indicators, relief valves, reducing motion, steam and vacuum gauges and speed indicator, which gives ample opportunity for steam consumption and brake tests. This is connected with the shops, so that at any time it may be switched on and drive them. The College power plant, with its vacuum heating system, three 100-horse-power return tubular boilers and two electric generating units, offers unexcelled opportunities for experimental work. A six-horse-power, four-cycle gasoline engine equipped with prony brake permits the making of tests in gas engineering.

Materials Laboratory. In this laboratory the apparatus for testing materials includes a 100,000-pound Riehle combined hand and power-testing machine for making tensile, compression, shearing and transverse tests on various kinds of materials; a 1,000-pound Riehle machine for testing cement briquettes, etc. The testing of asphalts, tars, etc., used in roadwork is carried on under the direction of the Department of Chemistry.

Hydraulic Laboratory. Apparatus suitable for the determination of the coefficient of discharge for small orifices, weirs, etc., has been installed in this laboratory. Opportunity for experimental work in stream gauging, etc., is afforded by the streams in the vicinity.

Physics Laboratory. This laboratory is well supplied with apparatus for lecture-room demonstrations and for experiments undertaken by students. New pieces of apparatus are added to the equipment each year.

The Shops. The shops are well lighted and admirably adapted to the purpose for which they were designed. The wood-working shop contains accommodations for bench work and wood turning. The power machinery in this shop is a band and universal circular saw, one 16-inch by 10-foot pattern-maker's lathe, three grindstones, a wood trimmer, 26-inch wood planer, 14-inch joiner and universal tool grinder.

In the forge shops are sixteen power forges, one hand forge, and a pressure fan and exhauster for keeping the shop free of smoke. There is a full assortment of smith's tools for each forge.

The foundry is equipped with an iron cupola, which melts 1,200 pounds of iron per hour, a brass furnace, one core oven and the necessary flasks and tools.

The machine shop equipment consists of one 10-inch speed lathe, one 22-inch engine lathe with compound rest, one 12-inch combined foot and power lathe, two 14-inch engine lathes, one 24-inch drill press, one No. 4 emery tool grinder, one No. 1½ universal milling machine and an assortment of vises, taps, dies, pipe-tools and measuring instruments.

The machinery of the pattern and machine shops is driven by a 9 by 14-inch automatic cut-off, high-speed engine, built by members of the junior and senior mechanical engineering classes, after the standard design of the Atlas engine. An 8 by 12-inch engine drives the machinery of the blacksmith shop and foundry.

Surveying Equipment and Models. This equipment includes a number of transits, levels, compasses, plane tables and minor instruments for use in plane, topographic, railroad, highway and geodetic surveying. These are added to as the necessity for other equipment arises. The models include various types of roads, bridges, culverts, etc.

Library. Each department contains a well selected library of books for reference and the standard engineering magazines. Students are encouraged to take advantage of the opportunity for reading afforded in the departmental as well as in the general library.

TWO-YEAR COURSE IN MECHANIC ARTS

The object of the course is to prepare men for positions of responsibility in lines of work in which training in mechanic arts and elementary engineering is necessary. There is a special need for such men at all times and particularly during the reconstruction period. The course affords an excellent opportunity for training to such persons as find it impossible for any reason to enter any of the four-year courses in engineering. A certificate is granted to each student who satisfactorily completes the course. The first year of the course is devoted to the laying of a foundation in shop mathematics, physics and English, as well as in drawing and shop work. In the second year most of the time is devoted to subjects closely related to mechanical, electrical and civil engineering, the student selecting the branch in which he thinks he may use his talents to the greatest advantage.

Throughout the course emphasis is laid on the necessity for turning out work in the drafting-room, shop and field which will meet the requirements of the commercial work. The student is taught that a task worth doing at all is worth doing well and that the finished product from the hand, brains, or both, must not only pass inspection, but be better than the average if one wishes to succeed. Parallel with the practical work instruction is given in the fundamentals upon which practice is

based. Thus the head and hand are brought into that intimate and harmonious relation so necessary to the normal development of the individual engaged in any industrial pursuit.

Among the positions which the course equips a man to fill may be noted the following: Tracers, draftsmen, rodmen, inspectors, chainmen, linemen, station operators, assistants in various branches related to engineering, salesmen for different kinds of machinery, and assistant foremen.

To enter the course a student must have completed at least the equivalent of the seventh grade in the Maryland public schools and be not less than 16 years of age.

The tabulated curriculum of the course follows. It gives the outline of the work in its different aspects:

TWO-YEAR MECHANIC ARTS.

FIRST YEAR. Term:	I	II	III
Shop Mathematics (Math. 1, 2 and 3)	4	4	3
Elementary Physics (Phys. 1)	3(3)	3(3)	3(3)
Composition (Eng. 4)	3	3	3
Technical Instruction (M. E. 3)	2	2	2
Mechanical Drawing (Dr. 2)	(6)	(6)	(6)*
Freehand Drawing (Dr. 3)	.....	.....	(6)
Carpentry (Shop 3)	(6)	.....	.....
Advanced Woodwork (Shop 4)	.....	.....	(3)
Blacksmithing (Shop 5)	.....	(6)	.....
Foundry (Shop 6)	.....	.....	(6)*

SECOND YEAR.

Shop Mathematics (Math. 4 and 5)	4	4	.....
Estimates and Costs (Math. 6)	.....	.....	1(3)
Business Law (————————)	.....	3	.....

OPTION IN MECHANICS.

Heat Engines (M. E. 3)	4	.....	.....
Technical Mechanics (M. E. 4)	2	2	4
Direct Current (E. E. 1)	2(3)	2(3)	.....
Alternating Currents (E. E. 2)	.....	.....	4(3)
Machine Work (Shop 7 and 8)	(6)	(6)	.....
Shop Work (Shop 9)	.....	.....	(9)
Machine Drafting (M. Des. 1)	(6)	(6)	(6)
Experimental Laboratory (Exp. Lab. 1)	.....	.....	(3)
Power Plant Operation (M. E. 5)	.....	(3)	.....

OPTION IN ELECTRICITY.

Direct Current (E. E. 1)	.....	2(3)	.....
Alternating Currents (E. E. 2)	.....	.....	4(3)
Illumination (E. E. 3)	2(6)	2(3)	.....
Power Plants (E. E. 4)	.....	.....	2
Telephones and Telegraphs (E. E. 5)	2(3)	.....	3(3)
Batteries (E. E. 6)	2(3)	.....	.....
Measuring Instruments (E. E. 7)	.....	.....	.....
Equipment Repairs (E. E. 8)	.....	1(3)	.....
Interior Wiring (E. E. 9)	.....	1(3)	.....
Outside Lines (E. E. 10)	.....	.....	1(6)
Machine Work (Shop 10)	2(3)	.....	(3)

OPTION IN SURVEYING.

Elementary Surveying (Surv. 1 and 2)	3(6)	2(3)	.....
Country Roads (Hwys. 1)	.....	.....	3(3)
Drainage (Hyd. 2)	.....	.....	3(6)
Water Supply (Hyd. 3)	2(3)	.....	.....
Sanitation (Hyd. 4)	.....	2(3)	.....
Concrete (Mech. 1)	2(3)	.....	2(3)
Farm Buildings (Str. Des. 1)	1(3)	.....	.....
Concrete Structures (Str. Des. 2)	.....	1(3)	.....
Farm Equipment (————————)	.....	1(3)	.....
Farm Forestry (For. 1)	.....	.....	2(3)

*Students electing in mechanics take foundry; others take freehand drawing.

THE GRADUATE SCHOOL

Graduate work is offered to graduates of this or other standard colleges who, in the judgment of the Dean of the Graduate School, are qualified to undertake that work. Each individual case must be determined upon its merits.

The graduate work is offered, under the supervision of the Dean of the Graduate School, by competent members of the various faculties of instruction and research. These constitute the Faculty of the Graduate School.

Work in accredited research laboratories of the U. S. Department of Agriculture and other local national research agencies under competent supervision is accepted, when previously arranged, as work in residence for part of the requirement. These labroatories are located in easy daily reach of the College.

Advanced Degrees

The advanced degrees conferred are Master of Science and Doctor of Philosophy for work in Agriculture and the natural sciences; Master of Arts for work in Liberal Arts, Education and Home Economics, and Doctor of Philosophy in Liberal Arts.

Master of Science and Master of Arts

The degree of Master of Science, or Master of Arts, will be conferred upon resident graduates who meet the following requirements:

1. The candidate must be a graduate of a qualified institution and must have the necessary prerequisites for the field of advanced work chosen.

2. He must complete a course of approved graduate study with one major and one closely related minor subject, working on a full-time basis of one year of advanced work. The work may, when approved, be extended on a part-time basis over a longer period.

3. The candidate must submit a thesis approved by the Graduate Faculty.

4. The candidate must pass a satisfactory examination.

Doctor of Philosophy

1. As prerequisites to registration for the Doctor's degree, the candidate must be a graduate of a standard college, must have a reading knowledge of French or German, and the necessary basic training in the field in which he proposes to take advanced work.

2. Three years of graduate study will usually be required. At least one year must be in residence. The importance and quality of the work, as well as the time element, will be considered. On a part-time basis the

time needed will be correspondingly increased. The work must be intensive research, resulting in an important contribution.

3. The candidate must select a major and one or two closely related minor subjects, constituting a single field of research.

4. The candidate must present a thesis within the field of research selected. This must be in the hands of the Dean of the Graduate School in printed or typewritten form at least two weeks before the time at which degrees are granted.

5. The candidate must pass a final examination in the major and minor subjects. The examination will be given by a committee appointed by the Dean.

Advanced Professional Degrees in Engineering

The degrees of Civil Engineer, Electrical Engineer or Mechanical Engineer will be granted only to graduates of this College who have obtained a bachelor's degree in engineering. The applicant must satisfy the following conditions:

1. He shall have been engaged successfully in acceptable engineering work for three years.

2. His registration for a degree must be approved at least 12 months prior to the date at which the degree is sought. He shall present with his application a complete report of his engineering experience and an outline of his proposed thesis.

3. He shall present a satisfactory thesis on an approved subject.

4. He must be considered eligible by a committee composed of the Head of the School and heads of the Departments of Civil, Electrical and Mechanical Engineering.

SCHOOL OF HOME ECONOMICS

Research into the sciences and the development of industries, art, and professions has so changed the philosophy of our educational system that it is now recognized that any educational system must include training of a technical nature. It must encourage the student's natural desire for work of a productive nature with a vital connection between theory and practice. These views have not been generally accepted and the result is noted in the combination of vocational, technical, and scientific work with the general studies to form a new course of study for our young men and women.

The subjects taught in home economics are designed to fit young women to be capable workers and home makers in whatever sphere of life they may enter. The knowledge they gain from these subjects should give them contentment, industry, order, and a womanly feeling of independence and responsibility.

The courses of instruction given are planned to meet the needs of three classes of students: (1) those students who desire a knowledge of the general facts and principles of home economics; (2) those students who wish to make a speciality of home economics for the purpose of teaching the subject in secondary schools and colleges; (3) those who are interested in certain phases of home economics which deal with the work of the dietitian or of institutional manager.

Organization

For administrative purposes and for ease of instruction the School of Home Economics is organized into departments as follows:

1. Department of Foods and Cookery.
2. Department of Textiles and Clothing.
3. Department of Hygiene and Health.
4. Department of Institutional and Home Management.

Equipment

Besides the usual equipment of classrooms and laboratories for the efficient procedure of the work, the college has recently equipped and furnished a house which is to be used as a practice house where the students will live and conduct the operations of the household for a period of from six to ten weeks during their senior year.

Requirements for the Degree

The degree of Bachelor of Science is conferred for the satisfactory completion of four years of prescribed courses.

Curricula in Home Economics

All students registered in the School of Home Economics take the same work in the freshman year. At the end of the year they may

elect to specialize in a particular department or they may withhold the election until after the sophomore year without loss of time.

Those who do not wish to specialize in any particular phase of home economics may elect a curriculum of general home economics best suited to their needs.

HOME ECONOMICS.

FRESHMAN YEAR. Term:	I	II	III
General Chemistry and Qualitative Anal. (Chem. 101-103)	4	4	4
Composition and Rhetoric (Eng. 101-103)	3	3	3
Composition and Design (Art 101)	2	.....	.....
Freehand Perspective (Art 102)	.....	2	.....
Food Industries (Food 101)	.....	.....	3
Textiles (Tex. 101-102)	1	1	.....
Garment Construction (Cloth. 101)	3	.....	.....
Drafting and Elementary Dress Design (Cloth. 102)	.....	3	.....
Dressmaking (Cloth. 103)	.....	.....	3
Educational Guidance (Ed. 101-103)	1	1	1
Library Science	1	.....	.....
Physical Education (Phy. Ed. 101-103)	1	1	1
AND ONE OF THE FOLLOWING:			
Social and Economic History of the United States (H. 108-110)	3	3	3
Language (French, Spanish, or German)	3	3	3
Mathematics	3	3	3
SOPHOMORE YEAR.			
Organic Chemistry (Chem. 123-124)	4	4	.....
Quantitative Analysis (Chem. 110)	.....	.....	4
General Zoology (Zool. 101-102)	4	4	.....
History	3	3	3
Problems in Preparation and Service of Food (Food 103-105)	3	3	3
Costume Design (Art 103)	2	.....	.....
Advance Dressmaking (Cloth. 104-105)	.....	2	2
Physical Education (Phy. Ed. 104-106)	1	1	1
Electives	2–4	2–4	6–8
JUNIOR YEAR.			
Household Administration (H. M. 101-102)	3	3	.....
Home Architecture and Decoration (Art 105)	.....	.....	3
Household Economics (H. M. 104)	.....	.....	3
Bacteriology (Bact. 101)	3	3	.....
English (Eng. 104-106)	2	2	2
Dietetics (Foods 112-114)	3	3	3
Electives	6–9	6–9	6–9
SENIOR YEAR.			
Home Management (H. M. 103)	.....	6	.....
Nutrition (Foods 109-111)	3	3	3
Sanitation and Public Health	3	3	.....
Child Care and Welfare (H. E. Ed. 110)	.....	.....	3
Current History	3	.....	.....
History of the Family	.....	3	.....
Education of Women	.....	.....	3
Drapery and Advanced Technique of Clothing (Cloth. 109)	.....	.....	5
Seminar in Home Economics	3	.....	.....
Electives	6–8	3–5	4–6

SUGGESTED ELECTIVES FOR STUDENTS IN THE SCHOOL OF HOME ECONOMICS

SUBJECT. Term:	I	II	III
Quantitative Analysis (Chem. 110)	.....	.....	4
Physiological Chemistry (Chem. 111)	3	.....	.....
Bacteriology (Bact. 103)	.....	.....	3
Botany (Bot. 101)	.....	.....	4
Literature	3	3	3
Public Speaking	1	1	1
Public Speaking	2	2	2
Language (French, Spanish, German)	3	3	3
Mathematics	3	3	3
Music	2	2	2
Political Science	2	2	2
Economics	3	3	3
General and Applied Psychology (Prin. Ed. 105-106)	.....	2	2
Educational Sociology	2	2	.....
Educational Psychology	.....	2	2
Rural Sociology	.....	.....	2
Mechanical Drawing (Dr. 102)	.....	3	.....
Historic Ornament and Dress Design (Art 106)	3	3	.....
Tailoring (Cloth. 107)	.....	3	.....
Clothing Economics (Cloth. 108)	.....	3	.....
Food Economics (Food 105-107)	2	2	2
Advanced Textiles (Tex. 103-105)	2	2	2
Lunchroom Management (H. M. 105-106)	3	3	.....
Catering (Food 109)	.....	.....	3
Marketing and Buying (H. M. 107-108)	1	1	.....
Camp Cookery (Foods 108)	.....	.....	3
Housewifery (H. M. 109)	.....	.....	3
Art and Handicraft (Art 104)	2	.....	.....
Millinery (Cloth. 106)	.....	.....	3
Advanced Millinery (Cloth. 110)	.....	2	.....
(General Courses in Agriculture)	.....	.....	.....

Description of Courses

Foods 101. Food Industries. Three credit hours. Third term.

This course describes the preparation of the various staple foods from the raw state to the finished product in marketable form, and includes a discussion of the composition, nutritive value, and cost of the materials.

Foods 102-104. Problems in Preparation and Service of Foods. Three credit hours each term.

Preparation and service of meals for a family and larger groups; cost and dietetic values; individual problems in tht manipulation of food materials.

Foods 105-107. Food Economics. Two credit hours each term. Prerequisite, Food 102-104 or the equivalent.

This course includes a discussion of the functions and nutritive values of food, the feeding of families, and larger groups with particular reference to nutritive requirements and the cost of food in relation to the family budget.

Foods 108. Camp Cookery. Three credit hours. Third term.

This course is designed to give a knowledge of the simplest processes of cookery and such adaptations as are practicable in the types of outdoor cookery.

Foods 109-111. Nutrition. Three credit hours each term. Prerequisite, Chem. 110-111.

The physiological, chemical, and bacteriological aspects of food.

Foods 112-114. Dietetics. Three credit hours each term. Prerequisites, Foods 102-104; 109-111.

This course deals with the requirements of the individual in health and disease throughout infancy, childhood, adolescence, adult life, and old age, in the light of the chemistry and physiology of digestion, the energy value of food, and the nutritive properties of the proteins, fats, carbohydrates, and ash constitutents. Typical dietaries are planned for each group.

Foods 115. Catering. Three credit hours. Third term. Prerequisites, Foods 102-104; H. M. 105-106.

This course is intended for students who are interested in the problems connected with the management of the rooms and catering establishments.

Tex. 101-102. Textiles. One credit hour. First and second terms. Freshman year.

This course considers the textile industry from primitive ages to modern times; the important fibers and materials made from them.

Tex. 103-105. Advanced Textiles. Two credit hours each term. The year.

Behavior of textile fibers toward various chemical reagents; physical tests for identification of fibers; bleaching and dyeing; laundry processes as they affect color, shrinkage, etc.; art and economic considerations in selection and purchase of materials for clothing and household furnishing.

Cloth. 101 Garment Construction. Three credit hours. First term. Freshman year.

This course includes the making of fundamental stitches; darning and patching; practice in hand and machine sewing applied to simple garments.

Cloth. 102. Drafting and Elementary Dress Design. Three credit hours. Second term.

Practice in drafting, cutting, fitting, designing of patterns. Emphasis is laid upon the development of one pattern from another. Designs are worked out upon paper patterns and adapted in the construction of a simple wash dress.

Cloth. 103. Dressmaking. Three credit hours. Third term.

Consideration of quality, suitability, and cost of materials adapted to technique involved in the construction of a tailored silk shirt, wool skirt, lingerie blouse. Commercial patterns and those made in Cloth. 102 are used.

Cloth. 104-105. Advanced Dressmaking. Two credit hours. Second and third term. Sophomore year.

This course includes remodeling of a dress and problems in wool and silk determined by the needs of the students.

Cloth. 106. Millinery. Three credit hours. Second term.

A study of the processes and materials used in millinery; designing, making, and trimming hats.

Cloth. 107. Tailoring. Three credit hours. Second term.

The technique and methods of construction employed in the making of tailored suits and wraps.

Cloth. 108. Clothing Economics. Three credit hours. Second term.

General consideration of economic function of woman; history of woman's place in home and industry with reference to clothing and textiles; study of clothing budget and standardization of dress.

Cloth. 109. Draping and Advanced Technique of Clothing. Five credit hours. Third term. Senior year.

This course emphasizes the artistic in lines and decoration; deals with the design and adaptation of materials for the individual. It includes practice in cutting, fitting, finishing, and draping of such materials as silks, satin, chiffons, and laces.

Cloth. 110. Advanced Millinery. Two credit hours. Second term.

Emphasis on trimming and more elaborate finishing of hats.

Art 101. Composition and Design. Two credit hours. First term.

Practice drawing in charcoal and pencil; space division and space relation; color; color schemes and exercises; original designs in which lines, tones, and colors are put together to produce fine quality.

Art 102. Freehand Perspective. Two credit hours. Second term.

Study of perspective principles with application.

Art 103. Costume Design. Two credit hours. First term.

Appropriate dress; proportion of parts; application of color, harmony, art, to design for textiles and costumes in pencil and water color.

Art 104. Art and Handicraft. Two credit hours. First term.

Applied design in embroidery, lace, stencils, as adapted to materials for articles of dress and house furnishing.

Art 105. Home Architecture and Decoration. Three credit hours. Third term.

Situation, surroundings, and construction of the house; evolution of the house and home; application of color in home decoration; furnishings from a sanitary and artistic standpoint; perspective drawing of rooms.

Art 106. History of Ornament and Design. Two credit hours each term. The year.

This course continues the work of Art 103. Historic costume is studied with reference to its influence upon modern style. Whenever possible, the designs made will be used in Cloth. 109 to give the student an opportunity to see the practical value of her work.

H. M. 101-102. House Administration. Three credit hours. First and second term. Junior year.

This course deals with the operation and maintenance of the household; its sanitation, plumbing, furnishing, and equipment.

H. M. 103. Home Management (Practice House). Six credit hours. Term to be arranged. Senior year.

From six to ten weeks' experience as manager and helper in a household of five senior students.

H. M. 104. Household Economics. Three credit hours. Third term.

This course deals with the organization and control of family and personal life through the economic relations of the household.

M. M. 105-106. Lunchroom Management. Three credit hours. First and second term.

A general course in lunch-room management for those who wish a knowledge of the problem of feeding large numbers.

H. M. 107-108. Marketing and Buying. One credit hour. First and second term.

How to buy foods; qualities and prices; market grades and related values.

H. M. 109. Housewifery. Three credit hours. Third term.

This course treats of kinds of service needed in various parts of the household, and the systematic planning of the daily routine; labor-saving appliances; repairing and renovation; household efficiency with reference to housekeeping methods.

H. M. 110. Home Nursing and First Aid. Three credit hours. Second term.

Instruction in domestic emergencies and first aid. and in the simple procedures in the home care of the sick.

SCHOOL OF LIBERAL ARTS

The School of Liberal Arts has as its prime object the offering of foundational and specialized instruction in language and literature and in social science. It aims to provide a stock upon which to graft technical and scientific education; to prepare the foundation for business, law, journalism, administration, philanthropic work, the more responsible civil service positions and the higher teaching positions; and to afford the opportunity for general cultivation and refinement of the mind.

Departments

For administrative purposes the School of Liberal Arts includes the following departments: Ancient Languages and Philosophy, Economics, English Language and Literature, History and Political Science, Journalism, Modern Languages, Public Speaking, Library Science and Music. These departments, however, do not represent the scope of liberal arts instruction provided by the College. Additional curricula in bacteriology, botany, chemistry, drawing, entomology, geology, mathematics, pedagogy, physics, psychology and zoology are offered in the Schools where such subjects have a basic application. Between the School of Liberal Arts and the other Schools there exists a close coöperation.

Courses and Degree

Curricula in the School of Liberal Arts are organized according to the group elective system. This arrangement undertakes to fit the course to the student, rather than the student to the course, and particularly enables the School to embody in its curricula the following fundamental principles: First, such breadth of training as is characteristic of the well-educated man; second, a freedom of election that will motivate study and develop individuality and special aptitude; and, finally, the desirability of a student's deciding on a major interest so that there will be neither aimless nor dissipated effort.

By the group elective system a part of every student's curriculum is prescribed. Such prescription, however, includes only what is basic and fundamental. The remainder of the student's work is elective.

Bachelor of Arts Degree

On satisfactory completion of two hundred and four trimester hours of college work, in addition to the military drill and physical education of the first two years, a student will be recommended for the degree of Bachelor of Arts. Credits towards this degree are subject to the following regulations:

Regulations

Subject-Matter Groups. First of all, the student's curriculum is governed by four distinct subject-matter groups. These are:

A. Language and Literature: English, French, German, Greek, Journalism, Latin, Public Speaking, Spanish and Library Science.

B. Social Science: Economics, History, Philosophy and Political Science.

C. Natural Science: Bacteriology, Botany, Chemistry, Entomology, Geology, Physics, Physiology and Zoology.

D. Mathematics and Psychology: Mathematics, Psychology and Drawing.

The administration of Groups A and B lies wholly within the School of Liberal Arts; of Groups C and D, in other Schools of the Maryland State College, with all of which the Arts School coöperates.

Courses Open to Freshmen. The only courses open to freshmen are the following:

English 101-103, nine credit hours; 107-108, six credit hours; 109, three credit hours.

French 101-103, nine credit hours; 104-106 (for students who enter with two units in French), nine credit hours; 108-110 or 111-113 (for students who enter with three or more units in French), nine credit hours.

German 121-123, nine credit hours; 124-126 (for students who enter with two units in German), nine credit hours; 128-130 or 131-133 (for students who enter with three or more units in German), nine credit hours.

Latin 111-113 (for students who enter with two units in Latin), twelve credit hours; 118 (for students who enter with three or more units in Latin), four credit hours.

Library Science 101, one credit hour, first term.

Public Speaking 101-103, three credit hours; 107-109, three credit hours; 113-115, six credit hours.

Spanish 141-143, nine credit hours; 144-146 (for students who enter with two units in Spanish), nine credit hours.

History 101, three credit hours; 102-103, six credit hours.

Zoology 101-102, eight credit hours.

Botany 101, four credit hours.

Chemistry 101-103, twelve credit hours.

Mathematics, nine credit hours.

Educational Guidance, three credit hours.

Course Combinations for Freshmen. In order to assist freshmen in their independent selection of courses and to encourage definiteness of purpose in students working for the Bachelor of Arts degree, there have been arranged for the freshman year certain combinations of courses which prepare for major interests according to the following tables:

MAJOR: *Latin, Greek or Philosophy.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
History (H. 101 and 102-103), 9 credit hours.
Latin (A. L. 128-129 and 130), 12 credit hours.
Greek, French, German or Spanish (select one), 9 to 12 credit hours.
Mathematics ( ), 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Military Drill.

MAJOR: *Economics.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
French, German or Spanish (select one), 9 credit hours.
History (H. 101 and 102-103), 9 credit hours.
Natural Science, 12 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Military Drill.

MAJOR: *English Language and Literature.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
A foreign language in which the student has passed two years' work, 9 credit hours.
A second foreign language or history, 9 credit hours.
A laboratory science, 12 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Military Drill.

MAJOR: *General Science.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
French, German or Spanish (select one), 9 credit hours.
Zoology (Zoo. 101-102), 8 credit hours.
Botany (Bot. 101), 4 credit hours.
Chemistry, 12 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Military Drill.

MAJOR: *History and Political Science.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.

French, German or Spanish (select one), 9 credit hours.
History (H. 101 and 102-103), 9 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Educational Guidance, 3 credit hours.
Military Drill.

MAJOR: *Journalism.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
French, German or Spanish (select one), 9 credit hours.
History of Ancient Peoples (H. 101), 3 credit hours.
Continental European History (H. 102-103), 6 credit hours.
Nineteenth Century Poetry (Eng. 107-108), 6 credit hours.
The Essay (Eng. 109), 3 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Educational Guidance, 1 credit hour.
Hygiene, 1 credit hour.
Military Drill.

MAJOR: *French, German or Spanish.*

Composition and Rhetoric (Eng. 101-103), 9 credit hours.
Reading and Speaking (P. S. 101-103), 3 credit hours.
History (H. 101 and 102-103), 9 credit hours.
A modern language in which the student has passed two years' work, 9 credit hours.
A second foreign language, 9 credit hours.
Mathematics, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Military Drill.

MAJOR: Public Speaking (with special reference to professions).

Reading and Speaking (P. S. 101-103), 3 credit hours.
Extempore Speaking (P. S. 107-109), 3 credit hours.
Composition and Rhetoric (Eng. 101-103), 9 credit hours.
A modern language, 9 credit hours.
Library Methods (L. S. 101), 1 credit hour.
Electives: Latin, Greek, History, U. S. Government, Chemistry, Bible History.
Military Drill.

Group Prescription

A. Language and Literature: English 101-103, Public Speaking 101-103 and Library Science 101 are required of all students during their freshman year.

The student's combined work in high school and college must include at least two foreign languages. When the student enters with six units in foreign languages, he will be required to secure nine hours of credit in college; when the student enters with four units in foreign languages, he will be required to secure eighteen credits in college; when the student enters with two units in foreign languages, he will be required to secure twenty-seven credits in college; when the student enters with one unit in foreign languages, he will be required to secure thirty credits in college; when the student enters with no units in foreign languages, he will be required to secure thirty-six credits in college. Less than one unit in a foreign language will not be recognized.

NOTE.—Only the first three prescriptions of Group A apply to students majoring in the Department of Journalism.

B. Social Science: Every student must secure credit in the social science group for not less than eighteen trimester hours. At least nine of these credits must be in history. If, however, the student offers one or more high school units in history, then only nine trimester hours of credit in this group are prescribed.

C. Natural Science: Every student must secure credit for not less than nine trimester hours in either bacteriology, botany, physiology or zoology. If, however, the student offers one high school unit in any one of these four biological sciences, then no additional college credit is required. Every student must also secure credit for at least nine trimester hours in either chemistry, geology or physics. Students entering with neither chemistry nor physics must take a one-year's course in one of the two.

NOTE.—The prescriptions of Group C do not apply to students majoring in the Department of Journalism.

D. Mathematics and Psychology: Every student must secure credit either in high school or college for algebra through quadratics and for plane geometry. He must in addition secure credit in college for at least nine trimester hours in mathematics.

Majors and Minors. All students registered in the School of Liberal Arts must secure at least sixty-three trimester hours of credit in either Group A or Group B, and at least twenty-seven trimester hours, or their equivalent, in some one subject of the group selected. All students of this School must also secure twenty-seven hours of credit in one of Groups A. C and D or B. C and D (according to the group in which the major is chosen), and at least eighteen trimester hours, or their equivalent, in some one subject of the group selected. The student is not permitted to secure more than one hundred and two trimester hours of credit in any one group; in this School, this applies to Groups A and B only.

Relations with Other Schools of the Maryland State College. Any student, after securing one hundred and two trimester hours of credit in subject-matter Groups A, D, C and D, may, with the permission of his adviser, elect six hours a trimester for each of the remaining two years from work offered in any other School.

Reserve Officers' Training Corps. Students completing the curriculum of the Reserve Officers' Training Corps, as defined in General Order 49 of the War Department, will be allowed six trimester credits towards the Bachelor of Arts degree. These credits, however, will count as part of the six hours a trimester for the last two years, taken in other Schools, as explained in the preceding section.

Thesis. In the senior year a thesis in the student's major field of study will be required of all candidates for the Bachelor of Arts degree.

Advisers. The Dean and the Secretary of the School of Liberal Arts, together with the professor representing a prospective major, become the adviser of each student during his freshman year. The relation between adviser and student will be frank and fraternal, without restraint on either side. After the first year, the professor under whom the student does the major portion of his work becomes his adviser.

General Restrictions on Elections. Every student in electing work must bear in mind the following general restrictions: (1) Only courses may be chosen for which the student has had sufficient prerequisite training; (2) Only such courses may be elected as do not conflict on the College class-schedule; (3) A study once elected must be pursued through one year or to the completion of the subject; (4) The student's electives must exhibit a definite purpose; (5) All elections are subject to the approval of the student's adviser and one of the executive officers of the School of Liberal Arts.

Graduate Courses

In certain departments of the School of Liberal Arts provisions are made for instruction toward advanced degrees. A description of courses so offered follows the exclusively undergraduate courses. The general requirements for graduate degrees will be found in the sections devoted to the Graduate School.

ANCIENT LANGUAGES AND PHILOSOPHY

Greek

FOR UNDERGRADUATES

A. L. 101-103. Elementary Greek. Four credit hours each term. Freshman year.

Grammar, composition and easy reading.

A. L. 104-106. Translation and Composition. Four credit hours each term. Sophomore year.

Selections from Xenophon's Anabasis. Original compositions based on text read.

A. L. 107-109. Translation. Four credit hours each term. Junior year.

Selections from Homer. Prosody and mythology.

A. L. 110. History of Greek Literature. Three credit hours, one term.

Latin

For Undergraduates

Courses 121-126, inclusive, may be offered for entrance or taken as college work by students who offer only two units in Latin for entrance.

A. L. 121-123. Translation. Four credit hours each term. Freshman year.

Selections from Virgil. Prosody and mythology.

A. L. 124-126. Translation and Composition. Four credit hours each term. Sophomore year.

Selections from Cicero. Original composition based on text read. Study of assigned topics on Roman life and philosophy.

A. L. 127. Translation and Composition. Four credit hours, first term. Junior year.

Selections from Livy. Original composition based on text read.

A. L. 128-129. Translation. Four credit hours, second term. Four credit hours, third term. Junior year.

Selections from Horace. Translation, prosody and study of Roman life and customs.

A. L. 130. Translation and Composition. Four credit hours, first term. Senior year.

Selections from Tacitus. Original composition based on text read.

A. L. 131-132. Translation. Four credit hours, second term. Four credit hours, third term. Senior year.

Selected plays of Plautus and Terence. Critical study of the Latin drama.

A. L. 133. History of Roman Literature. Three credit hours, one term.

Philosophy

For Undergraduates

The following courses in philosophy are general, giving a survey of conscious processes and the application of these processes to the problems of everyday life:

Ph. 101-103. History of Philosophy. Three credit hours each term.
A general course in the history of philosophy from the time of the Greeks to the present.

Ph. 104. Ethics. Three credit hours, first term.
Ethical theories and their practical application.

Ph. 105. Logic. Three credit hours, second term.
The methods of induction and deduction. Exercises in the detection of fallacies and in the expression of argument.

Ph. 106. Modern Philosophy. Three credit hours, third term.
A study of the systems of the greatest modern philosophers.

ECONOMICS

For Undergraduates

Econ. 101-102. Principles of Economics. Three credit hours, first term. Three credit hours, second term. Not open to freshmen, but required of all students electing their major in this department.
A study of the principles of political economy.

Econ. 103. Corporation Finance. Three credit hours, first term. Prerequisite, Econ. 101-102.
An analysis of the principles of organization, management and financing of the corporation, and its social effects.

Econ. 104. Money and Banking. Three credit hours, second term. Prerequisite, Econ. 101-102.
The history and theory of money, credit and banking.

Econ. 105. Public Finance. Three credit hours, third term. Prerequisite, Econ. 101-102.
Financial administration, principles and theories of taxation, public expenditures and debts.

Econ. 106. Economic History. Three credit hours, first term.
The industrial development of modern Europe and the United States with emphasis on international economic relations.

Econ. 107-108. History of Economic Thought. Two credit hours, second term. Two credit hours, third term.
A critical survey of European and American economic theory.

Econ. 109. Elementary Sociology. Three credit hours, first term.
The origin of social institutions, and theories of social progress.

Econ. 110. Rural Sociology. Three credit hours, second term.
Problems of rural life in the light of modern social science.

ENGLISH LANGUAGE AND LITERATURE

For Short-Course Students

Eng. 1-2. Practical Composition. Three credit hours, first term. Three credit hours, second term. First year. Prerequisites, minimum entrance requirements for short-course students.

Elements, thought processes, types, structure, grammar, mechanical details and common errors of plain composition. Study and preparation of commercial letters, forms, articles, reports and advertisements. Regular practice in the writing of long and short themes.

Eng. 3. Vocational Publications. Three credit hours, third term. First year. Prerequisite, Eng. 1-2.

Reading and study of the leading periodicals, representative bulletins and significant association reports of the technical vocations, with special attention to agriculture and engineering. Written assignments.

For Undergraduates

Eng. 101-103. Composition and Rhetoric. Three credit hours each term. Freshman year. Prerequisites, minimum entrance requirements in English. Required of all four-year students.

Parts, principles and conventions of effective thought communication. Reading, study and analysis of standard contemporary prose specimens. Daily short themes and periodical essays.

Eng. 104-106. Technical Writing and Scientific Thought. Two credit hours each term. Prerequisite, Eng. 101-103.

Advanced exposition. Principles of technical composition; examination and analysis of scientific bulletins, typical articles from technical publications, and scholarly monographs. Study of specimens of the best scientific thought. Practice in the composition of the leading forms of technical writing.

Eng. 107-108. Nineteenth Century Poetry. Three credit hours, first term. Three credit hours, second term. Prerequisite, approval of the instructor.

Reading and criticism of Wordsworth, Coleridge, Byron, Shelley, Keats, Tennyson, Browning, Swinburne and their most distinguished contemporaries. Lectures on the history of English poetry, with special attention to the Romantic movement and the age of Victoria. Discussion of the nature of poetry, versification, style, critical methods and the relation of literature to social forces.

Eng. 109. The Essay. Three credit hours, third term. Prerequisite, approval of the instructor.

Development of the artistic elements of modern English prose and of the essay as a literary type. Reading and criticism of Bacon, Swift, Addison, Lamb, DeQuincey, Carlyle, Emerson, Macaulay, Ruskin and Arnold.

Eng. 110. English Words. Three credit hours, first term. Prerequisite, Eng. 101-103. Given in 1919-20 and alternate years.

Practical study of the origin, growth, nature and use of the English vocabulary.

Eng. 111-112. Literature in America. Three credit hours, second term. Three credit hours, third term. Prerequisite, Eng. 101-103. Given in 1919-20 and alternate years.

Critical study of Irving, Cooper, Bryant, Poe, Hawthorne, Emerson, Whittier, Longfellow, Lowell, Whitman and recent writers. Consideration of national life in American letters and America's contributions to world literature. Lectures, discussions, reports.

Eng. 113-114. Novelists of the Nineteenth Century. Three credit hours, first term. Three credit hours, second term. Prerequisites, Eng. 101-103, Eng. 107-108 and Eng. 109. Not given in 1919-20.

Reading of Scott, Jane Austen, Dickens, Thackeray, Hawthorne, George Eliot, Meredith, Hardy, Stevenson and others. Critical analysis in class of a few model novels, with special reference to characterization, plot and setting. Preparation of written critiques and short theses on assigned topics. Historical development of the novel traced by lectures.

Eng. 115. The Short Story. Three credit hours, third term. Prerequisites, Eng. 101-103, Eng. 107-108 and Eng. 109. Not given in 1919-20.

Lectures on the development and structure of the short story. Reading and study of all the recognized types. Critical reports and story-writing.

Eng. 116. Early English Drama. Three credit hours, first term. Prerequisites, Eng. 101-103, Eng. 107-108 and Eng. 109. Given in 1919-1920 and alternate years.

Development of pre-Shakespearean drama; examination of liturgical, mystery and miracle plays, Robinhood and St. George plays, moralities and interludes, and the early regular comedies and tragedies.

Eng. 117-118. Elizabethan Drama. Three credit hours, second term. Three credit hours, third term. Prerequisites, Eng. 101-103, Eng. 107-108, Eng. 109 and Eng. 116. Given in 1919-20 and alternate years.

Shakespeare, his principal contemporaries and his immediate successors. Analysis, interpretative study and rapid reading. Consideration of Shakespeare in relation to his sources, his stage and general Elizabethan life. Lectures, collateral readings and reports.

Eng. 119-120. Modern English Drama. Three credit hours, first term. Three credit hours, second term. Prerequisites, junior or senior standing and the approval of the instructor. Not given in 1919-20.

Reading of representative plays by Dryden, Wycherley, Congreve, Farquahar and Vanbrugh; Goldsmith and Sheridan; Wilde, Pinero, Jones, Shaw, Galsworthy, Barker, Yeats and Synge; Fitch, Moody, Thomas and Mackaye. Written criticisms and reports. Lectures on the history of the English drama from 1642 to the present time.

Eng. 121. Technique of the Drama. Three credit hours, third term. Prerequisites, junior and senior standing, Eng. 117-118 or Eng. 119-120, and approval of the instructor. Not given in 1919-20.

Principles of dramatic construction and criticism. Lectures, discussions and practice.

FOR GRADUATES

Eng. 201. Seminar. Two credit hours each term.

Subject according to needs of students in attendance.

HISTORY AND POLITICAL SCIENCE

History

The courses in History are of three classes: required, general elective and advanced elective. The required work aims both to give a survey of European and American history and to lay the foundation for further study in the following years. The general electives offer lines of study in American, Ancient and English history; also in the history of the Far East and Modern Russia. These courses afford an opportunity for the independent use of original material. The more advanced elective courses continue the several subjects of the previous years, allowing more scientific treatment and individual investigation.

FOR UNDERGRADUATES

H. 101. History of Ancient Peoples. Three credit hours, first term.

A study of the social and political life of the ancient peoples from the foundations of civilization and history through the establishment of the Roman Empire. This course is given as a background for the classics and as a preparation for teaching history and the classics. Lectures and assigned readings.

H. 102-103. Continental European History. Three credit hours, second term. Three credit hours, third term.

The development of Western Europe from the period of the Barbaria Invasions to the rise of modern states; the political, social and economic institutions of this period. Lectures and assigned readings.

H. 104-105. Modern and Contemporary European History. Two credit hours, first term. Two credit hours, second term. General elective. Prerequisite, H. 102-103.

A study of those great events and characteristics of the European peoples which in their evolution tended to produce the Great World War.

European diplomacy; alliances; balance of power; industrial, intellectual and religious revolutions. Lectures and assigned readings.

H. 106-107. History of the United States. Two credit hours, second term. Two credit hours, third term.

A rapid survey of the principal events in the life of the American people. The Colonial period; the Revolution; growth of population; the Civil War; reconstruction; nationalism; rise to leadership. Lectures and assigned readings.

H. 108-110. Social and Economic History of the United States. Three credit hours each term.

A study of the growth of industry, agriculture, commerce, transportation and labor from the agricultural communities of the Colonies to the industrial and commercial society of today. Lectures and assigned readings.

H. 111. History of Maryland. Three credit hours, third term. Advanced elective. Prerequisite, H. 108-110.

The political, social and economic development of the Commonwealth considered in its relation to the growth of the nation. Maryland's contribution to the progress of the age; Maryland men and women and the part they have played as leaders, from Colonial days to the present time.

H. 112. History of Agriculture. Three credit hours, second term. General elective.

A rapid survey of the development of agriculture as an industry. Primitive agriculture; pioneer methods; development of specialized and diversified farming; improvements in methods and machinery; the place of the experiment station and agricultural college; growth of markets; modern tendencies. Lectures and assigned readings.

H. 113-115. Current History. One credit hour each term.

A study of the political, social and economic problems of the day.

H. 116-117. English Social and Industrial History. Two credit hours, first term. Two credit hours, second term. General elective. Not given, 1919-20.

A survey of the social and industrial evolution of the English people; the growth of English institutions; commercial policy and expansion; industrial and agricultural achievements. Lectures and assigned readings.

H. 118-119. Latin and American Republics. Two credit hours, second term. Two credit hours, third term. Advanced elective. Not given, 1919-20.

The development of the Latin-American Republics; influence of the United States in Central and South America; Monroe Doctrine; develop-

ment of South American agriculture and industry. Pan-Americanism. Lectures and assigned readings.

Political Science

FOR UNDERGRADUATES

Pol. Sc. 101-102. Origin of the State. Two credit hours, first term. Two credit hours, second term.

A study of the nature and form of governments. Earliest forms of government; governments of Greece and Rome; governments of France, Germany and Switzerland; governments of Great Britain and the United States. Lectures.

Pol. Sc. 103-104. Governments of Europe. Two credit hours, second term. Two credit hours, third term.

A comparative study of the political organization of the principal states of Europe. A classification of forms of government; nature of government; departments of government; separation of powers; source of power. Lectures and assigned readings.

Pol. Sc. 105-106. Government of the United States. Two credit hours, first term. Two credit hours, second term.

A study of the governmental system of the United States. Evolution of the Federal Constitution; functions of the Federal government and the relation of the states to the Federal government; the executive, legislative and judiciary departments; suffrage; foreign relations. Lectures and assigned readings.

Pol. Sc. 107-108. Federal, State and Municipal Government. Two credit hours each of two terms. Not given, 1919-20.

A survey course in the government of the nation, the state and the city. The object of this course is to show not only the government of each integral part of the nation but the relation of these parts. Lectures and assigned readings.

Pol. Sc. 109. Contemporary Political Problems of the United States. Three credit hours, third term.

A series of lectures on national and international problems of current interest. American ideals; essentials of democracy; education and democracy; foreign relations; suffrage; labor problems.

Pol. Sc. 110-111. Municipal Government. Two credit hours each of two terms. First term: Government of American cities. Second term: Government of European cities. Not given, 1919-20.

A study of city government. Source of power; organization and administration; influence of the city upon state and national politics; economic problems of cities; city planning; development of scientific management. City manager and commission forms of government. Initiative, referendum and recall; short ballot.

Pol. Sc. 112-113. Constitutional Law of the United States. Two credit hours, first term. Two credit hours, second term.

A study of the American constitution and its interpretation as based on the decisions of the U. S. Federal and Supreme courts. Separation of powers; interstate commerce; protection of civil and political rights; police power. Lectures and assigned readings.

Pol. Sc. 114-116. International Law and Diplomacy. Three credit hours each term. Not given, 1919-20.

A study of the nature, sources and sanctions of international law. Rights and duties of states; relations between belligerents; rights and duties of neutrals; general principles of diplomatic usage; rights, privileges and immunities of diplomatic and consular officers; treaty making; the Hague conventions; the League of Nations. Lectures and assigned readings.

Pol. Sc. 117. Political Parties and Practical Politics. Three credit hours, third term.

A study of the organization and methods of modern political parties; growth of the party system; suffrage; proceedure of legislative bodies; reform movements. Lectures and assigned readings. Visits to the State Legislature and to Congress.

JOURNALISM

The curriculum in journalism not only gives the student an excellent knowledge of English and subjects coincident with general education, but provides courses wherein direct application of such knowledge is shown in actual publication of the modern newspaper. Besides taking up in a general way practically all phases of newspaper work, some courses in the curriculum are designed to give the student a knowledge of the specific conditions that apply to the development of trade journals, peridicals, magazines, and the weekly country paper.

JOURNALISM.

SOPHOMORE YEAR. Term:	I	II	III
Oratory (P. S. 104-106)	1	1	1
Technical Writing and Scientific Thought (Eng. 104-106)	2	2	2
Spanish, French or German	3	3	3
History of Education (Prin. of Ed. 104)	2	.....	.....
Psychology	.....	2	2
Principles of Economics (Ec. 101-102)	3	3	.....
Government of United States (Pol. Sc. 105-106)	2	2	.....
Contemporary Political Problems of U. S. (Pol. Sc. 109)	.....	.....	3
History of British Empire	2	2	.....
United States As a World Power	.....	.....	2
News Writing (Journalism 101-102)	3	3	.....
The Daily Paper (Journalism 103)	.....	.....	3
JUNIOR YEAR.			
Extempore Speaking (P. S. 107-109)	1	1	1
Principles of Philosophy (Phil. 101-103)	3	3	3
International Law and Diplomacy (Pol. Sc. 114-116)	3	3	.....
Political Parties and Practical Politics (Pol. Sc. 117)	.....	.....	3
Corporation Finance (Ec. 104)	3	.....	.....
Money and Banking (Ec. 105)	.....	3	.....
Public Finance (Ec. 106)	.....	.....	3
Novelists of the Nineteenth Century (Eng. 113-114)	3	3	.....
The Short Story (Eng. 115)	.....	.....	3
History of Journalism (Journalism 104)	1	1	1
Newspaper Editing (Journalism 105-107)	2	2	2
News and Editorial Writing (Journalism 108-110)	2	2	2
SENIOR YEAR.			
Sociology	2	2	2
Modern Language, History, Economics, Philosophy, Literature, or Political Science	3	3	3
The Country Newspaper (Journalism 111)	2	.....	.....
The Trade Journal and Magazine (Journalism 112)	2	.....	.....
Feature Writing (Journalism 113)	3	.....	.....
Agricultural and Industrial Feature Writing (Journalism 114-115)	.....	3	3
Principles of Journalism (Journalism 116)	2	.....	.....
Business Management, Circulation and Advertising (Journalism 117-118)	2	.....	.....
Head Writing, Make-Up and Mechanical Details (Journalism 119)	2	.....	.....
Practical Newspaper Operation (Journalism 120-121)	.....	10	10

For Undergraduates

101-102. News Writing. Three credit hours, first term. Three credit hours, second term. Sophomore standing required.

What constitutes news; news values; sources of news; gathering of news; types of newspaper stories.

103. The Daily Paper. Three credit hours, third term. Sophomore standing required.

A study of the methods and styles of the big metropolitan dailies; functions of a daily paper; file system; morgue; analysis of weekly papers; Sunday supplements; and syndicates.

104. History of Journalism. One credit hour each term. Junior standing required.

A study of journalism since its beginning, with special attention to the various types that developed in the nineteenth century; effect of journalism on world civilization and industrial development; relationship of journalism to the arts and sciences; present standards.

105-107. Newspaper Editing. Two credit hours each term. Junior standing required.

Copy reading; proof-reading; general editorial supervision; type selection; printers' marks; problems of the copy-reader and proof-reader.

108-110. News and Editorial Writing. Three credit hours each term. Prerequisite, Journalism 101-102.

The interview; general reportorial duties; newspaper correspondence; human interest; rewrites; interpretation of news; function of an editorial in the newspaper; study of sources of material for editorials; principles embodied in news and editorial writing; relationship of the editorial to the news story; exchanges.

111. The Country Newspaper. Two credit hours, first term. Senior standing required.

A study of the conditions affecting the country paper; sources of news for it; kinds of editorials; and different emphasis placed on news values; and the problems confronting the average small town weekly paper in obtaining paper supplies; and putting news in type; advertising and circulation problems; relationship of the paper to its community.

112. The Trade Journal. Two credit hours, second term. Senior standing required.

Kinds of trade journals and their requirements for special articles; agricultural weeklies; publicity departments of great industrial organizations, and methods of operation.

113. Feature Writing. Three credit hours, first term. Senior standing required.

Nature of the feature story; the narrative and the articles; kinds of material, and sources of material; treatment of topics and methods of handling features; markets for such material.

114-115. Agricultural and Industrial Feature Writing. Three credit hours, second term. Three credit hours, third term. Senior standing required.

Applications of principles embodied in Journalism 113 to articles and stories of an agricultural nature, with particular reference to existing agricultural magazines, weekly farm papers, country papers, and agricultural departments of big dailies.

Special study of the technical demands of trade and industrial journals, kinds of material they are likely to accept, and a general application of the principles of Journalism 113 in preparation of articles for such papers.

116. Principles of Journalism. One credit hour, first term. Senior standing required.

Ethics of the newspaper profession from the view of the editorial offices, the business office and the news department; relationship of the several departments of the newspaper and courtesies between newspaper men; laws of copyright, author's rights and libel.

117. Business Management. Circulation and Advertising. One credit hour, second term. One credit hour, third term. Senior standing required.

Problems encountered by the business manager, circulation manager, and advertising manager; methods of increasing circulation; development of new territory; analysis of markets; the advertising agency; national and local advertising; special type for advertising display; advertising rates; relationship of the cost of production of the newspaper to circulation and advertising.

118. Head writing, make-up, and mechanical details. Two credit hours, first term. Senior standing required.

Kinds of type for use in heads; relationship of the head to the story; what the head should embody; mechanical details of the head; general principles to be observed in making up the paper; placing of advertising; mechanics of the composing-room, the sterotyping-room, the press-room and problems in each.

119-120. Practical Newspaper Operation. Ten hours each week, second and third terms. Senior standing required.

This time will be devoted to the production of a regular weekly country newspaper, a monthly magazine, and a daily paper; a newspaper plant is to be installed at the College in the summer of 1920, and students will get actual experience in almost every phase of newspaper creation and production. Conditions in the modern newspaper plant are to be duplicated in every detail possible. Students will be given practical application of all the principles acquired during their previous three years of study.

MODERN LANGUAGES

French

For Undergraduates

M. L. 101-103. Elementary French. Three credit hours each term. Freshman year. For students who have entered college without French.

Thorough drill in pronunciation, inflections, elements of syntax, composition and easy translation.

M. L. 104-106. Translation. Three credit hours each term. Sophomore year.

This course may be taken by students who have entered with two years of French.

M. L. 107. Scientific French. Three credit hours, one term.

Translation of selected texts.

M. L. 108-110. History and Fiction. Three credit hours each term. Junior year.

Translation of selected authors; composition and conversation.

M. L. 111-113. Drama and Poetry. Three credit hours each term. Senior year.

Translation of selected authors; composition and conversation.

M. L. 114. History of French Literature. Three credit hours, one term.

German

FOR UNDERGRADUATES

M. L. 121-123. Elementary German. Three credit hours each term. Freshman year. For students who have entered college without German.

Thorough drill in pronunciation, inflections, elements of syntax, composition and easy translation.

M. L. 124-126. Translation. Three credit hours each term. Sophomore year. This course may be taken by students who have entered with two years of German.

Selections from German fiction, composition and conversation.

M. L. 127. Scientific German. Three credit hours, one term.

Translation of selected texts.

M. L. 128-130. History and Fiction. Three credit hours each term. Junior year.

Translation of selected authors; conversation and composition.

M. L. 131-133. Drama and Poetry. Three credit hours each term. Senior year.

Translation of selected authors; composition and conversation.

M. L. 134. History of German Literature. Three credit hours, one term.

Spanish

At the end of the Sophomore year a student should be able to converse in Spanish as well as read and write it. The subject matter involved will be such as is ordinarily encountered by persons residing in Spanish-speaking countries. After this basic work a student has an option of two fields of specialization. The first line of specialization is concerned

with the commercial needs of the United States in its relation, particularly, with the South American republics. Subjects receiving special attention are the trade interests of the proprietor and agent. The second line of major study has to do with the special interests of scholars and diplomats.

FOR UNDERGRADUATES

The trader's curriculum in Spanish embraces, primarily, courses 147 to 152. The literary Spanish curriculum consists of courses 153 to 156.

M. L. 141-143. Three credit hours each term. Freshman year.
Grammar; conversation; writing and reading of easy texts.

M. L. 144. Three credit hours, first term. Sophomore year. Prerequisite, M. L. 143.
Thorough knowledge of grammar; emphasis laid on the verb.

M. L. 145-146. Three credit hours, second term. Three credit hours, third term. Sophomore year. Prerequisite, M. L. 144.
Reading and conversation. Reading of easy periodicals with direct application of M. L. 144. All instruction from this point on is given in Spanish.

M. L. 147-148. Three credit hours, first term. Three credit hours, second term. Junior year. Prerequisite, M. L. 146.
Vocabulary of trade. Special attention to the names of articles of hardware, agricultural implements, engineering instruments, etc. Trade problems assigned.

M. L. 149. Three credit hours, third term. Junior year. Prerequisite, M. L. 148.
Business correspondence and etiquette. Direct application of M. L. 148 as used in the soliciting of trade. Actual copies of letters of South American business houses are taken as models.

M. L. 150. Three credit hours, first term. Senior year. Prerequisite, M. L. 149. Jr. 112.
Methods of advertising in South America and Mexico compared with those of the United States. Writing and criticism of original advertisements.

M. L. 151-152. Three credit hours, second term. Three credit hours, third term. Senior year. Prerequisites, M. L. 146, Ec. 101-102, Pol. Sc. 117-119 and H. 104-106.
General study of the commercial development and possibilities of the South American countries and the Philippines. Lectures by recognized authorities.

M. L. 153-154. Early Spanish Literature. Three credit hours, first term. Three credit hours, second term. Junior year. Prerequisites, M. L. 146, H. 104-106, Pol. Sc. 117-119.

Development of Spanish literature from the heroic period to the seventeenth century. Selections from Bivar, Ruiz and Lopez.

M. L. 155. Seventeenth and Eighteenth Century Literature. Three credit hours, third term. Junior year. Prerequisite, M. L. 154.

Critical study of selected works of Cervantes, Calderon, Perez, Quevedo and Montimeyer.

M. L. 156. Nineteenth and Twentieth Century Literature. Three credit hours, first term. Senior year. Prerequisite, M. L. 155.

Selected reading from Ferrari, Ayala, Cabellero and their contemporaries.

PUBLIC SPEAKING

(With special reference to professions)

It is generally recognized that certain professions, using this term in both a special and a broad sense, not only have public speaking as a base, but that the very character of these professions is such that public speaking is the medium through which the professional activities must to a large extent operate. This is particularly true in the Law, in the Ministry, in Leadership for social service work, and in Lecture and Extension Work for public and private organizations.

The curriculum in Public Speaking, with special reference to professions, will be offered to students preparing for the professions named above and to those preparing for such other professions as justify public speaking as a major study. In this curriculum the student will elect from all the subjects offered in the School of Liberal Arts those particular studies which will best prepare him for the profession in view. Public speaking, both general and specially applied, will run through the entire curriculum, and at the different stages of the student's progress in *acquiring* he will be taught to give oral expression to *that which he has acquired.* The general studies pursued give the educational preparation; the drill and oral expression create and develop the medium through which this preparation can be utilized and made efficient.

After the freshman year the studies in this curriculum are elective, except the prescribed work in public speaking. In addition to the regular courses in public speaking, specially adapted and prescribed courses will be offered.

For Undergraduates

P. S. 101-103. Reading and Speaking. One credit hour each term. Freshman year.

A practical course in delivery. The principles and technique of vocal expression; enunciation, emphasis, inflection, force, gesture and general

delivery. Delivery of oratorical selections by students before the class, with criticisms and suggestions by instructor. Individual drill by appointment with instructor.

P. S. 104-106. Oratory. One credit hour each term. Open to students who have credit for P. S. 101-103.

The rhetoric of oral discourse. The speech for the occasion. Study of oratorical masterpieces. Practice in the writing and delivery of orations and general speeches and addresses.

P. S. 107-109. Extempore Speaking. One credit hour each term. Open to all students.

Theory and methods. The psychology of public speaking. Class exercises in speaking extemporaneously on assigned topics.

P. S. 110-112. Debate. One credit hour each term. Open to students who have credit for P. S. 101-103. Not open to freshmen.

A study of the principles of argumentation. Study of masterpieces in argumentative oratory. Class exercises in debating.

P. S. 113-115. Oral Reading. Two credit hours each term. Open to all students.

Primarily for students intending to be teachers. Study of the technique of vocal expression. The oral interpretation of literary masterpieces. Study of methods of teaching oral reading in the schools.

LIBRARY SCIENCE

L. S. 101. Library Methods. One credit hour, first term. Freshman year. Required of all Liberal Arts students. Elective for others.

This course is intended to help students use the library with greater facility. Instruction will be given by lectures and by practical work with the various catalogs, indexes and reference books. This course considers the general classification of the library according to the Dewey System. Representative works of each division are studied in combination with the use of the library catalog. Attention is given to periodical literature, particularly that indexed in the Reader's Guide and Agricultural Index. Book selection and a short bibliography on an assigned subject complete this course.

L. S. 102-103. Advanced Library Methods. Two credit hours, second term. Two credit hours, third term. Prerequisites, L. S. 101 and Eng. 101-103.

A continuation of Library Science 101, emphasizing selection and purchase of books; administration of libraries; elementary work in classifying, cataloging and mending of books; charging and loan desk practice. Designed especially for those interested in prospective library work.

MUSIC

In the Department of Music the courses of study are thorough and comprehensive, and the methods of instruction are along modern lines. The aim of this department is to teach music not only as an accomplishment, but also as an aid in the development of the highest type of manhood and womanhood. The ultimate aim is to train for life and to use the art of music as a means of intellectual, æsthetic and moral culture.

The instruction is planned to meet the personal needs of each student. Since students possess varying degrees of talent and diligence, it is impossible to estimate exactly the time required to complete a curriculum of study. Each student is advanced as rapidly as talent, application and thoroughness warrant.

PIANO COURSES

First Grade. Beyer's Method, Book I of Matthews' Graded Course; studies in sight reading and pieces suitable for this grade.

Second Grade. Matthews' Graded Course, Book II, Köehler Studies, op. 242, and selections suitable to this grade.

Third Grade. Matthews' Graded Course, Books III and IV; Czerny's Etudes de la Velocite, op. 120 and 299 Book I; Lichner's sonatas; compositions from Mendelsohn, Mozart, Godard and others.

Fourth Grade. Matthews' Graded Course, Books V and VI; Czerny's Etudes de la Velocite, op. 299, Book II; Kuhlan's sonatas; studies from Bach, Brahms, Weber; also Mozart's easier sonatas.

Fifth Grade. Matthews' Graded Course, Books VII and VIII; Czerny's Etude de la Velocite, op. 299, Books III and IV; Cramer's Fifty Selected Studies, Books I and II; the more difficult of Mozart's sonatas and the easier of Beethoven's sonatas; compositions from Chopin, Schuman, Schubert and others.

Sixth Grade. Matthews' Graded Course, Books IX and X; Clemente's Gradus and Parnassum; the more difficult sonatas of Beethoven; composition from Chopin, Taussig, Rubenstein and others.

Special courses on all brass and reed instruments may also be arranged.

Each student who is pursuing a course in music will be assigned one or more periods daily; these assignments will be made in such a manner that neither instruction nor practice on the piano will conflict with the student's other academic interests.

Instruction may be begun at any time by such students as bring the director of music a receipt showing that they have met all the requirements explained above, to the full satisfaction of the college authorities.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

Reserve Officers' Training Corps

The work in this department follows the outline given in General Orders Number 49, War Department.

Instruction

An infantry unit of the senior division of the Reserve Officers' Training Corps has been established at the College under the provisions of the Act of Congress of June 3, 1916. All male students, if citizens of the United States, whether pursuing a four-year or a two-year course of study, are required to take for a period of two years, as a prerequisite to graduation, the military training furnished by the War Department. Three periods a week of not less than one hour each are devoted to this work, of which one period is utilized for theoretical instruction. At the end of the sophomore year a student may volunteer for further training. His record is examined by the president of the College and the professor of military science and tactics. If accepted, the volunteer will, after signing a written agreement prescribed by the Secretary of War, be enrolled for two or more years of training in the Reserve Officers' Training Corps. Such students are required to give five hours a week to this advanced training, two of which are utilized for theoretical instruction. These students are required also to attend two summer camps of four weeks each. Any student completing this advanced training course is eligible for appointment by the President of the United States as a Reserve Officer of the United States Army for a period of ten years. They are also eligible for appointment, under certain prescribed conditions, as temporary second lieutenants in the Regular Army for a period of six months.

The Federal Government furnishes uniforms, or commutation therefor, to all members of the Reserve Officers' Training Corps, and also commutation of subsistence to such students as are selected for advanced training during the junior and senior years. The Government furthermore pays the expenses of attendance at the required summer training camps, including traveling expenses.

All physically fit male students, not members of the Reserve Officers' Training Corps, are required by the College regulations to take two hours a week each year of practical drill, unless excused by the president for some satisfactory reason.

College credit is given for work in the Reserve Officers' Training Corps. Since the credits obtained for the first two years of this training are prerequisite to graduation, any student of either sex who for

any reason whatever does not take this work must elect approved subjects in place thereof to obtain equivalent credits.

Uniform—Members of the Student Battalion must appear in uniform at all military formations and at other specified times.

Uniforms for members of the Reserve Officers' Training Corps will be furnished free by the War Department. The uniforms are the regulation uniform of the United States Army. Such uniforms will have to be kept in good condition except for ordinary wear and tear, and be returned to the Military Department at the end of the year.

Description of Courses

(G. O. No. 49—War Department).

M. I. 101. Basic R. O. T. C. Course—

1. Military art. Three hours a week (counting 14 units).

(a) Practical. Weight 10. Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Regulations), to include the School of the Soldier, Squad and Company, close and extended order. Preliminary instruction sighting position and aiming drills, gallery practice, nomenclature and care of rifle and equipment.

(b) Theoretical. Weight 4. Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kan.; military organization (Tables of Organization); map reading; service of security; personal hygiene.

2. Military Art. Three hours a week (counting 14 units).

(a) Practical. Weight 10. Physical drill (Manual of Physical Training—Koehler); infantry drill (U. S. Infantry Drill Regulations), to include school of battalion, special attention devoted to fire direction and control; ceremonies; manuals (Part V, Infantry Drill Regulations); bayonet combat; intrenchments (584-595, Infantry Drill Regulations); first-aid instruction; range and gallery practice.

(b) Theoretical. Weight 4. Lectures, general military policy as shown by military history of United States and military obligations of citizenship; service of information; combat (to be illustrated by small tactical exercises); United States Infantry Drill Regulations, to include School of Company; camp sanitation for small commands.

M. I. 102. Basic R. O. T. C. Course—

3. Military Art. Three hours a week (counting 14 units).

(a) Practical. Weight 10. The same as course 2 (a). Combat firing, if practicable, but collective firing should be attempted in indoor ranges by devices now in vogue at United States Disciplinary Barracks.

(b) Theoretical. Weight 4. United States Infantry Drill Regulations, to include School of Battalion and Combat (350-622); Small-Arms Firing Regulations; lectures as in (b) course 2; map reading; camp sanitation and camping expedients.

4. Military Art. Three hours a week (counting 14 units).

(a) Practical. Weight 10. The same as course 2 (a); signaling; semaphore and flag; first aid. Work with sand table by constructing to scale intrenchments, field works, obstacles, bridges, etc. Comparison of ground forms (constructed to scale) with terrain as represented on map; range practice.

(b) Theoretical. Weight 4. Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear guards, flank guards, trench and mine warfare, orders, messages and camping expedients); marches and camps (Field Service Regulations and Infantry Drill Regulations).

M. I. 103. Advanced R. O. T. C. Course—

5. Military Art. Five hours a week (counting 24 units).

(a) Practical. Weight 13. Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises laid down for the unit or units. Military sketching.

(b) Theoretical. Weight 11. Minor tactics; field orders (studies in minor tactics, United States School of the Line); map maneuvers. Weight 8. Company administration, general principles (papers and returns). Weight 1. Military history. Weight 2.

6. Military Art. Five hours a week (counting 24 units).

(a) Practical. Weight 13. Same as (a) course 5. Military sketching.

(b) Theoretical. Weight 11. Minor tactics (continued); map maneuvers. Weight 8. Elements of international law. Weight 2. Property accountability; method of obtaining supplies and equipment (Army Regulations). Weight 1.

M. I. 104. Advanced R. O. T. C. Course—

7. Military Art. Five hours a week (counting 24 units).

(a) Practical. Weight 13. Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises scheduled for the unit or units. Military sketching.

(b) Theoretical. Weight 11. Tactical problems, small forces, all arms combined; map maneuvers; court-martial proceedings (Manual for Courts-martial). International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation and treaties. Lectures: Psychology of war and kindred subjects; general principles of strategy only, planned to show the intimate relationship between the statesman and the soldier (not to exceed five lectures).

8. Military Art. Five hours a week (counting 24 units).

(a) Practical. Weight 13. Same as course 7 (a).

(b) Theoretical. Weight 11. Tactical problems (continued); map maneuvers. Rifle in war. Lectures on military history and policy.

DEPARTMENT OF PHYSICAL EDUCATION AND RECREATION

The Department of Physical Education and Recreation has been organized to control all physical training, recreation, intramural, and intercollegiate athletics. All work is closely coördinated and the ideal is to see that every man in the institution gets opportunities to take part in competitive sports. The plan under which the department is to operate may be summed up as follows:

1. A series of exercises arranged for every student in the institution and compulsory for all, the exercises to be based on mass exercises common in Germany and the Scandinavian countries. Neither the German nor Scandinavian system is to be used in its entirety, but a combination of the heavy gymnastic drills of the former with the lighter squad drills of the latter. All students will be given physical examination and placed in various classes according to their individual physical needs. Students will receive different kinds of work and be encouraged to take part in those games which provide the exercise of which they are most in need.

2. A general system of intramural athletics is carried out under a regular schedule with teams representing different units of the College. All students take part in one or more of these branches of sport and the College encourages enough sports to give each an opportunity. It is the aim of each class to have its own wrestling team, basket-ball team, baseball team, volley-ball team, track team, and so on for just as many teams as there are students to fill the positions. The games between these teams are carried out with regularity of schedule and supervision. Besides these, there are general competitions such as cross-country runs and interclass track meets in which representatives of all classes may compete at the same time. A regular playground is in process of construction on which will be available tennis courts, volley-ball courts, tether ball poles, stakes for pitching quoits, etc.

3. All physical training of the students, including mass exercises, intramural sports, intercollegiate competitions, and military training, henceforth are a part of the general educational system of the College.

DEGREES CONFERRED MAY 30, 1918.

HONORARY

Doctor of Agriculture

BRADFORD KNAPP.....Washington, D. C.
THOMAS B. SYMONS.....College Park, Md.

Master of Science

TEMPLE DEROCHBRUNE JARRELL.....College Park, Md.

IN COURSE

Bachelor of Science

Agricultural Education

JOHN HOMER REMSBURG.....Middletown, Md.

Agronomy

PERCIVAL ELLSWORTH CLARK.....La Plata, Md.
WILLIAM VICKERY CUTLER.....Washington, D. C.
MORDECAI J. B. EZEKIEL.....Hyattsville, Md.
JOHN PAUL JONES.....Davidsonville, Md.
ROBERT STEEL KANN.....Pittsburgh, Pa.

Animal Husbandry

WILLIAM HAROLD CARROLL.....Ashland, Md.
WALTER KINGSLEY GRIGG.....Port Chester, N. Y.
FREDERICK MORGAN HAIG.....Riverdale, Md.

Biology

ALLEN BOWIE DUCKETT.....Bladensburg, Md.

Horticulture

EDWARD LAWRENCE WILDE.....Washington, D. C.

Chemistry

FRANCIS CLAY BRIMER.....Stockton, Md.

Civil Engineering

ROY SMALLWOOD EYRE.....Highland, Md.
MILTON ALLENDER PYLE.....Baltimore, Md.

CERTIFICATES IN TWO-YEAR COURSES ISSUED MAY 30, 1918

Agriculture

ROBERT FORREST, JR.....Rockville, Md.
HENRY HERMAN SCHULTE.....Newark, N. J.
ARTHUR MEAD SCRIBNER.....Philadelphia, Pa.
CHARLOTTE ANN VAUX.....Washington, D. C.
HENRY WEAVER.....Greensboro, Md.

TESTIMONIALS OF MERIT AWARDED MAY 30, 1918

For distinguished achievement in the promotion of the agricultural interests of Maryland:

ROBERT H. MILLER.....Montgomery Co., Md.
ROBERT L. GRAHAM.....Baltimore, Md.
B. F. SHRIVER.....Carroll Co., Md.

MEDALS AND PRIZES AWARDED MAY 30, 1918

For excellence in the Animal Husbandry Course—Medal offered by the College:

F. M. HAIG.....Riverdale, Md.

For excellence in the Agronomy Course—Medal offered by the College:

M. J. B. EZEKIEL.....Hyattsville, Md.

For excellence in the Civil Engineering Course—Medal offered by the College:

M. A. PYLE.....Baltimore, Md.

For excellence in the Two-Year Course in Agriculture—Medal offered by the College:

ROBERT FORREST, JR.....Rockville, Md.

For excellence in Debate—Medal offered by the Alumni Association:

M. J. B. EZEKIEL.....Hyattsville, Md.

The Goddard Medal, for excellence in Scholarship and Moral Character—offered by Mrs. Annie K. Goddard James:

F. M. HAIG.....Riverdale, Md.

Medal offered to the winner of Intercollegiate Oratorical Contest by the Association of Colleges comprising Western Maryland, St. John's, Washington College and Maryland State College. In the contest at Chestertown, April 24, 1918, E. M. SAWYER, of Worcester County, Maryland, class of 1919, was the winner.

For excellence in Debate, "President's Cup," offered by Dr. H. J. Patterson:

POE LITERARY SOCIETY.

BATTALION ORGANIZATION

Battalion Staff

GEORGE W. NORRIS.....Captain and Adjutant.
J. W. SMITH.....1st Lt. and Personnel Adjutant.
J. R. DRAWBAUGH.....1st Lt. and Small-Arms Instructor.
R. B. THOMAS.....1st Lt. and Bayonet Instructor.
M. T. RIGGS.....1st Lt. and Infantry Drill Instructor.
T. L. BISSELL.....Sergeant-Major.
M. L. RAEDY.....Sergeant and Clerk.

COMPANY OFFICERS AND NON-COMMISSIONED OFFICERS

The Band

G. R. STUNTZ.....1st Lieutenant.
E. V. MILLER.....2nd Lieutenant.

Company "A"	*Company "B"*	*Company "C"*
	Captains	
M. C. BROWN	E. M. SAWYER	H. S. BERLIN
	First Lieutenants	
H. O. COSTER	CHARLES PAINE	K. C. POSEY
	Second Lieutenants	
W. R. HARDISTY	E. W. HAND	E. C. E. RUPPERT

First Sergeants

J. H. EISEMAN — S. E. ABRAMS — J. D. SCHEUCH

Supply Sergeants

B. L. BURNSIDE — J. G. READING — J. A. GRAY

Mess Sergeants

L. W. SNYDER — A. W. HINES — W. F. STERLING

Sergeants

R. S. KNODE — H. L. BOSLEY — E. E. DAWSON
E. B. ADY — J. C. HAMKE

Corporals

C. W. COLE — H. G. EDMONDS — P. T. MORGAN
R. STONE — F. J. FRERE — H. D. GILBERT
H. H. SENER — C. B. MOLSTER — A. A. MILLER
R. W. HELLER — H. R. PEDDICORD — W. T. GARDNER
A. B. NEUMANN — N. V. STONESTREET — T. C. GROTON
F. SLANKER — J. S. KNODE

MEMBERS OF THE STUDENTS' ARMY TRAINING CORPS

Section "A"—Collegiate

Name	*Postoffice*	*County*
ABBOTT, J. S.	Washington	District of Columbia
ABRAMS, S. E.	Hagerstown	Washington
ADY, E. B.	Sharon	Harford
ALBERTI, H. V.	Council Bluffs	Iowa
ALCORN, J. A.	Laurel	Prince George's
ALLARD, W. C., JR.	Takoma Park	District of Columbia
ALLEN, W. T.	Washington	District of Columbia
ALLISON, B. J.	Stony Point	New York
ANKERS, H. H.	Sterling	Virginia
ARCHER, R. B.	Washington	District of Columbia
AYERS, C. W.	Cumberland	Allegany
BABCOCK, K. W.	Hagerstown	Washington
BAER, A. E.	Baltimore	Baltimore City
BAILEY, C. T.	Bladensburg	Prince George's
BARALL, W. L.	Towson	Baltimore
BARTON, J. H.	Centreville	Queen Anne's
BAUMGARDNER, B. R.	Frederick	Frederick
BAURMAN, W. L.	Washington	District of Columbia
BELT, W. H.	Washington	District of Columbia
BENDER, A. J.	Grantsville	Garrett
BENDER, B.	Brooklyn	New York
BERENTER, P.	Washington	District of Columbia
BERKMAN, M. H.	Washington	District of Columbia
BERLIN, H. S.	Baltimore	Baltimore City
BERMAN, H. A.	Baltimore	Baltimore City
BERNARD, L. E.	Jersey City	New Jersey
BISSELL, T. L.	Westover	Somerset
BISSETT, A. L.	Brunswick	Frederick
BLETSCH, C. F.	Washington	District of Columbia
BOSLEY, L. W.	Washington	District of Columbia

Name	*Postoffice*	*County*
BOSTON, A. D	Berlin	Worcester
BOWER, R. G	Hagerstown	Washington
BRADLEY, G. A	Washington	District of Columbia
BRAUNGARD, P. J	Hagerstown	Washington
BROACH, K. T	Ridgewood	New Jersey
BROWN, C. E	Frederick	Frederick
BROWN, CHAUNCEY	Washington	District of Columbia
BROWN, M. C	Seattle	Washington
BURBANK, C. R	Relay	Howard
BURNSIDE, B. L	Hyattsville	Prince George's
BURROUGHS, W. R	Mechanicsville	St. Mary's
BUSKIRK, M	Cumberland	Allegany
BUTT, T. A	Rockville	Montgomery
BUTTS, J. A	Laysburg	Pennsylvania
CADLE, W. R	Ijamsville	Frederick
CADWALLADER, R. R	Monnesson	Pennsylvania
CALVIN, G. F	Washington	District of Columbia
CAMPBELL, B. K	Baltimore	Baltimore City
CANTER, F. D	Aquasco	Prince George's
CARLISLE, J. F	Gaithersburg	Montgomery
CARROLL, H. M	Ashland	Baltimore
CASH, E. F	Baltimore	Baltimore City
CHATLIN, B	Washington	District of Columbia
CHEEZUM, F. L	Preston	Caroline
CLARKE, S. M., JR	Landover	Prince George's
COMPHER, C. M	Doubs	Frederick
CONYNGTON, J	Berwyn	Prince George's
CORKRAN, E. B	Rhodesdale	Dorchester
CRIPPEN, C. C	Chester	Pennsylvania
CROCKETT, F	Pocomoke City	Worcester
CROGGON, W. N	Washington	District of Columbia
DARKIS, F. R	Frederick	Frederick
DARNALL, C. E	Hyattsville	Prince George's
DAVIES, G. G	Easton	Talbot
DAWSON, E. E	Trappe	Talbot
DEFIBAUGH, R. J	Ridgely	West Virginia
DINTERMAN, G. H	Middletown	Frederick
DONALDSON, E. C	Laurel	Prince George's
DUVALL, W. M	Baltimore	Baltimore City
EDMONDS, H. G	Washington	District of Columbia
EDWARDS, T. V	Hamilton	Baltimore
EISEMAN, J. H	Washington	District of Columbia
ELLIOTT, J. W	Westover	Somerset
ENGLE, J. C	Frederick	Frederick
ETCHISON, A. H	Jefferson	Frederick
ETIENNE, A. D	Berwyn	Prince George's
EWALD, F. G	Mt. Savage	Allegany
FILBERT, E. B	Baltimore	Baltimore City
FLEISCHMAN, J. L	Frederick	Frederick
FLORA, F	Jersey City	New Jersey
FOGHT, P. R	Washington	District of Columbia
FORREST, R., JR	Rockville	Montgomery
FRERE, F. J	Tompkinsville	Charles
FREUNDLICH, H	Baltimore	Baltimore City
FURR, A. H	Washington	District of Columbia

Name	*Postoffice*	*County*
FUSSELBAUGH, W. P	Baltimore	Baltimore City
GARBER, P. E	Washington	District of Columbia
GARDNER, W. T	Clearspring	Washington
GERLACH, G. M	Cambridge	Dorchester
GETTY, G. E	Silver Spring	Montgomery
GILBERT, C. H. D	Frederick	Frederick
GILPIN, W. H	Sandy Spring	Montgomery
GORMLEY, W. A	Branchville	Prince George's
GRABILL, E. W	Brunswick	Frederick
GRAHAM, W. S	Washington	District of Columbia
GRAY, J. A	Brownsville	Washington
GRAY, W. D	Prince Frederick	Calvert
GREENWOOD, A. H	Forestville	Prince George's
GROTON, T. C	Pocomoke City	Worcester
GROVES, J	Washington	District of Columbia
GUREVICH, H. J	Washington	District of Columbia
GUREVICH, M. J	Washington	District of Columbia
HAIG, R. V	Riverdale	Prince George's
HAMKE, J. C	Rockville	Montgomery
HAND, E. W	Berwyn	Prince George's
HANDLER, H	Newark	New Jersey
HARDISTY, W. R	Seabrook	Prince George's
HARTMANN, C. J	Elizabeth	New Jersey
HARVEY, V. H	Deer Park	Garrett
HAYES, A. W	Washington	District of Columbia
HAYNES, H. R	Baltimore	Baltimore City
HEISCHOBER, S	Brooklyn	New York
HEISLER, H. E	Washington	District of Columbia
HELLER, R. W	Eastport, Annapolis	Anne Arundel
HEMP, R. L	Jefferson	Frederick
HERWIG, C. H	Frederick	Frederick
HINES, A. W	Washington	District of Columbia
HOLTER, C. K	Jefferson	Frederick
HOLTER, E. F	Middletown	Frederick
HOPKINS, P. J	Cordova	Talbot
HOPKINS, T. R	Washington	District of Columbia
HOPKINS, W. H	Cordova	Talbot
JEFFERSON, H. W	Roselle Park	New Jersey
JENKINS, P. A	Clinton	Prince George's
JESTER, W. C	Washington	District of Columbia
JOHNSON, A. L	Baltimore	Baltimore City
JOHNSON, C. E	Myersville	Frederick
JOHNSTON, M. S	Hagerstown	Washington
KARN, G. C	Jefferson	Frederick
KAUFMAN, S	Baltimore	Baltimore City
KEEFAUVER, J. E	Berwyn	Prince George's
KEEN, H. V	Snow Hill	Worcester
KELLER, L. J	Trumbauersville	Pennsylvania
KEMP, A. D	Frederick	Frederick
KEMP, H. S	Princess Anne	Somerset
KEYES, C. C	Barton	Allegany
KING, E. S., JR	Branchville	Prince George's
KISLIUK, D. E	Washington	District of Columbia
KNEPPER, C. L	Clearspring	Washington
KNODE, J. S	Uniontown	Pennsylvania

Name	*Postoffice*	*County*
LAIKIN, G. J.	Town of Union	New Jersey
LANE, J. J., JR.	Ridgely	Caroline
LANGRALL, J. H.	Roland Park	Baltimore City
LATIMER, T. M.	Hyattsville	Prince George's
LECOMPTE, H. A.	Vienna	Dorchester
LEVIN, A.	Baltimore	Baltimore City
LEVIN, H. E.	Baltimore	Baltimore City
LILLIE, F. T.	Takoma Park	District of Columbia
LORCH, G. H.	Washington	District of Columbia
LUCKE, R. H.	Catonsville	Baltimore
LUCKEY, G. J.	Frederick	Frederick
LYON, F. M.	Oakland	Garrett
MCGUIRE, M. M.	Washington	District of Columbia
MCLEAN, D. L.	Baltimore	Baltimore City
MCNAMARA, W. E.	Washington	District of Columbia
MACKENZIE, H. B.	Capitol Heights	Prince George's
MAGRUDER, J. M.	Washington	District of Columbia
MAHONEY, P. H.	Tooele	Utah
MANNING, R. I.	Accokeek	Prince George's
MARKS, A.	Cincinnati	Ohio
MARTZ, J. W.	Frederick	Frederick
MATHIAS, L. G.	Hagerstown	Washington
MATTFELDT, G. E.	Washington	District of Columbia
MELNICOVE, S.	Baltimore	Baltimore City
MERTZ, P. W.	Mulberry	Indiana
MICHAEL, P. S.	Frederick	Frederick
MIDDLETON, T. B., JR.	Clinton	Prince George's
MILES, C. F.	Brunswick	Frederick
MILLER, A. A.	College Park	Prince George's
MILLER, E. V.	Hagerstown	Washington
MINTZ, S. A.	Bayonne	New Jersey
MOLSTER, C. B.	Washington	District of Columbia
MOORE, C. E., JR.	Roland Park	Baltimore City
MOORE, J. F.	Washington	District of Columbia
MORAN, J. A.	Frederick	Frederick
MOREHOUSE, M. B.	Washington	District of Columbia
MORELAND, G.	Gallant Green	Charles
MORGAN, E. K.	Washington	District of Columbia
MORGAN, P. T.	Baltimore	Baltimore City
MOULDEN, J. S.	Rockville	Montgomery
MULLINIX, H. E.	Mt. Airy	Carroll
MUTTER, F. E.	Baltimore	Baltimore City
MYERS, A. H.	Winchester	Virginia
MYERS, E. H. L., JR.	Washington	District of Columbia
MYERS, W. E.	Street	Harford
NEIGHBOURS, H. D.	Lewistown	Frederick
NEUMANN, A. B.	Washington	District of Columbia
NEVIUS, C. A.	Easton	Talbot
NEWELL, S. R.	Washington	District of Columbia
NICHOLS, H. R.	Chevy Chase	District of Columbia
NICODEMUS, A. W.	Monrovia	Frederick
NORTHAM, A. J.	Pocomoke	Worcester
NOYES, JOHN	Westwood	Prince George's
PAINE, C. E.	Washington	District of Columbia
PAINTER, J. H.	Washington	District of Columbia

Name	*Postoffice*	*County*
PALMER, N. F	Charleston	West Virginia
PARKMAN, C. B	Passaic	New Jersey
PARSLY, G. M	Brookeville	Montgomery
PARSONS, D. A	Washington	District of Columbia
PEPPER, T. D	Washington	District of Columbia
PERRY, D. P	Clearspring	Washington
PETERMAN, W. W	Clearspring	Washington
POLK, L. W	Pocomoke	Worcester
POOLE, A. S	Frederick	Frederick
POWELL, E. W	Princess Anne	Somerset
PROSS, C	Baltimore	Baltimore City
QUINN, H. V	Frederick	Frederick
RAEDY, M. L	Washington	District of Columbia
RAUSCH, R. M	Baltimore	Baltimore City
READING, J. G	Rockville	Montgomery
REDMILE, H. W	Kennedyville	Kent
REMSBURG, E. E	Buckeystown	Frederick
RICHARDSON, P. S	Williamsburg	Dorchester
ROBERTS, F. G	Baltimore	Baltimore City
ROCKWELL, H. P	Gambrills	Anne Arundel
ROELKE, C. R	Burkittsville	Frederick
ROSENBUSCH, L. A	Washington	District of Columbia
ROUTZAHN, I. R	Middletown	Frederick
RUARK, W. H	Westover	Somerset
RUPPERT, E. C. E., JR	Chevy Chase	District of Columbia
RYNEARSON, A. C	Washington	District of Columbia
SASSCER, C. D	Northkeys	Prince George's
SAWYER, E. M	Manila	Philippine Islands
SCHAFTEL, J. B	Baltimore	Baltimore City
SCHEUCH, J. D	Washington	District of Columbia
SCHNIDER, F	Washington	District of Columbia
SCHOLL, W	Washington	District of Columbia
SCHRAMM, G. N	Cumberland	Allegany
SCHROEDER, R. E	Frederick	Frederick
SCHROEDER, R. S	Frederick	Frederick
SCOTT, E. C	Hutton	Garrett
SCOTT, H. I	Washington	District of Columbia
SCOTT, J. G	Princess Anne	Somerset
SENER, H. H	Chewsville	Washington
SHANK, H. A	Smithsburg	Washington
SHAW, A. M	Washington	District of Columbia
SHIPLEY, G. R	Frederick	Frederick
SHULTERS, E. S	Washington	District of Columbia
SILBERMAN, H. A	Washington	District of Columbia
SLANKER, F	Washington	District of Columbia
SLIGER, R	Oakland	Garrett
SMITH, G. F	Clearspring	Washington
SMITH, J. L	Baltimore	Baltimore City
SNYDER, L. W	Washington	District of Columbia
SOLLOD, H. A	Baltimore	Baltimore City
SOLOMON, J. A	Brooklyn	New York
SPURRIER, W. L	Mt. Airy	Carroll
STABLER, L. J	Washington	District of Columbia
STARKEY, E. B	Sudlersville	Queen Anne's
STERLING, W. F	Crisfield	Somerset

Name	*Postoffice*	*County*
STONE, M. X.	Dynard	St. Mary's
STONE, R., JR.	Annapolis	Anne Arundel
STONESTREET, N.	Rock Point	Charles
STRANAHAN, R. J.	Union City	Pennsylvania
STRANGE, R. T.	Annapolis	Anne Arundel
STROTT, G. A.	Baltimore	Baltimore City
STUBBS, J. S.	Charleston	West Virginia
TAWES, W. I.	Crisfield	Somerset
TERRY, H. M.	Jacksonville	Florida
THAWLEY, L. H.	Laurel	Prince George's
THOMAS, W. P.	Jefferson	Frederick
TIPTON, A. L.	Jarrettsville	Harford
TRADER, F. F.	Berlin	Worcester
UMBARGER, H. L.	Bel Air	Harford
UTTERBACK, C. L.	Brunswick	Frederick
VONEIFF, E. L.	Washington	District of Columbia
WALFORD, H. C.	Washington	District of Columbia
WALKER, PAUL	Mt. Airy	Carroll
WARD, H. B.	Baltimore	Baltimore City
WARD, J. B.	Jarrettsville	Harford
WATKINS, D. E.	Mt. Airy	Carroll
WEAVER, H.	Greensboro	Caroline
WILHELM, C. P.	Arlington	Baltimore
WILSON, J. S.	Sussex	New Jersey
WYNKOOP, J. C.	Washington	District of Columbia
YAFFE, A. H.	Baltimore	Baltimore City
YERKES, E. L.	Delta	Pennsylvania
YOUNG, R. N.	Washington	District of Columbia
ZIMMERMAN, S. G. H., JR.	Frederick	Frederick

Section "B"—Vocational

ABRAMOWITZ, A. M.	Baltimore	Baltimore City
ADAM, J. M.	Passaic	New Jersey
APRIL, D.	Washington	District of Columbia
BARTLETT, F. A.	Centreville	Queen Anne's
BEACHY, W. A.	Grantsville	Garrett
BENJAMIN, C. C.	Baltimore	Baltimore City
BERKOW, B.	Baltimore	Baltimore City
BOTHUM, L. W.	Cambridge	Dorchester
BOWERMAN, H. H.	Loreley	Baltimore
BRANNER, C. E.	Pocomoke	Worcester
BRILL, W. B.	Springfield	New Jersey
BROWN, JACOB	Baltimore	Baltimore City
BURKET, R. E.	Chevy Chase	District of Columbia
CALKINS, A. L.	Colby	Kansas
CARROLL, F. U.	Easton	Talbot
CARTNER, G. S.	Washington	District of Columbia
CHAPMAN, G. B.	Woodstock	Virginia
COE, W. G.	Washington	District of Columbia
COFFIN, J. G., JR.	Berlin	Worcester
COHEN, D. B.	Washington	District of Columbia
COHEN, H. E.	Baltimore	Baltimore City
COHEN, MAX	Baltimore	Baltimore City
COHN, D. D.	Baltimore	Baltimore City

Name	*Postoffice*	*County*
COMORA, P.	West Hoboken	New Jersey
COONIN, ABE	Washington	District of Columbia
CORCORAN, W. J	Passaic	New Jersey
COX, B. N	Huntington	Calvert
CRAWFORD, A. A	Washington	District of Columbia
CROPPER, E. S	Berlin	Worcester
CUSTIS, R. S	Pocomoke	Worcester
DAVIS, B. J	Keyser	West Virginia
DAVIS, L. B	Whiteford	Harford
DAVIS, MALCOLM	Washington	District of Columbia
DAY, A. W	Adamstown	Frederick
DEVOE, C. F	Rocks	Harford
DEY, W. S	Towson	Baltimore
DIGGS, J. G. K	Baltimore	Baltimore City
DILLEY, J. N	Cumberland	Allegany
DISKIN, M. M	Baltimore	Baltimore City
DIXON, W. J	Washington	District of Columbia
DOUGLAS, R. W	Keyser	West Virginia
DOWNEY, H. L	Frederick	Frederick
EDEL, S. T	Baltimore	Baltimore City
EDLOWITZ, SAMUEL	Washington	District of Columbia
EICHMANN, L	West Hoboken	New Jersey
EISENBERG, I. J	Baltimore	Baltimore City
ELDER, J. W	Cumberland	Allegany
ELFREY, RUSSELL	Baltimore	Baltimore City
EMERY, R. W., JR	Snow Hill	Worcester
ENGLE, P. F	Forest Glen	Montgomery
EVANS, B. D	Pocomoke City	Worcester
EVANS, E. G	Pocomoke City	Worcester
FINDLAY, J. O	Trappe	Talbot
FISHER, O. S	Easton	Talbot
FOLTZ, E. T	Witheville	Virginia
FRIEDENBERG, CHARLES	Washington	District of Columbia
GARBER, P. E	Washington	District of Columbia
GIVENS, H. B	Berlin	Worcester
GOULDMAN, R. L	Baltimore	Baltimore City
GREGG, C. S	Frederick	Frederick
GREEN, S. J	Midland	Virginia
GRIEST, J. R	Washington	District of Columbia
GRIFFITH, H. E	Baltimore	Baltimore City
GROVE, G. E	Frederick	Frederick
GRUBB, B. E	Chevy Chase	District of Columbia
GULLEY, R. H	Baltimore	Baltimore City
HAASE, H. F., JR	Washington	District of Columbia
HANDLEMAN, M. C	Hopewell	Virginia
HARRINGTON, E. F	Fall River	Massachusetts
HARRISON, J. M	Keyser	West Virginia
HAYWARD, T. W	Berlin	Worcester
HECHT, R. J	Baltimore	Baltimore City
HECKEL, W. F	West Philadelphia	Pennsylvania
HELBIG, E. H	Oakland	Garrett
HENRY, J. T	New York	New York
HERRING, A. S	Frederick	Frederick
HIRSCHHORN, L. E	Baltimore	Baltimore City
HIXSON, C. K	Cumberland	Allegany

Name	*Postoffice*	*County*
HOFFMAN, HARRY	Baltimore	Baltimore City
HOLDER, G. D	Cambridge	Dorchester
HOLLYDAY, H. R	Easton	Talbot
HORSEY, H. S	Easton	Talbot
HOUSEMAN, J. W	Baltimore	Baltimore City
HOYLE, L. H	Olney	Montgomery
HUGG, J. A	Baltimore	Baltimore City
HUME, G. W	Washington	District of Columbia
HUNTRESS, A. W	Washington	District of Columbia
JACOBS, ABE	Baltimore	Baltimore City
JACOBS, H. H	Baltimore	Baltimore City
JAMES, ROBERT	Frederick	Frederick
JENKINS, H. T	Washington	District of Columbia
KING, J. B	Baltimore	Baltimore City
KING, J. W	South Boston	Massachusetts
KIRSTEIN, C. H	Washington	District of Columbia
KISLIUK, A. P	Washington	District of Columbia
KLEIN, H. J	Washington	District of Columbia
KLINE, L. M	Cumberland	Allegany
KLINE, R. G	Frederick	Frederick
KRAUSE, E. A	Bison	Kansas
LAZOROW, SAMUEL	Washington	District of Columbia
LEBOW, MEYER	Baltimore	Baltimore City
LECATO, C. B	Easton	Talbot
LERNER, NOAH	Washington	District of Columbia
LEVIN, I. E	Baltimore	Baltimore City
LIPPMANN, M. L	Atlantic City	New Jersey
LEWIS, G. R	Friendship	Anne Arundel
LOSINSKY, ABE	Baltimore	Baltimore City
MCALLISTER, R. N	Atlantic City	New Jersey
MCCLINTIC, F. R	Herndon	Virginia
MCDONAUGH, B. L	Washington	District of Columbia
MCELROY, H. O	Atlantic City	New Jersey
MCMICHAEL, H. E	Pocomoke City	Worcester
MACDONALD, G. A	Shenandoah Junction	West Virginia
MALMAN, J. J	Baltimore	Baltimore City
MARCERON, L. W	Washington	District of Columbia
MARGOLIS, B. C	Baltimore	Baltimore City
MARONEY, R. L	Oakland	Garrett
MAYERS, A. A	Baltimore	Baltimore City
MENZEL, K. F	Washington	District of Columbia
MEYER, M. C	Baltimore	Baltimore City
MEYERS, MAX	Baltimore	Baltimore City
MILLER, HAROLD	Frederick	Frederick
MILLER, HERBERT	Baltimore	Baltimore City
MILLER, ISRAEL	Baltimore	Baltimore City
MILLER, J. R	Cumberland	Allegany
MORGAN, R. G., JR	Washington	District of Columbia
MULLEN, C. L	Hagerstown	Washington
MUNDLE, G. S	East Orange	New Jersey
MUNFORD, G. T	Washington	District of Columbia
NAIMAN, JULIUS	Baltimore	Baltimore City
NAYLOR, E. C	Kenilworth	District of Columbia
NEWMAN, A. L. C	Cherrydale	Virginia
NEWMAN, HERMAN	Covington	Virginia

Name	*Postoffice*	*County*
NEVIUS, R. A.	Easton	Talbot
NEWCOMER, W. D.	Denton	Caroline
OFFUTT, D. K.	Washington	District of Columbia
OSTROW, E. C.	Washington	District of Columbia
PADDY, M. J.	Friendship	Anne Arundel
PALDAUF, R. C.	Washington	District of Columbia
PALMER, J. C.	Washington	District of Columbia
PEARCE, W. M.	Mt. Savage	Allegany
PERHAM, H. R.	Hagerstown	Washington
PERLSTEIN, E. J.	Atlantic City	New Jersey
PHILIPS, J. J.	Washington	District of Columbia
PURNELL, A. H.	Berlin	Worcester
RANEY, E. J.	Kensington	Montgomery
RAWLEY, W. H.	Washington	District of Columbia
RITTOFF, LEO	Coronado	California
ROBBIN, P. C.	Washington	District of Columbia
ROBERTIELLO, A. E.	Washington	District of Columbia
ROBERTS, H. L.	Vale	Oregon
ROBERTS, J. C.	Washington	District of Columbia
ROBERTSON, E. C.	Cumberland	Allegany
ROBINSON, NATHAN	Baltimore	Baltimore City
ROY, E. S.	Sussex	New Jersey
SACHS, ABRAHAM	Baltimore	Baltimore City
SANSBURY, E. W.	Friendship	Anne Arundel
SCHAMBACK, J. M.	Baltimore	Baltimore City
SCHLADT, P. B.	Washington	District of Columbia
SCHWARTZMAN, HARRY	Baltimore	Baltimore City
SCHWARTZMAN, I. A.	Baltimore	Baltimore City
SCHWARTZMAN, LEON	Baltimore	Baltimore City
SCHWARTZMAN, URIEL	Baltimore	Baltimore City
SHEPLEY, E. F.	Myersville	Frederick
SHILLS, E. R.	Atlantic City	New Jersey
SHOCKLEY, C. N.	Snow Hill	Worcester
SHUCK, S. M.	Cumberland	Allegany
SIMON, S. A.	Baltimore	Baltimore City
SIMPSON, H. H.	Centreville	Queen Anne's
SONNEMAN, K. O.	Washington	District of Columbia
STAGG, A. M.	Snow Hill	Worcester
STANTON, G. S.	Grantsville	Garrett
STARR, R. F. S.	Easton	Talbot
STAUB, J. M.	Frederick	Frederick
STEBBINS, W. C.	Cleveland	Ohio
STULL, C. O.	Frederick	Frederick
STULTZ, R. L., JR.	Washington	District of Columbia
TALTON, W. L.	Cape Charles	Virginia
TARR, M. E.	Pocomoke City	Worcester
TAYLOR, W. A., JR.	Ocean City	Worcester
TAYMAN, B. R.	Baltimore	Baltimore City
THORNTON, M. S.	Crisfield	Somerset
TONGUE, C. W.	Coster	Calvert
TOWNSEND, WILLIAM	Easton	Talbot
TRAVER, H. R.	Williamsport	Washington
TRUEX, W. W.	Atlantic City	New Jersey
UPPERCUE, W. B.	Washington	District of Columbia
VOGELSTEIN, ALBERT	Baltimore	Baltimore City

Name	*Postoffice*	*County*
WALLER, H. W	Washington	District of Columbia
WARNER, H. K	Washington	District of Columbia
WATERS, F. G	Frederick	Frederick
WEBB, O. K	Friendship	Anne Arundel
WEIMAN, J. L	Baltimore	Baltimore City
WEINBERG, H. L	Baltimore	Baltimore City
WEISS, WALTER	Atlantic City	New Jersey
WHITEHILL, H. W	Unionville	Frederick
WILLIAMSON, J. A	Alexandria	Virginia
WILSON, J. W	Mt. Airy	Carroll
WOLF, S. E	Washington	District of Columbia
WOLFE, D. D	Washington	District of Columbia
WRIGHTSON, W. K	Preston	Caroline
YEARLEY, C. K	Baltimore	Baltimore City
YOKUM, O. M	Washington	District of Columbia
YOUNKIN, F. M	Grantsville	Garrett
ZELDITCH, MORRIS	Baltimore	Baltimore City
ZEPP, N. B	Clarksville	Howard

REGISTER

Session 1918-1919

Graduate Students

FARR, WANDA M. (Mrs.)	Takoma Park	District of Columbia
GRAY, W. D	Prince Frederick	Calvert
NICKELS, C. B	Starkville	Mississippi
TRUITT, R. V	Girdletree	Worcester

Senior Class

AITCHESON, J. L	Burtonville	Montgomery
BABCOCK, K. W	Hagerstown	Washington
BACON, C. H	Silver Spring	Montgomery
BERLIN, H. S	Baltimore	Baltimore City
BLETSCH, C. F	Washington	District of Columbia
BROWN, M. C	Sparrows Point	Baltimore
COSTER, H. O	Coster	Calvert
HAND, E. W	Berwyn	Prince George's
HARDISTY, W. R	Seabrook	Prince George's
HICKS, W. P	Govans	Baltimore
HORN, P. V	Mt. Airy	Carroll
LEWIS, R. R	Frederick	Frederick
MILLER, E. V	Hagerstown	Washington
NORRIS, G. W	Baltimore	Baltimore City
PAINE, C. E	Washington	District of Columbia
POSEY, K. C	Washington	District of Columbia
SAWYER, E. M	Manila	Philippine Islands
SELLMAN, R. L	Beltsville	Prince George's
STEVENS, J. W	Baltimore	Baltimore City
STUNTZ, G. R	Washington	District of Columbia

Junior Class

ABRAMS, S. E	Hagerstown	Washington
ADY, E. B	Sharon	Harford
BARTON, J. H	Centreville	Queen Anne's

Name	*Postoffice*	*County*
BISSELL, T. L.	Westover	Somerset
BURNSIDE, B. L.	Hyattsville	Prince George's
CARROLL, H. M.	Ashland	Baltimore
CONYNGTON, JOHN	Berwyn	Prince George's
DAWSON, E. E.	Trappe	Talbot
DRAWBAUGH, J. R.	Washington	District of Columbia
ETIENNE, A. D.	Berwyn	Prince George's
EZEKIEL, WALTER	Hyattsville	Prince George's
GRAY, J. A.	Brownsville	Washington
HARTSHORN, H. P.	Kensington	Montgomery
HOCKMAN, G. B.	Hagerstown	Washington
HOOK, E. G. (Miss)	Baltimore	Baltimore City
KEEFAUVER, J. E.	Berwyn	Prince George's
KNODE, J. S.	Martinsburg	West Virginia
KNODE, R. T.	Martinsburg	West Virginia
LANGRALL, J. H.	Baltimore	Baltimore City
RIGGS, M. T.	Rockville	Montgomery
RUPPERT, E. C. E.	Chevy Chase	District of Columbia
SEWELL, M. D.	Hyattsville	Prince George's
SNARR, W. C.	Washington	District of Columbia
STERLING, W. F.	Crisfield	Somerset

Sophomore Class

BLAND, H. W. (Miss)	Sparks	Baltimore
CALDWELL, D. R.	Washington	District of Columbia
COLE, C. W.	Towson	Baltimore
DONALDSON, E. C.	Laurel	Prince George's
EISEMAN, J. H.	Washington	District of Columbia
FRERE, F. J.	Tompkinsville	Charles
GARDNER, W. T.	Clearspring	Washington
GOODWIN, L. M.	Potsdam	New York
GRAHAM, J. R.	Barclay	Queen Anne's
GROTON, T. C.	Pocomoke City	Worcester
HAIG, R. V.	Riverdale	Prince George's
HAMKE, J. C.	Rockville	Montgomery
HELLER, R. W.	Annapolis	Anne Arundel
HOLTER, C. K.	Jefferson	Frederick
HOLTER, E. F.	Middletown	Frederick
JESTER, W. C.	Wilmington	Delaware
MANNING, R. I. C.	Accokeek	Prince George's
NEUMANN, A. B.	Washington	District of Columbia
PEDDICORD, H. R.	Dickerson	Montgomery
PERRY, D. P.	Clearspring	Washington
POWELL, E. W.	Princess Anne	Somerset
RAUSCH, R. M.	Washington	District of Columbia
READING, J. G.	Rockville	Montgomery
SCHEUCH, J. D.	Washington	District of Columbia
SENER, H. H.	Chewsville	Washington
SILBERMAN, H. A.	Washington	District of Columbia
SLANKER, FREDERICK	Washington	District of Columbia
SMITH, J. W.	Arlington	Baltimore
SNYDER, L. W.	Washington	District of Columbia
STARKEY, E. B.	Sudlersville	Queen Anne's
STONE, R., JR.	Annapolis	Anne Arundel
STONESTREET, N. V.	Rock Point	Charles

Name	*Postoffice*	*County*
SULLIVAN, J. H.	Newburyport	Massachusetts
THAWLEY, L. H.	Laurel	Prince George's
THOMAS, R. B.	Washington	District of Columbia
TWILLEY, O. S.	Hurlock	Dorchester
WALKER, PAUL	Mt. Airy	Carroll
WILHELM, C. P.	Arlington	Baltimore

Freshman Class

ALLISON, B. J.	Stony Point	New York
AVERY, H. A. (Miss)	Washington	District of Columbia
BAILEY, C. T.	Bladensburg	Prince George's
BARALL, W. L.	Towson	Baltimore
BEACHLEY, R. H.	Middletown	Frederick
BEST, A. S.	Birdsville	Anne Arundel
BOSLEY, H. L.	Washington	District of Columbia
BOSLEY, L. W.	Washington	District of Columbia
BOWER, R. G.	Hagerstown	Washington
BRAUNGARD, P. J.	Hagerstown	Washington
BROACH, K. T.	Ridgewood	New Jersey
BROWN, CHAUNCEY	Washington	District of Columbia
BURGESS, E. A.	McDonogh	Baltimore
BURROUGHS, J. A.	Clinton	Prince George's
BUTTS, J. A.	Laysburg	Pennsylvania
CALDWELL, F. R.	Washington	District of Columbia
CALVIN, G. F.	Washington	District of Columbia
CANTER, F. D.	Aquasco	Prince George's
CARROLL, C. G.	Baltimore	Baltimore City
CHEEZUM, F. L.	Preston	Caroline
CLARK, MORISON	Takoma Park	District of Columbia
DARKIS, F. R.	Frederick	Frederick
DARNALL, C. E.	Hyattsville	Prince George's
DARNER, E. F.	Hagerstown	Washington
DUVALL, W. M.	Baltimore	Baltimore City
EDMONDS, H. G.	Brookland	District of Columbia
ELDER, J. W.	Cumberland	Allegany
ENGLAND, C. W.	Rising Sun	Cecil
ENSOR, HULDAH (Miss)	Sparks	Baltimore
EWALD, F. G.	Mt. Savage	Allegany
EZEKIEL, BERTHA (Miss)	Hyattsville	Prince George's
FILBERT, E. B.	Baltimore	Baltimore City
FOUTS, R. M.	Washington	District of Columbia
GILBERT, H. D.	Frederick	Frederick
GRAHAM, W. S.	Washington	District of Columbia
GUREVICH, H. J.	Washington	District of Columbia
HINES, A. W.	Washington	District of Columbia
HUGG, J. A.	Baltimore	Baltimore City
KEENE, H. V.	Snow Hill	Worcester
KEMP, A. D.	Frederick	Frederick
KING, E. S., JR.	Branchville	Prince George's
LOVE, DOUGLAS	East Orange	New Jersey
MCDONALD, W. F.	Barton	Allegany
MAHONEY, P. H.	Tooele	Utah
MATTHEWS, I. W.	Sparks	Baltimore
MILLER, A. A.	College Park	Prince George's
MOHLHENRICH, E. G.	Govans	Baltimore

Name	*Postoffice*	*County*
MOLSTER, C. B. L	Washington	District of Columbia
MOORE, C. E., JR	Roland Park	Baltimore
MORAN, J. A	Frederick	Frederick
MOREHOUSE, M. B	Washington	District of Columbia
MORGAN, E. K	Washington	District of Columbia
MORGAN, P. T	Baltimore	Baltimore City
MORISON, E. C	Washington	District of Columbia
MYERS, E. H. L., JR	Washington	District of Columbia
NEIGHBOURS, H. E	Lewistown	Frederick
NEWELL, S. R	Falls Church	Virginia
NORTHAM, A. J	Pocomoke City	Worcester
OWINGS, E. P	North Beach	Calvert
PAINTER, J. H	Washington	District of Columbia
PARSLY, G. M	Brookeville	Montgomery
PARSONS, D. A	Washington	District of Columbia
PETERMAN, W. W	Clearspring	Washington
POLK, L. W	Pocomoke City	Worcester
PRICE, J. M., JR	Centreville	Queen Anne's
PUSEY, M. L	Baltimore	Baltimore City
RAEDY, M. L., JR	Washington	District of Columbia
REMSBURG, G. G	Braddock Heights	Frederick
RUSSELL, E. F	Washington	District of Columbia
SASSCER, C. D	Northkeys	Prince George's
SCHRAMM, G. N	Cumberland	Allegany
SCOTT, H. I	Washington	District of Columbia
SCOTT, J. G	Princess Anne	Somerset
SHANK, H. A	Smithsburg	Washington
SMITH, G. F	Big Spring	Washington
SMITH, MILDRED (Miss)	Washington	District of Columbia
SNYDER, J. H	Lewistown	Frederick
STABLER, L. J	Washington	District of Columbia
STONE, M. X	Dynard	St. Mary's
STRANAHAN, R. J	Union City	Pennsylvania
SUTTON, R. L	Ballston	Virginia
TARBERT, REBECCA (Miss)	Glencoe	Baltimore
TERRY, H. M	Jacksonville	Florida
WARD, J. B	Jarrettsville	Harford
WATERBURY, E. P	New Haven	Connecticut
WERTHEIMER, CHAS., JR	Frederick	Frederick
WHITE, W. F	Washington	District of Columbia
WYNKOOP, J. C	Washington	District of Columbia
YOUNG, R. N	Washington	District of Columbia

Sub-Freshman Class

BEACHY, W. A	Grantsville	Garrett
BRAUNGARD, J. E	Hagerstown	Washington
MCCENEY, R. S	Takoma Park	District of Columbia
MIEDWIG, J. M	Baltimore	Baltimore City
MULLEN, C. L	Hagerstown	Washington
PALMER, J. C	Washington	District of Columbia
STANTON, G. S	Grantsville	Garrett
WILLIAMSON, J. A	Alexandria	Virginia
ZEHNER, R. H	Grantsville	Garrett

Name	*Postoffice*	*County*
Second-Year Agricultural Class		
CORKRAN, E. B.	Rhodesdale	Dorchester
HOLDER, T. D.	Vienna	Dorchester
MENZEL, K. F.	Washington	District of Columbia
RICHARDSON, P. S.	Williamsburg	Dorchester
UMBARGER, H. L.	Bel Air	Harford
First-Year Agricultural and Engineering Classes		
ANKERS, H. H.	Sterling	Virginia
BANDES, HERMAN	New York	New York
BRANNER, C. E.	Pocomoke City	Worcester
BURT, RONALD	Westover	Somerset
CHAPMAN, G. B.	Woodstock	Virginia
CLARK, J. R.	Washington	District of Columbia
CRIPPEN, C. C.	Chester	Pennsylvania
DAVIS, MALCOLM	Washington	District of Columbia
DEYCAZA, J. M.	New York	New York
DIGGS, J. G. K.	Baltimore	Baltimore City
DOWS, A. P.	Riverside	Charles
EDEL, S. T.	Baltimore	Baltimore City
EVANS, F. L.	Huntington	West Virginia
FISHER, H. S.	Hillsboro	Caroline
FUSSELBAUGH, W. P.	Baltimore	Baltimore City
GRIEST, J. R.	Washington	District of Columbia
HARNER, B. V.	Tuxedo	Prince George's
JAMES, W. B.	Hancock	Washington
JARRELL, C. L., JR.	Greensboro	Caroline
MCFADDIN, H. E.	Hagerstown	Washington
MALCOLM, WILBUR	Barton	Allegany
MARDEN, C. C., JR.	Princeton	New Jersey
MYERS, A. H.	Winchester	Virginia
NOURSE, C. B.	Alexandria	Virginia
RICAUD, V. J.	Washington	District of Columbia
RIDOUT, C. D.	Annapolis	Anne Arundel
WOOTTEN, J. F.	Berwyn	Prince George's
Unclassified		
CONGER, RAYMOND	Washington	District of Columbia
HILL, L. M. (Miss)	Baltimore	Baltimore City
JONES, A. S.	Washington	District of Columbia
KERR, E. A. (Miss)	Riverdale	Prince George's
MAISACK, E. C. (Miss)	Hagerstown	Washington
SARGENT, V. W. (Miss)	Washington	District of Columbia
TAYLOR, E. G.	Wisharts	Virginia
VILLACRES, LUIS	Guayaquil	Ecuador

Summary of Regular Students After January 6, 1919, The Beginning of The Second Term 1918-19

Graduates	4
Seniors	20
Juniors	24
Sophomores	38
Freshman	89
Sub-Freshman	9
Second Year Agricultural	5
First Year Agricultural and Engineering	27
Unclassified	8
Total	224

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