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# OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

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NUMBER 14

## NEW YORK STATE COLLEGE OF AGRICULTURE ANNOUNCEMENT OF WINTER COURSES 1913-14

JULY 1, 1913  
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ITHACA, NEW YORK

### CALENDAR 1913-14

Nov. 11,	Tuesday,	Registration in all Winter Courses, beginning at 8.30 a. m. at the office of the Secretary, Main Building, Room 122.
Nov. 12,	Wednesday,	Instruction begins in Winter Courses.
Nov. 27,	Thursday,	Thanksgiving Day. Holiday.
Dec. 20-29,		Christmas recess, beginning at noon on Dec. 20 and continuing through the 29th.
Feb. 9-14,	(week of Lincoln's birthday),	Seventh Annual Farmers' Week.
Feb. 13,	Friday,	Instruction ends in all Winter Courses.
Mar. 5-11,		Special one-week course for managers of cheese factories and creameries.

## THE WINTER COURSES

The Winter Courses have been part of the regular work of the College of Agriculture since 1893, when the Course in General Agriculture was established. The Winter Courses are now seven in number:

1. Agriculture
2. Dairy Industry
3. Poultry Husbandry
4. Fruit Growing
5. Home Economics
6. Flower Growing
7. Vegetable Gardening

The Course in Agriculture is entirely elective, the student choosing his own schedule of subjects under the guidance of a faculty supervisor. The course is intended primarily for persons who are engaged in general farming or who expect to take up farming. The other six courses, or groups, are more or less fixed, professional courses, intended for persons desiring to specialize in the respective fields.

All the Winter Courses will begin on November 11, 1913, and will close on February 13, 1914. Instruction will begin at 8 a.m. on November 12. No work will be given on November 27, and none will be given from noon on December 20 to and including December 29, these days being allowed for Christmas recess.

Correspondence concerning the courses and other instruction in the College of Agriculture may be addressed to The Secretary, College of Agriculture, Cornell University, Ithaca, New York.

### Two-year Courses

It is advised that students plan to spend at least two winters at the College, in the first winter taking general courses in agriculture, and in the second winter specializing in the subjects in which they are particularly interested. The large number of elective subjects in the Course in Agriculture makes it possible for students to register in that course for a second year without duplication of specific subjects of study.

### Expenses

Tuition is free to residents of New York State. Nonresidents pay a tuition fee of \$25. There are a few small fees and incidental expenses, which are detailed under the description of each course, but practically the only expense is the cost of living in Ithaca and the railroad fare to and from Ithaca. Satisfactory table board can be procured in Ithaca, within five to fifteen minutes walk of the campus, for about \$4 to \$4.50 a week. Comfortable rooms near the place of boarding may be had at \$1.50 to \$2 a week for each person when two persons occupy the room, and at \$2.50 to \$3.50 when one person occupies the room. The cost of books need not be more than \$5, but it has been the experience of Winter Course students in the past that they wish to purchase a number of books to take home, and it would be well, if possible, to allow at least \$10 for this item. The expenses of students in the Winter Courses of past years, as stated by them, have been \$85 to \$125, the average now being probably about \$110. By careful management this may be reduced somewhat, but it is best not to stint too much since too great economy is likely to lessen the value of the course.

Students are liable for breakage due to carelessness on their part.

All the fees mentioned under each course must be paid to the Treasurer of the University (Morrill Hall) within five days after registration.

**Infirmary Fee.** Every registered student at Ithaca is charged an infirmary fee of \$3 a term, payable at the beginning of each term. Students in the Winter Courses are required to pay the infirmary fee for one term. In return for the infirmary fee, any sick student is, on his physician's certificate, admitted to the Infirmary, and is given without further charge a bed in a ward, board, and ordinary nursing for a period not exceeding two weeks in any one academic year. Extra charges are made for private rooms, special foods, and special nurses. If a sick student who has not received two weeks service in the year is refused admittance to the Infirmary by reason of lack of accommodation, he is entitled to a refund of the fee.

**Self Support.** In the past, a few students have been obliged to earn money during the course and have worked at odd jobs about the University or on neighboring farms. This is never advisable unless absolutely necessary. It is much better to borrow the

necessary money or to postpone the course of study until another year than to be thus handicapped during the limited time spent at the University. All the energies should be concentrated on the work of the course.

### Scholarships

**Grange Scholarships.** At its 31st annual meeting, held at Cortland, February 4, 1904, the New York State Grange resolved to appropriate funds annually, to be given to members of the order in the form of scholarships in any of the Winter Courses in Agriculture in Cornell University. The scholarships, now twelve in number, are each \$50 in cash, to be awarded to men and women who attain the highest standing on competitive examination. Awards are made each summer. Candidates should apply to the Master of the Pomona Grange in their home counties, or to the Deputy in counties that have no Pomona.

**The Jewish Agricultural and Industrial Aid Society** of New York instituted in 1908 a system of free scholarships to enable the children of Jewish farmers to attend the short winter courses offered by the agricultural colleges in the states in which they reside. The scholarships are awarded by competition, which consists in the writing of a brief essay on an agricultural topic. Children of Jewish farmers living and working on the farms of their parents are eligible to compete for these scholarships. The number of scholarships is unlimited, and the stipend is sufficient to pay all the expenses of the holder for the course, such expenses usually amounting to \$100 to \$150. For the New York State College of Agriculture at Cornell University, two scholarships were awarded in 1909, three in 1910, four in 1911, and five in 1912. Applications for these scholarships should be made to The Jewish Agricultural and Industrial Aid Society, 174 Second Avenue, New York City.

### Admission

The Winter Courses are business and occupational courses, not academic; hence there are no examinations for admission. However, in order that the student may be able to make the best use of the instruction, it is necessary that he should have a good common school education. Winter Course students sometimes are seriously handicapped in their work by being deficient in arithmetic and in

English. Persons who are planning to take a Winter Course are advised to review these subjects before coming to Ithaca.

Applicants for admission to the Winter Courses should, by way of preparation, read carefully some of the best books, bulletins, and other literature on the subject to which their attention will be chiefly directed while at Cornell University. On request to the Secretary, appropriate books for this reading will be suggested.

Women who desire to pursue one of the Winter Courses should correspond with Professor Martha Van Rensselaer, Ithaca, New York, in regard to rooms and accommodations. All women students registered in any of the Winter Courses are under the supervision of Professor Van Rensselaer during the period of the courses. Not a few women have taken the work in agriculture with results satisfactory to themselves and to their instructors.

**Age.** All the courses are open to both men and women of at least eighteen years of age. There is no limit to the age above eighteen; some of the best Winter Course students have been mature men and women, owners of farms, or managers of dairy or poultry plants. In view of the fact that no maximum age limit is stated, each applicant is required to give satisfactory evidence of his capability to do the work required.

**Application.** This circular contains an application blank for admission to the Winter Courses and a schedule sheet for courses to be taken. Both of these should be made out in full and forwarded to the Secretary at once by any person who is planning, as yet even indefinitely, to attend any one of the Winter Courses. The filing of an application for admission does not constitute an obligation to attend, and applications may be withdrawn at any time.

Any one who has graduated from the common schools of the State, or who has an eighth grade certificate, should be able to do the Winter Course work satisfactorily. When making application, candidates for admission should give a description of their school training and if possible should send a certificate or a statement from the teacher of the school last attended.

Applicants for the professional Course in Poultry Husbandry must have had at least six months active and consecutive work on an approved farm or poultry plant. A statement signed by the employer stating the kind, amount, and quality of work done must accompany the application for admission.

**Arrival at Ithaca.** Students who desire advice concerning rooming and boarding places are invited to come directly to the College of Agriculture on their arrival in Ithaca. It is desirable that all housing arrangements should be completed before registration day.

### Registration

On Tuesday, November 11, beginning at 8.30 a.m., all students must report for registration at the office of the Secretary to the College of Agriculture, Main Building, Room 122. After registering here, students will go at once to the headquarters of their particular Winter Course or to their faculty supervisor, as assigned. The headquarters of the several professional Winter Courses are as follows: Course in Dairy Industry, Dairy Building, Room 102 (first floor); Course in Poultry Husbandry, Poultry Building, Room 325 (third floor); Course in Fruit Growing, Main Building, Room 202 (second floor); Course in Home Economics, Home Economics Building (first floor); Course in Flower Growing, Main Building, Room 212 (second floor); Course in Vegetable Gardening, Auditorium, Northeast (second floor). Students in the Course in Agriculture will be assigned to their faculty supervisors at the time of their registration.

**Study Cards.** After the student has filled out and returned to the Secretary his study card showing the subjects for which he wishes to register, he may not change his registration in any respect except on the recommendation of the head of the Winter Course concerned, or of his faculty supervisor, and with the approval of the Secretary. The schedule sheet which the applicant fills out in advance may subsequently be changed at the request of the applicant, and is not to be confused with the study card.

### Methods of Instruction

Instruction in the Winter Courses is given by lectures, by such practical work (laboratory practice) in the various agricultural operations as can be conducted at the time of the year, and sometimes by trips or excursions to points of special interest.

**The lectures** are given in large part by the regular staff of the College of Agriculture. The lectures are plain and practical, in the style of farmers' institute talks. As far as possible, collected material

is used for illustrating the subjects. When this is impossible, lantern views are often used. A free discussion by the students of the subject under consideration is encouraged. Further opportunity for general discussions is afforded in the meetings of the Winter Course clubs.

Other lectures are given to the students by successful practical men, in large part from New York State, who are directly engaged in agriculture as a business. These men present to the students the results of their experience and observation.

There are also special lectures by various members of the University faculty, not members of the faculty of the College of Agriculture. The Winter Course students are welcomed at the various addresses given by eminent men before the University in general.

**Practical work** is made a special feature in the Winter Courses. The student is expected to perform all the various operations as carefully as if he were working at home as a practical farmer. In the courses in Dairy Industry, Poultry Husbandry, and Home Economics, the instruction is in large part practical, and the students have an opportunity of becoming familiar with all the essential operations in these enterprises. In the courses in Agriculture, Fruit Growing, Flower Growing, and Vegetable Gardening, there is necessarily a smaller amount of practical work; advantage is taken, however, of the greenhouses, barns, and laboratories, in demonstrating to the students some of the operations that would normally be conducted in the summer season. Whenever possible, the aim is to make the practical work take up as large a part of the student's time as do the lectures.

**Excursions** to neighboring points of special interest have been made a feature of the Course in Poultry Husbandry. Such excursions are conducted in other courses also whenever practicable.

The word "hour" in the following schedules means one lecture of one hour each week for twelve weeks, or one period of two and one-half hours of laboratory or practice each week for twelve weeks.

### The City and the University

Ithaca is situated in Tompkins County at the head of Cayuga Lake. It is a city of about fifteen thousand inhabitants. It is reached by the Lehigh Valley Railroad and by the Delaware, Lackawanna, and Western Railroad, also by steamer on the lake in summer.



The University stands on a plateau about four hundred feet above the lake. The officers of instruction and administration of Cornell University number nearly seven hundred. The campus and grounds cover one thousand and ninety-nine acres.

The main buildings of the University are over thirty-five in number, providing quarters for the several colleges of the University. These are the Graduate School and the colleges of Arts and Sciences, Law, Medicine, Agriculture, Veterinary Medicine, Architecture, Civil Engineering, and Mechanical Engineering.

The New York State College of Agriculture at Cornell University occupies new buildings erected by the State. These buildings are large and well equipped, and afford an attractive and comfortable home for the College.

### **Social and Religious Advantages**

Every year the students in each of the several Winter Courses have formed clubs. These societies meet once a week and debate subjects of special interest, discuss various problems, sing college songs, and indulge in other forms of social enjoyment. Every Winter Course student is urged to attend these meetings.

The Winter Course students are welcomed at the meetings of the Agricultural Association, the Lazy Club, the Poultry Association, the Round-Up Club, and the other organizations of students in the College. The meetings of these societies are devoted to discussions of live agricultural subjects and to the promotion of friendship among the students. On the first Thursday evening of each month the Director of the College meets the faculty and students of the College in the "Agricultural Assembly." At this meeting the Director gives a talk on matters of special importance to those interested in agriculture and country life, or a reading, followed by singing and social entertainment.

Each winter the students in the various Winter Courses compete for the Morrison Winter Course Trophy Cup. Last year the contest was a series of debates, as a result of which the cup was awarded for one year to the students in the Winter Course in Home Economics.

Religious services, provided for by the Dean Sage Preachership Endowment, are conducted in Sage Chapel throughout the college year by eminent clergymen selected from the various religious denominations. These services are supplemented by the Cornell University Christian Association, a voluntary organization of students and professors formed for their own religious culture and the promo-

tion of Christian living in the University. The Christian Association has its home in Barnes Hall. It has a permanent secretary. It has also a carefully selected biblical library, with comfortable reading and recreation rooms. Courses in Bible study are conducted throughout the year and special courses are provided for students in the Winter Courses.

In addition to the Young Men's Christian Association there is a flourishing Young Women's Association, with quarters in Barnes Hall.

The students of the University are welcomed by the numerous churches in the city of Ithaca at all their services.

### Positions

The College does not promise to find positions for students registered in any of its courses, but it has opportunity to recommend students for a large number of positions. Thus far it has been difficult to find students for all places which the College has been asked to fill.

Many students who have completed a Winter Course have obtained an increase in salary during the following season sufficient to pay the entire cost of the course. Such results, although not guaranteed, are not uncommon; they show that there are excellent opportunities for trained men.

A student desiring a recommendation from the College must fulfill the following conditions: (1) he must be of good character; (2) his previous record must be good; (3) his work in the Winter Course must be satisfactory.

In the case of the Dairy Course, previous experience in a well-conducted dairy plant is strongly advised for those who expect the College to recommend them for positions.

In the case of the Poultry Course, it is recommended that persons inexperienced in the handling of poultry spend at least a year in acquiring practical knowledge of the business before entering the Winter Course in Poultry Husbandry. Students who have not previously had a considerable amount of farm or poultry experience cannot, as a rule, be recommended to positions of responsibility until they have spent a season on an approved poultry farm. This is particularly true for the better positions, in which managers or superintendents are wanted to take charge of poultry farms. The salaries obtained by students after completing the Poultry Course range from \$25 to \$75 a month with board and room, the average being about \$35 to \$40.

## DESCRIPTION OF THE WINTER COURSES

### I. COURSE IN AGRICULTURE

Most of the young men who come for a Winter Course expect to engage in general farming or hope to obtain positions as superintendents of farms on which diversified agriculture is practiced. It is for these that the general Course in Agriculture is especially designed. Persons who plan to specialize will register in one of the professional courses or groups.

On the other hand, the Course in Agriculture can be taken with advantage also by those who plan to do special work in agriculture later. It gives an opportunity for laying a broad foundation of general knowledge as a basis for subsequent specialization. This course gives a general survey of agriculture in practically all its phases. It is strongly advised that persons who desire to pursue one of the special Winter Courses should first take the Course in Agriculture and postpone their special work to the following winter.

**Choice of subjects.** Students may choose from the following courses such subjects as they desire to take and are able to schedule without conflict. No student may take more than a total of eighteen hours without special permission, and sixteen hours is as much as the average student can carry satisfactorily. [For definition of "hour" see page 8.]

#### Agricultural Chemistry

1. **Fertility of the Land.** November 12 to December 12. Two hours a week. Lectures, daily except M, 8. Morse Hall, Lecture Room 1. Professor CROSS.

A study of soils from the chemical and physical points of view, with discussions of fertilizers, manures, and the principles of plant growth.

#### Animal Husbandry

1. **Feeds and Feeding.** Two hours a week. Lectures, W, 9. Main Building, Assembly Hall. Practice, sec. A, Th, 8-10 (for dairy students only); sec. B, F, 11-1; sec. C, S, 11-1. Dairy Building 222. Professor SAVAGE and assistants.

The principles and practice of compounding rations and of feeding farm animals.

2. **Breeds and Breeding.** Three hours a week. Lectures, T Th, 10. Animal Husbandry Building 112. Practice, sec. A, M, 8-10.30; sec. B, M, 11-12.30; sec. C, W, 11-12.30; sec. D, F, 11-12.30; sec. E, S, 9-10.30. Animal Husbandry Pavilion. Professors WING and HARPER.

The principles of breeding farm animals; the history of breeds; the adaptation of different breeds for certain purposes; the care of farm animals.

3. **The Horse.** Three hours a week. Lectures, W F, 10. Animal Husbandry Building 112. Practice, M or F, 3,30-5. Animal Husbandry Building. Professor HARPER.

History and characteristics of the breeds; judging, breeding, feeding, care, training, and development of the horse.

### Dairy Industry

8. **Farm Butter Making.** Three hours a week. Lectures, M, 11. Dairy Building 222. Practice, sec. A, M, 2-6; sec. B, W, 2-6; sec. C, Th, 2-6. Testing by arrangement. Dairy Building. Professor GUTHRIE and Mr. SUPPLEE.

This course will include cream separation, starter propagation, cream ripening; churning, washing, salting, and packing butter. Hand churns and small power churns will be used. A small amount of testing by the Babcock method will be included. A laboratory deposit of \$5 (part returnable) will be required to cover breakage and for rental and laundering of white suits.

9. **Market Milk and Milk Inspection.** Two hours a week. Lectures, W, 11. Dairy Building 222. Laboratory, T or Th, 8-11, or, S, 10-1. Dairy Building. Professor ROSS and Mr. MCINERNEY.

This course will take up the testing of milk and some of its products for fat; standardizing of milk and cream; effect of bacterial action on the keeping quality of milk; cooling, handling, and general care of milk on the farm; judging milk; and scoring dairy barns. A laboratory deposit of \$2 (part returnable) will be required to cover breakage and for rental and laundering of white suits.

Any of the following subjects from the Course in Dairy Industry may be taken by students registered in the Course in Agriculture:

1. **Milk, Composition and Tests.** See page 21.
5. **Dairy Mechanics.** See page 22.
6. **Dairy Chemistry.** See page 22.
7. **Dairy Arithmetic and Bookkeeping.** See page 22.

### Entomology

1. **Injurious Insects.** Two hours a week. Lectures, W F, 10. Main Building, Assembly Hall. Professor HERRICK.

The common insect pests of the farm, garden, and orchard will be discussed and measures of control will be carefully considered. Specimens of the insects discussed, together with examples of their work, will be shown to members of the class whenever possible. Opportunity will be given for questions and discussion, with the hope of bringing out obscure points and clearing up all phases of the problems. The lectures and discussions will be illustrated by lantern slides and by charts.

### Extension Teaching

1. **Extension Work.** One hour a week. Lectures and discussions, W, 12, or S, 11. Main Building, Assembly Hall. Criticism by appointment, daily, 8-1. Professor TUCK, Assistant Professors EVERETT and WHEELER, and Messrs. WHITNEY and ROBINSON.

A study of the problems of university extension in agriculture. Practice in the oral and written presentation of topics in agriculture, with criticism and individual conferences on the technique of public speech. Designed to acquaint students with parliamentary practice, to encourage interest in public affairs, and to train for effective self-expression in public. Open to all students in the Winter Courses.

Special training will be given to competitors for the Winter Course prize for public speaking. This prize of ten dollars is given by the Department of Extension Teaching, with the object of developing an interest in rural affairs. Competition is open to all Winter Course students. The contest will take place during Farmers' Week in February.

### Farm Crops

1. **Farm Crops.** December 15 to February 13. Four hours a week. Lectures, daily except M, 8. Main Building, Assembly Hall. Practice, sec. A, M, 11-1; sec. B, T, 11-1; sec. C, W, 11-1; sec. D, Th, 11-1; sec. E, F, 11-1; sec. F, S, 11-1. Agronomy Building 202. Professor STONE, and Messrs. ——— and ———.

A study of field crop production. As much time as possible is devoted to the principles of soil management and the culture of particular crops, as corn, potatoes, wheat, oats, and grass.

Persons particularly interested in general agriculture are recommended to take with this course either Fertility of the Land 1, two hours a week, or Soils 1, one hour a week; Animal Husbandry 1, two hours a week; Farm Management 1, two hours a week; and electives to make sixteen or eighteen hours.

### Farm Management

1. **Farm Management.** Two hours a week. Lectures, W F, 10. Poultry Building 375. Professor WARREN and Mr. ———.

Lectures on selection and purchase of a farm, types of farming, cropping systems, farm layout, and other problems of farm management.

2. **Farm Management. Cost Accounting.** Two hours a week. Lectures, M, 10. Poultry Building 375. Practice, M or T, 2-4.30. Poultry Building 325. Mr. Fox.

Farm inventories and cost accounts, with special emphasis on the interpretation of results and their application in the organization and management of the farm.

### Floriculture

3. **Floriculture.** Three hours a week. Lectures, T Th, 11. Main Building 232. Practice, Th, 2-4.30. Greenhouses. Professor ——— and Mr. HOTTES.

The lectures will include a brief outline of the subject: the culture and use of flowers and ornamental plants in and around the home; flower crops for the farm; and commercial floriculture. The laboratory work is designed to give the student practice in the propagation, potting, shifting, and care of plants. The culture of plants will be illustrated by the large collections growing in the greenhouses.

Students expecting to engage in commercial floriculture should take course 1 in Flower Growing, described on page 31.

### Forestry

1. **The Farm Woodlot.** One hour a week. Lectures, M, 8. Home Economics Building 100. On three Saturday afternoons there will be field trips if the weather permits. Assistant Professor BENTLEY.

The care of the woodlot, including forest planting and sowing, thinning, the cutting of ripe timber, measurement of the amount of standing and felled timber, and protection from fire and other enemies.

### Home Economics

Any of the following subjects from the Course in Home Economics may be taken by students registered in the Course in Agriculture:

1. **Foods.** See page 29.
2. **Household Sanitation.** See page 29.
3. **Household Management.** See page 30.
4. **Sewing and Drafting.** See page 30.
5. **Art in the Home.** See page 30.

### Landscape Art

6. **Rural Improvement.** Hours to be announced. Professor FLEMING.

A course of six lectures, commencing after the Christmas recess, dealing with questions of rural improvement and intended to give the farm boy a general view of landscape art together with specific hints for working out some of his home problems.

### Plant Breeding

1. **Plant Breeding.** One hour a week. Lectures and discussions, Th, 12. Dairy Building 222. Professor GILBERT.

A discussion of plant improvement with special reference to farm and horticultural crops. Methods of selection and hybridization as means of improvement will be carefully considered. Fee, 50 cents.

### Plant Pathology

1. **Plant Diseases.** Three hours a week. Lectures, T, 12. Main Building 392. Practice, sec. A, Diseases of vegetables and flowering plants, M, 10-12 and 2-5; sec. B, Diseases of fruits, T, 2-5, and W, 11-1; sec. C, Diseases of general farm crops, Th, 9-12, and F, 11-1. Plant Pathology Laboratory. Assistant Professor BARRUS and Mr. HASKELL.

### Pomology

2. **General Fruit Growing.** Three hours a week. Lectures, T Th S, 11. Main Building 292. Mr. ARNY.

This course is designed for students who desire a general knowledge of fruit growing. It covers practically the same topics as are included in course 1 in Fruit Growing, but in less detail. It is a lecture course only, with no laboratory work.

### Poultry Husbandry

11. **Farm Poultry.** Lectures and practice, two hours a week. Th F, 4-45-5-45. Poultry Building 375. Professor RICE, Assistant Professor ROGERS, and Messrs. BENJAMIN, KRUM, SCHREINER, and others.

A discussion of the domestic breeds of poultry; hatching and rearing; the principles of feeding and management; marketing; diseases of poultry; the building of poultry structures.

Any of the following subjects from the Course in Poultry Husbandry may be taken by students registered in the Course in Agriculture:

1. **Poultry Husbandry.** See page 25.
2. **Special Lectures.** See page 25.
4. **Laboratory Practice.** See page 25.

### Rural Engineering

1. **Farm Mechanics.** Three hours a week. Lectures, W F, 12. Dairy Building 222. Practice, Th or F, 2-4.30. Rural Engineering Building. Professor H. W. RILEY, and Messrs. HAZEN, STRAHAN, PHILLIPS, ARTMAN, WEATHERBY, and ———.

A study of the principles of operation, details of construction, and practical operation and care of: A—Machinery, including gasoline engines, water wheels, devices for transmitting power, hydraulic rams, pumps, spray nozzles, spraying outfits, water supply outfits. B—Implements, including plows and binder attachments, with a discussion of the special mechanical features of some of these implements now on the market. Laboratory fee, \$2.

[2. **Farm Engineering.** One hour a week. Lectures, time and place to be announced. Assistant Professor ROBB.] Not given in 1913-14.

A brief lecture course on running levels, laying out simple drainage systems, digging ditches, laying tile, and concrete construction. Estimates of cost and types of drain tiles will be discussed.

3. **Farm Structures.** Two hours a week. Lectures, time and place to be announced. Professor H. W. RILEY, and Messrs. HAZEN and STRAHAN.

A study of building materials used on the farm, and of the principles of construction for barns, stables, and other farm buildings together with their application in practice.

### Soil Technology

1. **Soils.** One hour a week. Lectures, S, 12. Main Building, Assembly Hall. Professor BIZZELL.

A study of the physical, chemical, and biological properties of soils, and of their relation to soil management from the standpoint of plant production.

### Vegetable Gardening

3. **Home Vegetable Gardening.** Two hours a week. Lectures, M, 8. Laboratory, Th, 2-4.30. Auditorium, North Basement. Mr. WORK.

Production of vegetables for home use. Lectures and laboratory work on the planning and management of the garden and on the characteristics and special requirements of the different vegetable crops. Laboratory fee, \$1.

### Veterinary Medicine

1. **Diseases of Dairy Cattle, and Veterinary Hygiene.** One hour a week. Lectures, S, 9. Dairy Building 222. Doctor UDALL, and special lectures by Director MOORE and Doctor WILLIAMS.

This course includes a discussion of the most common diseases of dairy cattle, the prevention and cure of these diseases, ventilation of stables, and general questions of animal hygiene.

## II. COURSE IN DAIRY INDUSTRY

This course is intended especially for persons who make a business of manufacturing butter or cheese or of handling milk for the market; and persons expecting to enter this field professionally should register in this course, not in the Course in Agriculture. The work of the course requires the student's entire time.

Persons wishing instruction in some special branch of dairy work should choose the course or courses that will best meet their needs. Any of the courses outlined below may be taken by students registered in the Course in Agriculture, with the exception of courses 2 and 2a, butter making, 3 and 3a, cheese making, and 4, dairy bacteriology and market milk; these courses are open only to students taking the professional dairy course.

Students in the professional course are expected to attend the annual meeting of the New York State Dairymen's Association at Syracuse in December.

There will be a meeting of dairy-course students and teachers in the lecture room of the Dairy Building at five o'clock on the afternoon of registration day, November 11.

### Special Expenses

Laboratory fee (to pay in part for materials used) ..	\$15.00
Laboratory deposit (part returnable) to cover rental of suits, laundry, and breakage .....	6.00
Books, about .....	5.00
One suit of blue overalls, about .....	1.00



NEW YORK STATE COLLEGE OF AGRICULTURE AT CORNELL UNIVERSITY

APPLICATION FOR ADMISSION TO WINTER COURSES

Name of applicant IN FULL.....

Permanent home address (number and street, or R. F. D.).....

.....

Place.....County.....State.....

Date of birth, month.....day.....year.....

Nationality.....Married.....Date.....

Name and address of parent or guardian, or person to be notified in case of serious illness or accident.....

.....

Name of school last attended.....

Place.....State.....When?.....How long?.....

Have you ever before registered in this or any other college?.....

When?.....Where?.....In what course?.....

Have you received any degree or certificate?.....Where and when?.....

OVER

What has been your practical experience in farm work and in the special work covered by the Winter Course in which you are registering?.....

What has been your residence and occupation during the last five years?

Occupation 1909.....Place.....State.....

Occupation 1910.....Place.....State.....

Occupation 1911.....Place.....State.....

Occupation 1912.....Place.....State.....

Occupation 1913.....Place.....State.....

What church do you attend?.....

REFERENCES.\*—I am personally acquainted with the above applicant and know.....to be of good moral character, industrious, studious, and physically and otherwise capable.

Name.....Name.....

Position.....Position.....

Address.....Address.....

\*Two endorsements are necessary, and should be preferably by your teacher, your pastor, or a public official. These persons should sign the application themselves.

NOTE.—The applicant must answer ALL the questions asked on both sides of this application blank. When the blank has been answered in full, mail it to A. R. Mann, Secretary, College of Agriculture, Cornell University, Ithaca, New York.

## SCHEDULE OF SUBJECTS

Before filling out the blanks on this page, study carefully the guide given on the reverse side

Indicate by a check mark (V) the one of the following seven courses in which you desire to register. Do not check more than one course.

- |                      |                  |                        |
|----------------------|------------------|------------------------|
| 1. Agriculture       |                  | 5. Home Economics      |
| 2. Dairy Industry    | 4. Fruit Growing | 6. Flower Growing      |
| 3. Poultry Husbandry |                  | 7. Vegetable Gardening |

If you desire to specialize in either the professional Course in Dairy Industry or the professional Course in Poultry Husbandry it is not necessary for you to fill out the remainder of the blanks on this page.

If you are registering in any one of the other five courses write here the number and the name of each subject which you desire to take, using the numbers given in the catalogue. [Example: No. 2. Subject **Farm Management**.] Without special permission, no student is allowed to take more than eighteen "hours" of work. For definition of "hour" see page 8.

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

No. .... Subject .....

After filling out this schedule completely according to directions, mail it, with your application for admission, to A. R. Mann, Secretary.

OVER

## GUIDE FOR THE APPLICANT

In filling out the "Schedule of Subjects" on reverse side of this sheet

We shall assume, for example, that you desire to register in the Course in Agriculture and to take the following subjects, totaling sixteen hours:

1. Fertility of the Land. Two hours. T W Th F S, 8. Nov. 12 to Dec. 12.
1. Feeds and Feeding. Two hours. W, 9; practice, three choices.
1. Farm Crops. Four hours. T W Th F S, 8; practice, six choices. Dec. 15 to Feb. 13.
1. Farm Management. Two hours. W F, 10.
2. Farm Management, Cost Accounting. Two hours. M, 10; practice, M or T, 2-4.30.
2. General Fruit Growing. Three hours. T Th S, 11.
1. Soils. One hour. S, 12.

You would then fill out the "Schedule of Subjects" on the reverse side of this sheet as follows:

1. Agriculture ✓
2. Dairy Industry
3. Poultry Husbandry

4. Fruit Growing

5. Home Economics
6. Flower Growing
7. Vegetable Gardening

No. 1. Subject **Fertility of the Land**  
 No. 1. Subject **Feeds and Feeding**  
 No. 1. Subject **Farm Crops**  
 No. 1. Subject **Farm Management**

No. 2. Subject **Farm Management**  
 No. 2. Subject **General Fruit Growing**  
 No. 1. Subject **Soils**  
 No. — Subject \_\_\_\_\_

By means of the following schedule form, we can see that the subjects do not conflict in the times at which they are given; Fertility of the Land and Farm Crops come at the same hours, but Farm Crops is not begun until after Fertility of the Land is completed on December 12.

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8		Fertility of Land 1 Farm Crops 1	Fertility of Land 1 Farm Crops 1	Fertility of Land 1 Farm Crops 1	Fertility of Land 1 Farm Crops 1	Fertility of Land 1 Farm Crops 1
9			Feeds and Feeding 1			
10	Farm Management 2		Farm Management 1		Farm Management 1	
11		Fruit Growing 2	Farm Crops 1 } Laboratory }	Fruit Growing 2	Feeds and Feeding 1 } Laboratory }	Fruit Growing 2
12						Soils 1
2-5	Farm Management 2 Laboratory					

If you desired to take course 3, *The Horse*, you could not take course 1, *Farm Management*, as they both come W F, 10. If you desired to take course 0, *Market Milk and Milk Inspection*, you would have to take the S, 10-1, practice period, as the other practice periods conflict with Fertility of the Land and Farm Crops; and you could not take General Fruit Growing or Soils, as both of these conflict with the S, 10-1, practice period. In like manner you can work out your schedule for any other subjects that you desire to take. You can make a schedule form similar to the above for your own use in scheduling the subjects that you desire to take. Be sure there are no conflicts in time, either in lecture or practice (laboratory) periods, before you fill out your schedule on the reverse side. The times given in the announcement are fixed and cannot be changed; therefore it is impossible for a student to take two subjects that come at the same hours.

Books, notebooks, and blue overall suits can be procured at reasonable prices in Ithaca. The white suits and rubber aprons for use in the creamery and laboratory are furnished by the Department and rented to students as stated above.

### Methods of Instruction

Instruction, although partly by lectures and recitations, is largely by actual practice in the different kinds of dairy work. The class assembles daily at 8 a. m. and the class work continues for two hours. The students are then assigned, in sections or squads, to different kinds of practice for the remainder of the day. These assignments are so made that in the course of the term each student has a due amount of work in the different departments.

The lectures and recitations are given in one-hour periods. Frequently they are replaced by examinations; often, also, a part of the hour is occupied by informal discussions of former lectures or of topics previously assigned for study. The lectures are supplemented by references to dairy literature, books, current periodicals, and experiment station publications.

### The Courses

The subjects of the required lecture and practice courses are as follows:

1. **Milk, Composition and Tests.** Three hours a week. Lectures, F, 9. Dairy Building 222. Laboratory, sec. A, W, 1.30-4.30, and F, 10.15-12.30; sec. B, T, 10.15-12.30, and F, 1.30-4.30; sec. C, W, 10.15-12.30, and Th, 1.30-4.30. Dairy Building 232. Professor TROY and Mr. ———.

This course includes the composition and secretion of milk, the Babcock test for fat in milk and its products, acid tests, salt tests, moisture tests, use of the lactometer, and some of the simple tests for preservatives and adulterations. Laboratory deposit (part returnable) for students not registered in the professional Course in Dairy Industry, \$2.50, to cover rental of laboratory apron and breakage.

2. **Butter.** Two hours a week. Lectures, M W, 8. Dairy Building 222. Mr. AYRES.

This course deals with the principles and practice of butter making, from the receiving of the milk and cream to the judging and marketing of the finished product; construction and arrangement of creameries; accounts and business methods.

2a. **Butter. Laboratory Course.** Four hours a week, in two long periods. Laboratory, sec. A, M, 10.15-5, and Th, 1-6; sec. B, W, 10.15-5, and S, 1-6; sec. C, T, 1-6, and F, 10.15-5. Dairy Building. Mr. AYRES.

The creamery is furnished with apparatus such as is found in a well-equipped commercial plant. The milk is received, weighed, sampled, and separated, and the entire process of ripening cream and of churning is carried through in the most thorough manner. Special attention is given to the use of starters. Every step of the work is performed by students under the close supervision of the instructor.

**3. Cheese.\*** Two hours a week. Lectures and recitations, T, 9, F, 8. Dairy Building 222. Assistant Professor FISK and Mr. DUTTON.

The work includes the principles and methods of making cheddar (or American) cheese. Attention is given to the making and use of starters, the judging and marketing of cheese, factory accounts, the construction and equipment of cheese factories.

**3a. Cheese. Laboratory Course.** Four hours a week, in two long periods. Laboratory, sec. A, T, 10.15-6, and F, 1-6; sec. B, M, 1-6, and Th, 10.15-6; sec. C, W, 1-6, and S, 10.15-6. Dairy Building. Assistant Professor FISK and Mr. DUTTON.

The cheese room is equipped with all necessary apparatus, such as is used in large factories for making cheddar cheese. All the work is performed by students and every step is carefully observed and reported by them on blank forms provided for the purpose. Special attention is given to judging the quality of milk for making cheese and to judging the cheese when ready for market.

**4. Dairy Bacteriology and Market Milk.** Two hours a week. Lectures, M, 9. Dairy Building 222. Laboratory, sec. A, S, 10.15-12.30; sec. B, F, 10.15-12.30; sec. C, M, 10.15-12.30. Dairy Building 122. Professors STOCKING and ROSS, and Messrs. PICKERILL and MCINERNEY.

This course considers the nature of bacteria and their relation to dairy work, including their sources, action on milk, butter, and cheese, and methods of controlling their growth; plating of milk, lactic acid, and gas-producing bacteria; the sanitary construction of dairy buildings; score cards for dairy barns and market milk; food value of milk; standardizing milk and cream; legal standards for milk and cream; dairy utensils; and the general production and handling of clean milk.

**5. Dairy Mechanics.** Two hours a week. Lectures, S, 8. Dairy Building 222. Practice, sec. A, W, 10.15-1; sec. B, M, 10.15-12.30; sec. C, Th, 10.15-1. Dairy Mechanics Laboratories. Messrs. AYRES and ———.

The care of the boiler and engine, construction of separators, installation of shafts and pulleys, pipe fitting, belt lacing, soldering, and care of dairy machinery.

**6. Dairy Chemistry.** One hour a week. Lectures, T, 8. Dairy Building 222. Professor TROY.

The elementary principles of chemistry are explained in order that the student may better understand the composition of dairy products and the chemical changes connected with and influencing dairy operations.

**7. Dairy Arithmetic and Bookkeeping.** One hour a week. Practice, sec. A, Th, 10.15-12.30; sec. B, S, 10.15-12.30; sec. C, T, 10.15-12.30. Dairy Building 119. Professor ROSS and Mr. MCINERNEY.

\*For fancy cheeses see page 23.

A thorough drill is provided in problems such as are constantly arising in all kinds of dairy work and in the keeping of factory accounts.

1. **Feeds and Feeding.** See page 11.

1. **Diseases of Dairy Cattle, and Veterinary Hygiene.** See page 16.

### **Certificate of Proficiency**

On the successful completion of the professional Course in Dairy Industry, a student may become an applicant for a Certificate of Proficiency under the following general terms and conditions:

A person who has been in attendance on the course for one full term and has satisfactorily passed all the examinations required, may become a candidate for a Certificate of Proficiency in the kind of work in which he is engaged.

Such a candidate must spend one full year or more, as manager or first man, in work at an approved creamery, cheese factory, market-milk plant, or farm dairy. He must report regularly, on blanks furnished for the purpose, such information about his work and products as may be required, and each month he must send a sample of his dairy product (milk, cream, butter, or cheese) to the monthly judging of dairy products. He must have his work in readiness for inspection at any time.

On the satisfactory completion of these requirements a certificate will be granted. Under certain conditions more than one year of work may be required.

### **SPECIAL TEN-DAYS COURSE IN FANCY CHEESES AND ICE CREAM**

On the successful completion of the professional Winter Course in Dairy Industry, a limited number of students who are interested in the making of fancy cheeses and ice cream may remain with the Department for ten days and devote their entire time to this work. Practice will be given with several varieties of fancy cheeses, such as cottage, cream, neufchatel, and club, and with several kinds of ice cream.

**A SPECIAL ONE-WEEK COURSE FOR MANAGERS OF  
FACORIES AND CREAMERIES**

**Beginning Thursday morning, March 5, 1914, and closing  
Wednesday night, March 11, 1914**

This course is intended for managers of creameries and factories who cannot be absent from their business for any considerable time, but who wish to come to the College in order to acquire the latest knowledge in their special work. All the regular branches of cheese making and butter making will be taught, and special attention will be given to the use of the moisture and Babcock tests, creamery overrun, construction of factory and creamery buildings, drainage and water supply, commercial starters, relation of bacteria to dairy products, market milk, dairy inspection, judging dairy products, keeping factory accounts, and the like.

The only requirement for admission to this one-week course is that the applicant shall have had at least one year of experience as manager of a factory or creamery.

The only fee is \$5, payable at registration. This covers the use of white suits, apparatus, and materials required in the laboratory and practice work.

For cost of board and other expenses, see page 4.

**III. COURSE IN POULTRY HUSBANDRY**

The Winter Course in Poultry Husbandry is one of the means by which the College of Agriculture attempts to meet the needs of farmers. The course is intended also to assist in supplying the large and growing demand for trained poultrymen to take charge of poultry plants owned by others. Although it is manifestly impossible to give in twelve weeks full preparation for so exacting a business as poultry keeping, this course will start the student in the right direction, enable him to avoid many mistakes, and offer him facts and principles of value gleaned from the lifelong experience, study, and observation of others. Persons expecting to take up poultry raising professionally should register in the Course in Poultry Husbandry, not in the Course in Agriculture.

A meeting of all Winter Course students in poultry husbandry with the staff of the Department will be held at five o'clock on the afternoon of registration day, November 11, in Poultry Building 375.



### Special Expenses

Laboratory fee (to pay in part for materials used)	\$7.50
Laboratory deposit (part returnable).....	2.50
Two suits of work clothes (to be bought in Ithaca)...	2.00
One set of drawing instruments.....	4.00

The estimated expenses, aside from those given above, are: excursions, about \$12; books (to be retained by the student), about \$5; stationery and other incidentals, \$5.

### Required Subjects

1. **Poultry Husbandry.** Six hours a week. Lectures and recitations, daily, 9. Elective to all Winter Course students. Poultry Building 375. Professor RICE, Assistant Professor ROGERS, and Messrs. BENJAMIN and SCHREINER.

The lectures include discussions of subjects of special interest to poultrymen; opportunities in poultry husbandry; advantages and disadvantages of various kinds of poultry keeping; laying out and estimating the cost of poultry plants; poultry-farm management; history and characteristics of breeds; feeding for egg production and for flesh; incubating and brooding; principles of poultry-house construction; planning poultry houses; feeding chickens; caponizing; preparing eggs and poultry for market; marketing; poultry accounts.

2. **Special Lectures.** Two hours a week. Elective to all Winter Course students. M W, 4.45-5.45. Poultry Building 375. The Department of Poultry Husbandry is fortunate in being able, through the courtesy of the New York State Veterinary College, the Cornell Medical College, and a large number of departments in the College of Agriculture, to avail itself of the expert services of many eminent teachers. Their lectures, twenty-four in number, form one of the most valuable series of lectures given in the course. These lectures are not confined to poultry topics.

3. **Laboratory Practice.** Four hours a week. Open only to students in the professional course. Sec. A, M W F, 10-12.30, and M, 2-4; sec. B, T Th S, 10-12.30, and T, 2-4. Poultry Building 300 and 375. Professor RICE, Assistant Professor ROGERS, and Messrs. BENJAMIN, SCHREINER, and ———.

This course consists in planning and drawing poultry buildings and colony houses; laying out poultry plants; selecting fowls for mating; killing, dressing, packing, and marketing poultry; study of the egg; anatomy of poultry; caponizing; study of poultry feeds; mixing rations; fitting fowls for exhibition; holding a poultry show; judging and scoring for fancy points and for utility.

4. **Laboratory Practice.** Three hours a week. Open to general students who take course 1 also. Th F S, 2-4. Poultry Building 300. Professor RICE, Assistant Professor ROGERS, and Messrs. SCHREINER, BENJAMIN, and ———.

5. **Feeding and Management Practice.** One hour a week. Open only to students in the professional course. Daily (including Sunday), one and one-half hours, morning, noon, and afternoon, for four weeks, 7.45-8.30, 12.30-1, 4-4.45. Poultry Plant. Professor RICE, and Messrs. SCHREINER, ———, and ———.

To each student is assigned a flock of twenty-five to thirty fowls for egg production and a coop of chickens for fattening. The student performs all the daily operations in caring for the poultry, keeping careful records of the cost of feed, gain or loss in weight, temperature of house, time required to do the work, and profit and loss. The student also prepares and packs eggs and kills, picks, and packs poultry for market. In addition he takes his turn in doing many different types of work about the poultry plant.

6. **Poultry Mechanics.** One hour a week. Open only to students in the professional course. Practice, M, T, or W, 2-4. Poultry Building 125. Assistant Professor ROGERS, and Messrs. PERRY, —, and —.

The handling of a gasoline engine, power bone cutters, feed mill, corn sheller, and other appliances; making concrete posts, feed hoppers, egg crates, shipping coops, and the like.

7. **Incubator Practice.** One hour a week. Open only to students in the professional course. Daily (including Sunday), one and one-half hours, morning, noon, and afternoon, for four weeks, 7.45-8.30, 12.30-1, 4-4.45. Poultry Building 1. Professor RICE, and Messrs. SCHREINER, —, and —.

The student operates an incubator and gives a complete record of his work and of the results. At the conclusion of each hatch, the results of the hatch from all the incubators are tabulated so that the various machines can be compared, and the fertility, the hatching power of the eggs, and the vigor of the chicks from the different pens can be observed.

8. **Brooder Practice.** One hour a week. Open only to students in the professional course; may not be given in 1913-14. Daily (including Sunday), one and one-half hours, morning, noon, and afternoon, for four weeks, 7.45-8.30, 12.30-1, 4-4.45. Poultry Plant. Professor RICE, and Messrs. MOSELY and —.

Each student is given a brooder compartment and a brood of chickens. He performs all the daily operations in the care of the brooder and of the chicks, keeping record of temperature, feed, fuel consumption, and rate of growth of the chicks.

9. **Poultry Accounts.** One hour a week. Open only to students in the professional course. Sec. A, W, 2-4; sec. B, Th, 2-4. Poultry Building 375. Messrs. BENJAMIN and —.

10. **Systematic Reading.** One hour a week. Open only to students in the professional course. Sec. A, F, 2-4; sec. B, S, 2-4. Poultry Building 280 and 375. Professor RICE and Miss BENJAMIN.

This course is intended to supplement the lectures and laboratory work. Two hours reading each week is required. Several hours a week are set apart in which the students can devote themselves to special reading along the lines in which they are interested.

**Excursions.** One or more excursions will be made to near-by poultry farms and to a large poultry show. These excursions are not required, but every student is urged to take them.

**Observations.** Students taking the Course in Poultry Husbandry have the added advantage of observing the results of a large number

of investigations with poultry which are being conducted at the University poultry plant. These include a comparison of types of houses, methods of feeding, breeding, trap nesting, incubating, and brooding.

### Prizes

Through the kindness of former students in poultry husbandry and other friends of the College, several prizes are offered to students in this course. These prizes are awarded for excellence in some phase of the work, as judging, scoring, picking, fitting, designing poultry houses, drawing farm plans, and the like. The prizes have created valuable friendly competition among the students.

### Certificate of Proficiency

On the completion of the required course, eighteen hours, a student in poultry husbandry may become an applicant for a certificate signed by the Director of the College and the Professor of Poultry Husbandry, under the following terms and conditions:

A person who has completed one full term in attendance on the Course in Poultry Husbandry and has satisfactorily passed all the examinations required, may become a candidate for a Certificate in Poultry Husbandry.

Such a candidate must spend one full year in successful work at an approved poultry plant. He must present regularly, on blank forms furnished for the purpose, such information in regard to the work as may be required, and he must hold his plant in readiness for inspection at any time.

On satisfactory completion of these requirements a certificate will be granted. Under certain conditions a longer period than one year of practical work may be required. No student who has failed to complete the full twelve weeks of attendance on the Winter Course in Poultry Husbandry is eligible for a certificate.

## IV. COURSE IN FRUIT GROWING

Each year since the establishment of the Winter Courses the demand for special instruction in fruit growing has increased. The opportunities for profitable fruit raising on the comparatively cheap lands of the East, within easy reach of the great markets, are attracting capital and energy. It is in response to this general demand

and these opportune conditions that a Winter Course in Fruit Growing is offered. The studies included in this course are intended to help the fruit grower to manage his orchards better than in the past; to fit those who have had some experience for positions of responsibility; to give the beginner the salient principles, and acquaint him as far as possible with the best practices of commercial and amateur fruit growers the country over.

### Required Subjects

All students in this course, except those who have already satisfactorily completed the Winter Course in Agriculture, are required to take the subjects that follow. Those who have completed the Winter Course in Agriculture will not be required to take again subjects in which they have already passed, and may elect others from the Course in Agriculture in their place.

1. **Commercial Fruit Growing.** Seven hours a week. Lectures, daily except S, 9. Main Building 292. Practice, W Th, 2-4.30. New greenhouses. Mr. TENNY.

This course is designed primarily for students who desire to specialize in fruit growing. It includes a study of methods of propagation; principles of budding and grafting; soils, varieties, and planting plans for the orchard; cultivation; cover crops, fertilization, spraying, and pruning, as practiced in orchard management; the picking, grading, packing, storing, and marketing of fruit. The course considers apple, pear, quince, cherry, plum, apricot, peach, grape, raspberry, blackberry, dewberry, currant, gooseberry, and strawberry. Laboratory fee, \$2.

- 1. **Plant Diseases.** See page 14.
- 1. **Injurious Insects.** See page 12.
- 1. **Fertility of the Land.** See page 11.
- 1. **Farm Crops.** See page 13.
- 1. **Soils.** See page 15.

### V. COURSE IN HOME ECONOMICS

The main object of the Winter Course in Home Economics is to provide scientific training in subjects pertaining to the home. Special attention is given to household sanitation, selection and preparation of foods, problems of nutrition, house construction and decoration, household management, and sewing. The instruction is of interest to both men and women in so far as both are concerned with the problems of the right maintenance of the home. The aim of the

course is to increase efficiency in household administration, to give the breadth of view and the interest which come with intelligent labor, to teach not only how to do the work but also why it should be done.

The equipment for instruction in this course is the same as that for the longer courses in home economics. A well-equipped laboratory is provided for practical instruction in foods. Library privileges are offered. The Winter Course of 1913-14 will be the first one conducted in the new Home Economics Building.

For several years past, some of the students in the course have been women who found it possible to accompany another member of the family attending one of the other Winter Courses. Some have combined with the Course in Home Economics instruction in another of the Winter Courses.

In order to keep a proper social balance in a community, farm girls should be given social and educational opportunities equal to those given to boys. Household problems, as well as the problems of the farm, rest on science; hence there is equal need for a course of training to prepare women for their tasks in life.

### Special Expenses

A food laboratory fee of \$7.50 is required to cover the cost of materials used. Those taking the course in domestic art will be charged an additional fee of \$1. From \$3 to \$5 should be allowed for the purchase of books and a thermometer.

### Required Subjects

1. **Foods.** Lectures, five hours a week, and two laboratory periods a week of three hours each. Open to election by the general student so far as laboratory space will permit. Lectures, daily except S, 9. Home Economics Building 245. Practice, sec. I, M W, 10-1; sec. II, M, 2-5, and F, 10-1. Home Economics Building 270. Professor ROSE, and Misses BROWNING and BETTS.

This course will include a study of food composition, food values, methods of selection, preparation, and preservation of food materials, principles of nutrition, dietaries, care and feeding of children. Laboratory work will be given for application of the principles studied, and will include practice in preparation of food and in serving.

2. **Household Sanitation.** Two hours a week. Lectures, T Th, 10. Home Economics Building 245. Miss KNOWLTON.

The lectures in this course include a discussion of the sanitary conditions of the house and site; conditions for health and for care of sick; the relation of bacteriology to the household.

3. **Household Management.** Three hours a week. Lectures, T Th, 11. Home Economics Building 245. Practice, W, 2-5. Home Economics Building 400. Professor VAN RENSSELAER and others.

This course includes a study of the family income, cost of living, household accounts, problems of domestic service, methods of housekeeping, equipment, marketing.

4. **Sewing and Drafting.** Two to three hours a week. Sec. 1, M W, 10-1; sec. II, M, 2-5, and F, 10-1. Home Economics Building 300.

Instruction in sewing, cutting, and fitting garments.

5. **Art in the Home.** One hour a week. Lectures, T, 12. Home Economics Building 245. Members of the staff and others.

A course for the development of more artistic home surroundings; the building site, the garden, accessory buildings; the furnishing and decoration of the house; the selection of books and pictures; home entertainment and amusements.

Short technical courses will be added, each of two weeks duration, in millinery, weaving, dyeing, basketry, candy making. Students may elect any or all of these courses.

### Elective Subjects

In addition to the courses outlined in home economics, opportunities are open to women to receive instruction in dairying, poultry husbandry, gardening, and extension work. Practical instruction may thus be obtained in milk and its products; feeding, care, and marketing of eggs and fowls; diseases of fowls; commercial fruit growing, vegetable culture, and flower growing; public speaking. Women enter the regular classes in these subjects; if a sufficient number desire work in home dairying, however, a special class or section may be organized.

### VI. COURSE IN FLOWER GROWING

The floricultural interests of New York are greater than those of any other State in the Union. The demand for high-class floral products is increasing each year. The demand for information on the growing of these crops is naturally keeping pace with their development. The amateur and the professional alike are seeking instruction in the latest and most approved methods. Floriculture at Cornell University is being extended as rapidly as possible to meet these conditions. To that end special opportunities will be provided in the winter of 1913-14.

### Required Subjects

1. **Floriculture and Greenhouse Practice.** Seven hours a week. Lectures, daily except S, 10. Main Building 232. Practice, periods to be arranged, forenoons daily except S, afternoons daily except W F. Greenhouses. Professor BEAL, and Messrs. PATCH and HOTTES.

A study of the propagation, potting, culture, insect pests, diseases, and marketing of flowers. Designed to familiarize the student with the ordinary operations of the greenhouse and garden. Laboratory fee, \$3.50.

2. **Forcing Structures.** Three hours a week. Lectures, W F, 11. Main Building 232. Practice, Th, 2-4.30. Main Building 202. Assistant Professor BEAL, and Messrs. WILKINSON and ———.

The construction and use of hotbeds, cold-frames, inexpensive greenhouses; heating. Laboratory work will consist of the making of plans, preparation of estimates, and erection of models. Laboratory fee, \$1.50.

1. **Fertility of the Land.** See page 11.

1. **Soils.** See page 15.

1. **Plant Diseases.** See page 14.

### Elective Subjects

1. **Plant Breeding.** See page 14.

1. **Extension Work.** See page 12.

6. **Rural Improvement.** See page 14.

### Certificates of Proficiency

Certificates are available to students who satisfactorily complete the required courses as above outlined, and who subsequently spend one full season in floricultural work. A statement of the season's work, approved by the proprietor of the establishment in which the student has been employed and satisfactory to the Professor of Floriculture, is required.

### VII. COURSE IN VEGETABLE GARDENING

With the rapid growth of our cities and with vegetable food occupying a place of constantly increasing importance in the dietary, the demand for this class of farm produce has undergone a great development within the last few years. An ever-increasing area of farm land is being devoted to vegetable growing, and an ever-increasing number of farmers are looking to this occupation as a source of all or a part of their income. The value of the home garden as an aid in providing good food in both town and country is being appreciated more than ever before. In view of the wide interest taken in the

subject of vegetable culture, the courses in this Department have been planned to meet the needs of those who wish to make this field of agriculture a specialty, those who desire to grow vegetable crops in connection with other lines of agriculture, and those who are interested only in the home garden.

### Required Subjects

1. **Commercial Vegetable Gardening.** Six hours a week. Lectures, M T W F, 10. Auditorium, North Basement. Laboratory, W F, 2-4.30. Auditorium, North Basement, and greenhouses. Mr. WORK.

The production of vegetables for market: choice of location, equipment, management of soil and crops, seed and seed sowing, plant growing, pests and their control, and marketing. Each crop is considered individually as regards value and adaptation, fertilizers, culture, special requirements, varieties, enemies, harvesting, and marketing. The laboratory work includes planning, seed and seedling studies, seed testing, and descriptive work. Plants are grown under glass as for outdoor setting. Laboratory fee, \$2.50.

2. **Vegetable Forcing.** Three hours a week. Lectures, W F, 12. Auditorium, North Basement. Practice, S, 8-10.30. Auditorium, North Basement, and greenhouses. Mr. WORK.

Vegetable production under glass; management of greenhouses and frames; individual crops and their requirements. In connection with the laboratory, each student will be assigned space in the greenhouses for the growing of crops. Laboratory fee, \$1.50.

2. **Forcing Structures.** See page 31.

1. **Fertility of the Land.** See page 11.

1. **Soils.** See page 15.

1. **Plant Diseases.** See page 14.



## OTHER WORK OF THE COLLEGE OF AGRICULTURE

In addition to offering the Winter Courses, the New York State College of Agriculture at Cornell University is endeavoring to serve the agricultural interests of the State by the following and by other means:

**The Four-Year Course in Agriculture.**—This course is of equal academic rank with other courses in Cornell University. It offers a thorough theoretical and practical training in agricultural and country-life subjects. The equivalent of a high school training is necessary for admission. A program will be sent on application to the Secretary, College of Agriculture.

**Specialized Courses in Landscape Art, Forestry, and Home Economics,** comprising the junior and senior years in the four-years course and providing special professional instruction in these subjects. At the end of the fifth year, the course in forestry leads to the degree of Master in Forestry and the course in landscape art to the degree of Master in Landscape Design.

**Special Work in Agriculture.**—Special students take, as far as they are qualified to pursue them, whatever studies will be most valuable in the various departments. This opportunity to pursue special work is provided especially for those who wish to fit themselves for practical farming but who cannot take a four-years course, and for those who desire to spend a brief period in special study. About two years can be spent profitably in this work. In the admission of special students, each case is judged on its own merits. Persons desiring to enter as special students must, first, offer two full years of recent farm experience, and, second, either offer fifteen units of entrance credits or be twenty-one years of age. Persons admitted on the age requirement must satisfy the faculty of their ability to do the work. Every applicant must submit a full statement of school and other experience, together with references.

**Summer School in Agriculture.**—A six-weeks course established primarily for the training of persons who desire to teach or supervise the teaching of agriculture, nature study, and home economics. The courses are open not only to teachers, principals, and supervisors, but also to other qualified persons who may wish to avail themselves of the opportunities offered. Courses carrying university credit are offered for college and other advanced students.

**Reading-Course for the Farm.**—For those who are unable to leave their work but desire to learn. Practical bulletins on agricultural subjects are sent to the reader and correspondence is encouraged. Free to persons residing in New York. Address Cornell Reading-Course for the Farm, College of Agriculture.

**Reading-Course for the Farm Home.**—Similar to the above, but the bulletins discuss household economy, cooking, home furnishing, and related topics. Address Department of Home Economics, College of Agriculture.

**Nature-Study Agriculture.**—Extension work for teachers and pupils, particularly in the rural schools. A publication is issued in the interest of this work, The Cornell Rural School Leaflet, for pupils, with a Supplement for teachers. Address Cornell Rural School Leaflet, College of Agriculture.

**The Agricultural Experiment Station** issues bulletins on agricultural subjects which are sent free to residents of New York. Back numbers of some issues are available. Address Superintendent of Mailing Rooms, College of Agriculture.

**Cooperative Experiments in Agriculture.**—The College cooperates with farmers in making on their land demonstrations that will be of direct practical value to them.

**Announcer.**—The Announcer is a monthly paper issued in order to acquaint the people of the State with the lines of work in progress at the State College of Agriculture. It is sent on request to residents of the State.

Correspondence and cooperation are solicited in connection with any of these various enterprises. For information, address

Director of the College of Agriculture,  
Ithaca, New York.



## OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, New York, monthly from July to November inclusive, and semi-monthly from December to June inclusive.

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These publications include

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Book of Views, price 25 cents,

Directory of Faculty and Students, First Term, 1912-13, price 10 cents, and the following informational publications, any one of which will be sent gratis and post-free on request. The date of the last edition of each publication is given after the title.

General Circular of Information for prospective students, December 15, 1912.

Announcement of the College of Arts and Sciences, May 15, 1913.

Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts, January 1, 1913.

Announcement of the College of Civil Engineering, February 15, 1913.

Announcement of the College of Law, April 15, 1913.

Announcement of the College of Architecture, June 1, 1913.

Announcement of the New York State College of Agriculture, June 15, 1913.

Announcement of the Winter Courses in the College of Agriculture, July 1, 1913.

Announcement of the Summer School in Agriculture, April 1, 1913.

Announcement of the New York State Veterinary College, March 1, 1913.

Announcement of the Graduate School, January 15, 1913.

Announcement of the Summer Session, March 15, 1913.

Annual Report of the President, December 1, 1912.

Pamphlets on scholarships, fellowships, and prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Correspondence concerning the publications of the University should be addressed to

The Secretary of Cornell University,  
Ithaca, New York.

