

## No. 20

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# THE UNIVERSITY CALENDAR

1938-39

## FIRST TERM

		1938	
Sept.	19	Monday	University entrance examinations begin.
Sept.	26	Monday	Academic year begins. Registration of new students.
Sept.	27	Tuesday	Registration of old students.
Sept.	29	Thurs. 8 a.m.	Instruction begins.
Oct.	20	Thursday	Last day for payment of tuition.
Nov.	24-26		( <i>Thanksgiving recess.</i> )
Dec.	21	Wed. 12.50 p.m.	Instruction ends. ( <i>Christmas recess.</i> )

1939

Jan.	5	Mon. 8 a.m.	Instruction resumed.
Jan.	11	Wednesday	Birthday of Ezra Cornell. Founder's Day.
Jan.	30	1 Monday	Term examinations begin.

## SECOND TERM

Feb.	10	Friday	Registration of all students.
Feb.	13	Mon. 8 a.m.	Instruction resumed.
Feb.	13-18		Farm and Home Week.
Mar.	6	Monday	Last day for payment of second-term tuition.
Apr.	1	Sat. 12.50 p.m.	Instruction ends. ( <i>Spring recess.</i> )
Apr.	10	Mon. 8 a.m.	Instruction resumed.
June	5	Monday	Term examinations begin.
June	19	Monday	Seventy-first Annual Commencement.

# NEW YORK STATE COLLEGE OF AGRICULTURE

## STAFF OF ADMINISTRATION AND INSTRUCTION IN THE TWO-YEAR COURSES

Edmund Ezra Day, Ph.D., LL.D., President of the University.  
Livingston Farrand, A.B., M.D., L.H.D., LL.D., President Emeritus.  
Carl Edwin Ladd, Ph.D., Dean of the College of Agriculture and Director of Experiment Stations.  
Cornelius Betten, Ph.D., D.Sc., Director of Resident Instruction and Dean of the University Faculty.  
Lloyd R. Simons, B.S., Director of Extension and Professor in Extension Service.  
Carl Edward Frederick Guterman, Ph.D., Assistant Director of the Cornell University Agricultural Experiment Station and Professor of Plant Pathology.  
Anson Wright Gibson, M.S., Professor in Personnel Administration, in charge of Former Student Relations, Vocational Guidance, and Placement.  
Cedric Hay Guise, B.S., M.F., Professor in Personnel Administration in charge of Admissions.  
Willard Waldo Ellis, A.B., LL.B., Librarian.  
George Wilson Parker, Bursar.

Raymond Clayton Allen, B.S., Instructor in Floriculture.  
• Carrolle Elizabeth Anderson, M.S., Assistant in Botany.  
Winfred Enos Ayres, Assistant Professor of Dairy Industry.  
Harlan Parker Banks, A.B., Instructor in Botany.  
William James Barnum, B.S., Assistant in Extension Teaching.  
Leon Bernstein, B.S., Assistant in Botany.  
Harold Eugene Botsford, B.S., Extension Professor of Poultry Husbandry.  
Damon Boynton, Ph.D., Assistant Professor of Pomology and Assistant Pomologist in the Experiment Station.  
Jacob Herbert Bruckner, Ph.D., Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman in the Experiment Station.  
Herman Jacob Brueckner, Ph.D., Extension Professor of Dairy Industry.  
Webster Allen Chandler, B.S., Assistant in Plant Pathology.  
Daniel Grover Clark, Ph.D., Assistant in Botany.  
Otis Freeman Curtis, Ph.D., Professor of Botany and Plant Physiologist in the Experiment Station.  
Otis Freeman Curtis, jr., A.B., Assistant in Botany.  
Ralph Wright Curtis, M.S.A., Professor of Ornamental Horticulture.\*  
Hugh Fenner Fitzpatrick, A.B., Assistant in Plant Pathology.  
Clara Louise Garrett, B.S., Assistant Professor of Drawing.  
Alpheus Mansfield Goodman, B.S.A., Extension Professor of Agricultural Engineering.  
Bernard Facklam Goodrich, B.S., Instructor in Extension Teaching.  
Leon Franklin Graves, B.S., Assistant in Meteorology.  
Irwin Clyde Gunsalus, M.S., Instructor in Bacteriology.  
Axel Ferdinand Gustafson, Ph.D., Professor of Soil Technology and Soil Technologist in the Experiment Station.  
Edward Sewall Guthrie, Ph.D., Professor of Dairy Industry and Dairy Technologist in the Experiment Station.  
Goldan Orlando Hall, Ph.D., Assistant Professor of Poultry Husbandry and Assistant Poultry Husbandman in the Experiment Station.  
Earle Volcart Hardenburg, Ph.D., Professor of Vegetable Crops and Investigator in Vegetable Crops in the Experiment Station.  
Edwin Shepherd Harrison, Ph.D., Professor of Animal Husbandry and Animal Husbandman in the Experiment Station.  
Herbert Bertsch Hartwig, Ph.D., Professor of Field Crops.  
Arthur John Heinicke, Ph.D., Professor of Pomology and Pomologist in the Experiment Station.

\*On leave first term.

- Barbour Lawson Herrington, Ph.D., Professor of Dairy Chemistry and Chemist in the Experiment Station.
- Gustave Frederick Heuser, Ph.D., Professor of Poultry Husbandry and Poultry Husbandman in the Experiment Station.
- Robert Byron Hinman, Ph.D., Professor of Animal Husbandry and Animal Husbandman in the Experiment Station.\*
- Robert Francis Holland, B.S., Instructor in Dairy Industry.
- Edwin Fraser Hopkins, Ph.D., Assistant Professor of Botany and Assistant Botanist in the Experiment Station.
- Oren Lloyd Justice, B.S., Assistant in Botany.
- Curtis Gilbert Keyes, M.S., Instructor in Ornamental Horticulture.
- Lewis Knudson, Ph.D., Professor of Botany and Plant Physiologist in the Experiment Station.
- Welford Forrest Lamoreux, M.S., Instructor in Poultry Husbandry and Assistant in Poultry Husbandry in the Experiment Station.
- Richard August Laubengayer, Ph.D., Instructor in Botany and Assistant in Botany in the Experiment Station.
- Arnaud Joseph Loustalot, M.S., Assistant in Pomology.
- John Clarence McCurdy, B.S., C.E., Professor of Agricultural Engineering.
- Laurence Howland MacDaniels, Ph.D., Professor of Pomology and Pomologist in the Experiment Station.
- Woodrow Wilson Middlekauff, M.S., Assistant in Entomology.
- John Ivan Miller, Ph.D., Instructor in Animal Husbandry and Assistant in Animal Husbandry in the Experiment Station.
- Richard Alan Mordoff, Ph.D., Professor of Meteorology.
- Frank Barron Morrison, B.S., Professor of Animal Husbandry and Animal Nutrition and Animal Husbandman and Nutritionist in the Experiment Station.
- Clyde Hadley Myers, Ph.D., Professor of Plant Breeding and Plant Breeder in the Experiment Station.
- Elmer Arthur Palmatier, M.S., Assistant in Botany.
- Edward Marshall Palmquist, Ph.D., Instructor in Botany.
- George Eric Peabody, M.S., Professor of Extension Teaching.
- Loren Clifford Petry, Ph.D., Professor of Botany.
- Elmer Strobel Phillips, B.S., Instructor in Extension Teaching.
- Kenneth Post, Ph.D., Assistant Professor of Floriculture and Assistant Floriculturist in the Experiment Station.
- Joseph Pullman Porter, B.S., M.S.A., M.L.D., Acting Professor of Ornamental Horticulture.
- Whiton Powell, Ph.D., Professor of Business Management and Investigator in Business Management in the Experiment Station.\*
- Alfred M. S. Pridham, Ph.D., Instructor in Floriculture.
- Marius Peter Rasmussen, Ph.D., Professor of Marketing and Investigator in Marketing in the Experiment Station.
- Philip Adna Readio, Ph.D., Professor of Economic Entomology and Entomologist in the Experiment Station.
- Arthur Bernhard Recknagel, B.A., M.F., Professor of Forest Management and Utilization.
- Robert Sigmund Reich, B.S., Instructor in Ornamental Horticulture.
- Juan Estevan Reyna, E.E., M.A., Assistant Professor of Drawing.
- Howard Wait Riley, M.E., Professor of Agricultural Engineering and Agricultural Engineer in the Experiment Station.
- Byron Burnett Robb, M.S. in Agr., Professor of Agricultural Engineering.
- Louis Michael Roehl, B.S., Professor of Farm Mechanics.
- Harold Ellis Ross, M.S.A., Professor of Dairy Industry.
- Glenn Wade Salisbury, Ph.D., Assistant Professor of Animal Husbandry and Assistant Animal Husbandman in the Experiment Station.
- Earl Frederick Savage, B.S., Assistant in Pomology.

\*On leave first term.

- Elmer Seth Savage, Ph.D., D.Sc., Professor of Animal Husbandry and Animal Husbandman in the Experiment Station.
- Cecil D. Schutt, Instructor in Animal Husbandry and Assistant in Animal Husbandry in the Experiment Station.
- Henry Thomas Skinner, B.S., Propagator in Ornamental Horticulture.
- Robert Mumford Smock, Ph.D., Assistant Professor of Pomology and Assistant Pomologist in the Experiment Station.
- Leland Spencer, Ph.D., Professor of Marketing and Investigator in Marketing in the Experiment Station.
- Thomas Sproston, jr., B.S., Assistant in Plant Pathology.
- Clifford Nicks Stark, Ph.D., Professor of Bacteriology and Bacteriologist in the Experiment Station.
- Mrs. Pauline Whitson Stark, M.S., Instructor in Bacteriology and Assistant Bacteriologist in the Experiment Station.
- Finley Moore Steele, B.S., Assistant in Dairy Industry.
- Archie Van Doren, A.B., Assistant in Pomology.
- Alfred Van Wagenen, Ph.D., Instructor in Marketing and Investigator in Marketing in the Experiment Station.
- Stanley Whitson Warren, Ph.D., Assistant Professor of Farm Management and Investigator in Farm Management in the Experiment Station.
- Ross Derrick Watson, M.S., Assistant in Plant Pathology.
- Donald Stuart Welch, Ph.D., Assistant Professor of Plant Pathology and Assistant Forest Pathologist in the Experiment Station.
- Herbert Hice Whetzel, M.A., D.Sc., Professor of Plant Pathology and Plant Pathologist in the Experiment Station.†
- Robert Haworth Williams, B.S., Instructor in Botany.
- Paul Stuart Williamson, Ph.D., Assistant Professor of Farm Management and Investigator in Farm Management in the Experiment Station.
- John Peter Willman, Ph.D., Assistant Professor of Animal Husbandry and Assistant Husbandman in the Experiment Station.
- Paul Work, Ph.D., Professor of Vegetable Crops and Investigator in Vegetable Crops in the Experiment Station.
- Forrest Blythe Wright, Ph.D., Assistant Professor of Agricultural Engineering.

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†On leave second term.

## NEW YORK STATE COLLEGE OF AGRICULTURE

The New York State College of Agriculture is maintained by the State as one of three state colleges within Cornell University. It is equipped with a staff and facilities for teaching resident students of various types, for making investigations in all phases of agriculture and the underlying sciences, and for disseminating its teachings to the people of the State. The support of the State towards these ends is supplemented by substantial appropriations from the Federal Government, and by the land and other large facilities and services freely placed at the disposal of the College by Cornell University.

### COURSES AVAILABLE

The information contained in this announcement relates to the two-year courses first offered in 1929-30. These are designed for young men who expect to go into farming or into business closely allied thereto, and who desire agricultural training of college grade, but cannot devote more than two years to it. The College offers, in addition, a winter course beginning in November and running through twelve weeks; a summer session of six weeks; a four-year course, leading to the degree of bachelor of science; and graduate courses, leading to higher degrees. These offerings give preparation for different kinds and different levels of agricultural vocations and call for different prerequisites for admission. A separate printed announcement of each of these courses is available on application to the Secretary of the College of Agriculture, Roberts Hall, Ithaca, New York.

### REQUIREMENTS FOR ADMISSION

For admission to the two-year courses, candidates must offer: Fifteen units acceptable by the University of the State of New York toward a state diploma, or the equivalent by school certificates. English, 4 years, is counted as 3 units.

Approximately one year of practical experience on a farm or in a business related to the curriculum to be followed.

Certificates of good moral character.

All students matriculating in the University must present a satisfactory certificate of vaccination against smallpox. This certificate is considered satisfactory only if it certifies to a successful vaccination within five years, or certifies that at least three unsuccessful attempts have been made within the same period.

### THE APPLICATION FOR ADMISSION

Candidates for admission should address Dr. E. F. Bradford, Director of Admissions, Morrill Hall, Ithaca, New York, stating that they desire to enter one of the two-year courses in the College of

**Agriculture.** This should be done as early as possible, since the procuring of the necessary credentials often takes considerable time.

Every candidate for admission in September must make a deposit of \$25 before August 1. A check, draft, or money order should be made payable to Cornell University and sent to the Office of Admissions, Morrill Hall, Ithaca, New York.

If the candidate matriculates, the deposit will be credited to his account, \$10 for the matriculation fee, \$1 for examination books, and \$14 as a guaranty fund, which every two-year student is required to maintain, and which is to be refunded to him upon his permanent withdrawal, less any indebtedness to the University.

If admission is denied a candidate who has complied with these rules, the deposit is refunded in full at any time.

The application may be withdrawn and the refund of deposit claimed before August 1 without charge. After August 1 and before August 31 a charge of \$10 is made against the deposit for accrued expenses. After August 31 no refund is allowed.

### CERTIFICATE ON COMPLETION OF COURSE

Students who satisfactorily complete the work of an approved two-year course with credit for at least sixty hours, will be granted an appropriate certificate.

### RELATION TO THE FOUR-YEAR DEGREE COURSE

Except in respect to the items of administration and curriculum specifically covered in this announcement, students in the two-year course are governed by exactly the same conditions as are students of the four-year course. They should, therefore, consult the announcement of the latter course for further details of information and for the description of courses open to their election but not here listed or described.

Transfer to the degree course will be possible at the end of the two-year course for those who have given evidence of ability to carry advanced work. Students who qualify for such transfer will not be required to offer any further entrance credit. The transfer is possible solely on a basis of the full two-year record, which must be considerably better than the average of all two-year students. Students who transfer from the two-year to the four-year course are given full credit toward the degree for work satisfactorily passed in the two-year course.

Two-year students are registered as special students and are not eligible to represent the University in intercollegiate athletics.

### EXPENSES

#### TUITION

Tuition is free to two-year students in the New York State College of Agriculture, who at the beginning of the college year are, and for at least twelve months prior thereto have been, bona-fide residents of

the State of New York. A student transferring from one college or course in the University to another, must pay for the hours credit he receives in the latter college or course an amount corresponding to the difference in tuition; and no such transfer is allowed or credit given until such payment has been made.

Students in Agriculture who are not exempt under these provisions are required to pay \$200 for the full college year. This amount is payable in installments of \$110 at the beginning of the first term and \$90 at the beginning of the second term, but a student registered only for the second term of the academic year is required to pay at the rate of the first term.

Tuition and other fees become due when the student registers. The University allows twenty days of grace after the last registration day of each term of the regular session. The last day of grace is generally printed on the registration coupon which the student is required to present at the Treasurer's office. Any student, graduate or undergraduate, except as hereinafter provided, who fails to pay his tuition, fees and other indebtedness, or if entitled to free tuition fails to claim the same at the Treasurer's office and pay his fees, within the time prescribed by the University is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such extension, the student will be assessed a fee of \$2. A financial reinstatement fee of \$5 will be assessed in the case of any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Comptroller and the Registrar, which must be presented in writing, the above assessment may be waived in any individual case.

Any tuition or other fee may be changed by the Board of Trustees to take effect at any time without previous notice.

#### OTHER FEES

A *matriculation fee* of \$10 is required of every student upon entrance into the University. A new two-year student who has made the required deposit of \$25 with the Treasurer does not make an additional payment of the matriculation fee, because the Treasurer draws on the deposit for this fee.

A *health and infirmary fee* of \$6 a term is required at the beginning of each term of every student. In return, a student, in case of illness, is, upon his physician's certificate, admitted to the University infirmary and receives, without charge, a bed in a ward, board, and ordinary nursing for a period not exceeding two weeks in any academic year. For such service beyond the period of two weeks, a charge of \$2 a day is made. Extra charges are made for private rooms, special food, and special nurses.

A *Willard Straight Hall membership fee* of \$5 is required at the beginning of each term. Its payment entitles the student to a share in



the common privileges afforded by the operation of Willard Straight Hall, subject to the regulations made by the Board of Managers.

A *physical recreation fee* of \$4, required at the beginning of each term, entitles the student to the use of a locker, bathing facilities, and towels, in the gymnasium, the New York State Drill Hall, or the Schoellkopf Memorial Building.

An *examination book fee* of \$1 is required of every student at entrance to pay for the examination books furnished to the student throughout his course. The charge is made against the student's deposit fee.

A *University administration fee* of \$5 a term is required of every student in the state colleges at the beginning of each term.

*Laboratory fees* are charged to cover the cost of materials used in certain courses that require laboratory and field work. A few of the courses involve out-of-town trips for the purpose of studying marketing and field conditions. Every student must pay his own travel and living expenses on these trips. The approximate total amount of the laboratory fees and trip expenses for each of the courses for two years is as follows:

	Laboratory fees	Trip expenses
Dairy Farming.....	\$56.00	\$ 1.00
Other Livestock Farming.....	49.00	8.00
Poultry Farming.....	44.50	
Fruit Growing.....	60.50	1.00
Vegetable Growing.....	58.50	11.00
General Farming.....	53.00	
Marketing of Fruits and Vegetables.....	60.00	11.00
Marketing of Dairy Products.....	80.00	
Commercial Floriculture.....	78.50	
Nursery Landscape Service.....	66.00	

## BOARD AND LODGING

The University is gradually adding to the number of residential halls for men; at present there are accommodations for about 725 students. For particulars, address the Manager of Residential Halls, Morrill Hall, Ithaca, New York.

Many private lodging houses near the University offer furnished rooms, with heat and light, at rates ranging from \$3 to \$5 a week for a single room. Before he rents a room in a private house, a student should make sure, by a personal inspection, that the sanitary arrangements of the house are good, and he should especially insist on a good fire escape. The University publishes a list of lodging houses that have been inspected and found to be satisfactory in the above respects; the list is ready for distribution on August 15. New students are advised to engage rooms at least a few days before the day set for registration. The Freshman Advisory Committee offers its help to new students, and sends them a circular letter of suggestions about September 1.

The number of private houses that offer both rooms and board is small, and many students get their meals outside the houses where they live. The University conducts a cafeteria in Willard Straight Hall, and the College of Home Economics also has a public cafeteria. There are other good cafeterias that are patronized mainly by students.

It is possible to obtain satisfactory board and lodging for the full college year for a total of \$400. Those with limited means will be able to save \$1 or \$2 a week from this amount by living in the cheaper rooms and buying less expensive meals.

The necessary college expenses for the two years, exclusive of clothes and travel, may average \$500 a year. The additional amount spent for clothes and incidentals will vary with the tastes and means of the student.

### THE TWO-YEAR CURRICULA

The two-year course has organized within it ten curricula giving preparation for the major types of farming in New York State and for certain allied businesses. A two-year student must select one of these curricula and follow closely the work as outlined. Changes from these outlines may be made with the consent of the Director of Resident Instruction and the faculty adviser to whom the student will be assigned when he registers.

Requests for further information regarding these curricula should be addressed to the Secretary of the College of Agriculture, Roberts Hall, Ithaca, New York.

#### CURRICULUM IN DAIRY FARMING

##### FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Animal Husbandry 1 (Livestock Production).....	3	Animal Husbandry 10 (Livestock Feeding).....	4
Agricultural Engineering 40 (Farm Shop Work).....	2	Vegetable Crops 2 or elective.....	3
Bacteriology 3 (Agricultural).....	3	*Chemistry 102 (General).....	3
*Chemistry 102 (General).....	3	Agricultural Elective.....	3

##### SECOND YEAR

Animal Husbandry 21 (Animal Breeding).....	3	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Animal Husbandry 30 (Health and Diseases of Animals).....	3	Animal Husbandry 50 (Dairy Cattle).....	3
Agronomy 6 (Soils).....	3	Dairy Industry 2 (Elementary).....	3
Agricultural Engineering 1 (Farm Mechanics).....	3	Agronomy 11 (Production of Field Crops).....	4
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3		

\*Those who offer Chemistry for entrance should register for Chemistry 104 or they may substitute six credit hours of other courses for Chemistry.

# TWO-YEAR COURSES

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## CURRICULUM IN OTHER TYPES OF LIVESTOCK FARMING

### FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Animal Husbandry 1 (Livestock Production).....	3	Animal Husbandry 10 (Livestock Feeding).....	4
Agricultural Engineering 40 (Farm Shop Work).....	2	Animal Husbandry 70 (Swine).....	3
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3	*Chemistry 102 (General).....	3
*Chemistry 102 (General).....	3	Agricultural Elective.....	3

### SECOND YEAR

Animal Husbandry 21 (Animal Breeding).....	3	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Animal Husbandry 30 (Health and Diseases of Animals).....	3	Agronomy 11 (Production of Field Crops).....	4
Animal Husbandry 80 (Sheep).....	3	Agricultural Elective.....	6
Agronomy 6 (Soils).....	3	Suggested	
Agricultural Engineering 1 (Farm Mechanics).....	3	Animal Husbandry 40, 60, 90	
		Vegetable Crops 2	
		Pomology 1	

## CURRICULUM IN POULTRY FARMING

### FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Poultry Husbandry 1 (Farm Poultry).....	3	Poultry Husbandry 30 (Incubation and Brooding).....	3
Bacteriology 3 (Agricultural).....	3	Agricultural Engineering 1 (Farm Mechanics).....	3
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3	Pomology 1 (Fruit Growing).....	3
*Chemistry 102 (General).....	3	Poultry 50 (Market Eggs and Poultry).....	2
		*Chemistry 102 (General).....	3

### SECOND YEAR

Poultry Husbandry 20 (Breeds and Judging).....	3	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Agronomy 6 (Soils).....	3	Agronomy 11 (Production of Field Crops).....	4
Poultry Husbandry 170 (Hygiene and Disease).....	2	Poultry Husbandry 110 (Poultry Nutrition).....	3
Agricultural Elective.....	5	Agricultural Economics and Farm Management 144 (Marketing Poultry Products).....	3

\*Those who offer Chemistry for entrance should register for Chemistry 104 or they may substitute six credit hours of other courses for Chemistry.

## CURRICULUM IN FRUIT GROWING

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Botany 1.....	3	Pomology 1 (Fruit Growing).....	3
Animal Husbandry 1 (Livestock Production).....	3	Entomology 42 (Insect Pests).....	3
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3	Agricultural Engineering 1 (Farm Mechanics).....	3
*Chemistry 102 (General).....	3	*Chemistry 102 (General).....	3

## SECOND YEAR

Pomology 2 (Fruit Varieties).....	2	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Pomology 111 (Packing and Storage for Market).....	2	Plant Pathology 1 (Plant Diseases).....	3
Agronomy 6 (Soils).....	3	Pomology 112 (Advanced Laboratory Course).....	2
Agricultural Economics and Farm Management 142 (Marketing Fruits and Vegetables).....	4	Vegetable Crops 2.....	3
Meteorology 1 (Elementary).....	3	Agricultural Elective.....	3

## CURRICULUM IN VEGETABLE GROWING

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Botany 1.....	3	Vegetable Crops 1.....	3
Agricultural Engineering 1 (Farm Mechanics).....	3	Entomology 42 (Insect Pests).....	3
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3	*Chemistry 102 (General).....	3
*Chemistry 102 (General).....	3	Agricultural Elective.....	3

## SECOND YEAR

Vegetable Crops 12 (Grading and Handling).....	3	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Vegetable Crops 113 (Types and Varieties).....	3	Vegetable Crops 2.....	3
Plant Pathology 1 (Plant Diseases).....	3	Agronomy 11 (Production of Field Crops).....	4
Agronomy 6 (Soils).....	3	Agricultural Elective.....	3
Agricultural Elective.....	3	Suggested	
		Animal Husbandry 10	
		Pomology 1	
		Meteorology 1	

\*Those who offer Chemistry for entrance should register for Chemistry 104 or they may substitute six credit hours of other courses for Chemistry.

## CURRICULUM IN GENERAL FARMING

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Bacteriology 3 (Agricultural).....	3	Animal Husbandry 10 (Livestock Feeding).....	4
Agricultural Economics and Farm Management 103 (Farm Records and Accounts).....	3	*Chemistry 102 (General).....	3
*Chemistry 102 (General).....	3	Agricultural Elective.....	5
Agricultural Elective.....	3		

## SECOND YEAR

Agronomy 6 (Soils).....	3	Agronomy 11 (Production of Field Crops).....	4
Agricultural Engineering 1 (Farm Mechanics).....	3	Animal Husbandry 50 (Dairy Cattle).....	3
Agricultural Elective.....	9	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Suggested		Agricultural Elective.....	3
Agricultural Engineering 31, 40		Suggested	
Animal Husbandry 1, 21		Agricultural Economics and Farm Management 126	
Botany 1		Dairy Industry 2	
Forestry 1		Entomology 42	
Plant Pathology 1		Pomology 1	
Poultry Husbandry 1		Vegetable Crops 2	

## CURRICULUM IN THE MARKETING OF FRUITS AND VEGETABLES

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching 1 (Oral and Written Expression).....	3	Extension Teaching 1 (Oral and Written Expression).....	3
Botany 1.....	3	Pomology 1 (Fruit Growing).....	3
Vegetable Crops 12 (Grading and Handling).....	3	Entomology 42 (Insect Pests).....	3
Agricultural Engineering 1 (Farm Mechanics).....	3	*Chemistry 102 (General).....	3
*Chemistry 102 (General).....	3	Agricultural Elective.....	3

## SECOND YEAR

Pomology 2 (Fruit Varieties).....	2	Vegetable Crops 2.....	3
Pomology 111 (Packing and Storage for Market).....	2	Agricultural Economics and Farm Management 102 (Farm Management).....	5
Agricultural Economics and Farm Management 142 (Marketing Fruits and Vegetables).....	4	Agricultural Economics and Farm Management 126 (Cooperative Marketing).....	3
Plant Pathology 1 (Plant Diseases)	3	Vegetable Crops 1.....	3
Agronomy 6 (Soils).....	3	Agricultural Elective.....	2

\*Those who offer Chemistry for entrance should register for Chemistry 104 or they may substitute six credit hours of other courses for Chemistry.

## CURRICULUM IN MARKETING OF DAIRY PRODUCTS

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching I (Oral and Written Expression).....	3	Extension Teaching I (Oral and Written Expression).....	3
Animal Husbandry I (Livestock Production).....	3	Animal Husbandry 50 (Dairy Cat- tle).....	3
Agricultural Engineering I (Farm Mechanics).....	3	Botany I.....	3
Botany I.....	3	Animal Husbandry 10 (Livestock Feeding).....	4
*Chemistry 102 (General).....	3	*Chemistry 102 (General).....	3

## SECOND YEAR

Dairy Industry I (Introductory Dairy Science).....	3	Agricultural Economics and Farm Management 102 (Farm Manage- ment).....	5
Bacteriology I (General).....	6	Agricultural Economics and Farm Management 143 (Marketing Dairy Products).....	4
Agricultural Economics and Farm Management 121 (Financial Statements).....	3	Dairy Industry 102 (Market Milk and Milk Inspection).....	5
Animal Husbandry 30 (Health and Diseases of Animals).....	3	Dairy Industry 108 (Commercial Grades of Dairy Products)....	1

## CURRICULUM IN COMMERCIAL FLORICULTURE

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Extension Teaching I (Oral and Written Expression).....	3	Extension Teaching I (Oral and Written Expression).....	3
Botany I.....	3	Botany I.....	3
Floriculture and Ornamental Horti- culture I (Greenhouse Crops) 3		Floriculture and Ornamental Horti- culture 3a (Herbaceous Plant Materials).....	2
Agricultural Engineering 21 (Farm Engineering).....	3	Floriculture and Ornamental Horti- culture 10..	3
*Chemistry 102 (General).....	3	*Chemistry 102 (General).....	3
		Agricultural Elective.....	1

## SECOND YEAR

Floriculture and Ornamental Horti- culture 101 (Commercial)....	4	Floriculture and Ornamental Horti- culture 101 (Commercial)....	4
Floriculture and Ornamental Horti- culture 7 (Plant Propagation). 3		Floriculture and Ornamental Horti- culture 103 (Wholesaling and Retailing Flowers).....	2
Agronomy 6 (Soils).....	3	Plant Breeding 103.....	3
Botany 31 (Plant Physiology)....	4	Plant Pathology I (Plant Diseases) 3	
Floriculture and Ornamental Horti- culture 3b (Herbaceous Plant Materials).....	1	Entomology 42 (Insect Pests)....	3

\*Those who offer Chemistry for entrance should register for Chemistry 104.

## CURRICULUM IN NURSERY LANDSCAPE SERVICE

## FIRST YEAR

<i>First term</i>	<i>Hours credit</i>	<i>Second term</i>	<i>Hours credit</i>
Botany I . . . . .	3	Botany I . . . . .	3
Drawing I (Mechanical) . . . . .	3	Drawing II (Free-Hand) . . . . .	2
Agricultural Engineering.21 (Farm Engineering) . . . . .	3	Floriculture and Ornamental Hor- ticulture 3a (Herbaceous Plant Materials) . . . . .	2
Floriculture and Ornamental Hor- ticulture 8 (Woody Plant Ma- terials) . . . . .	4	Floriculture and Ornamental Hor- ticulture 8 (Woody Plant Ma- terials) . . . . .	4
*Chemistry 102 (General) . . . . .	3	Floriculture and Ornamental Hor- ticulture 10 (Introduction to Landscape Design) . . . . .	3
		*Chemistry 102 (General) . . . . .	3

## SECOND YEAR

Extension Teaching I (Oral and Written Expression) . . . . .	3	Extension Teaching I (Oral and Written Expression) . . . . .	3
Agronomy 6 (Soils) . . . . .	3	Floriculture and Ornamental Hor- ticulture 112 (Lawn-making and Green-keeping) . . . . .	2
Floriculture and Ornamental Hor- ticulture 7 (Plant Propagation) . .	3	Entomology 42 (Insect Pests) . . . .	3
Floriculture and Ornamental Hor- ticulture 3b (Herbaceous Plant Materials) . . . . .	1	Plant Pathology I (Plant Diseases) .	3
Floriculture and Ornamental Hor- ticulture 113 (Landscape Work on Small Properties) . . . . .	3	Agricultural Engineering 121 or 122 (Farm Engineering, Advanced Course, or Drainage and Irriga- tion) . . . . .	2
Floriculture and Ornamental Hor- ticulture 115 (Planting Design) . .	4		

## DESCRIPTION OF COURSES

The courses described in the following pages are those required in one or more of the preceding curricula. With the exception of the courses in chemistry, they are all given by members of the staff of the College of Agriculture.

The administrative units of the College in charge of the various subject-matter fields are called *departments*. There are several departments whose work is not required in these two-year curricula, but the courses offered by them may be elected as time permits and if the prerequisites are met. For the description of these offerings, reference should be made to the announcement of the four-year courses.

The arrangement of the courses in the foregoing curricula is such that all prerequisites will have been met if the courses are taken in the order in which they are listed. Consult the four-year announcement for course prerequisites before making any change in the order of scheduling.

\*Those who offer Chemistry for entrance should register for Chemistry 104 or they may substitute six credit hours of other courses for Chemistry.

## AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

**102. Farm Management.** Second term. Credit five hours. Lectures, M W F 10. Agricultural Economics Building 25. Laboratory, T W Th or F 1.40-3.40. Agricultural Economics Building 101. On days when farms are visited, laboratory periods will be from 1.40-6. Assistant Professor WARREN.

Farming as a business; types of farming; size of business; rates of production; labor efficiency; combination of enterprises; farm layout; building arrangement; machinery; forms of tenure and leases; choosing and buying a farm; use of capital and credit; planning, organization, and management of specific farms. One all-day trip and four half-day trips are taken during April and May to visit farms in near-by regions. These trips are taken on the day of the regular laboratory period. Fee for materials furnished and for transportation on trips, \$6.

**103. Farm Records and Accounts.** First term. Credit three hours. Lectures, T Th 8. Agricultural Economics Building 25. Laboratory, M T or W 1.40-4. Agricultural Economics Building 101 and 340. Assistant Professor WILLIAMSON.

Farm inventories; cash account; single-enterprise cost accounts; income-tax reports; complete farm cost accounts; interpretation of the results of cost accounts and their application in the organization and management of farms. Fee for materials furnished, \$3.

**121. Financial Statements.** First term. Credit three hours. Lectures, T Th 9. Agricultural Economics Building 225. Discussion period, S 8, 9 or 10. Agricultural Economics Building 201. Professor POWELL.

The purpose, content, interrelationships, analysis, and interpretation of balance sheet, operating statement, and statement of surplus. Fee for materials furnished, \$2.

**126. Farmers' Cooperatives.** Second term. Credit three hours. Lectures, W F 8. Agricultural Economics Building 225. Discussion groups, M at hours to be arranged. Agricultural Economics Building 201. Professor POWELL.

What cooperatives have tried to do and what they have done; their special problems of organization, finance, and control by farmers. Fee for materials furnished, \$2.

**142. Marketing Fruits and Vegetables.** First term. Credit four hours. Lectures, M W F 9. Agricultural Economics Building 225. Laboratory, W 1.40-4. Agricultural Economics Building 140. Professor RASMUSSEN.

A study of the economic factors involved in the marketing of fruits and vegetables. Regional and seasonal competition; areas of distribution; methods of handling; costs of marketing; types of marketing organizations; sales methods; transportation and carrier services; produce law and methods of credit rating; terminal problems. Fee for materials furnished, \$3.

**143. Marketing Dairy Products.** Second term. Credit four hours. Lectures, M W F 9. Agricultural Economics Building 225. Laboratory, F 1.40-4. Agricultural Economics Building 201. Professor SPENCER.

A study of the marketing of fluid milk, cream, and other dairy products; economic geography of the industry; demand; supply; surplus; price plans and policies; costs of distribution; cooperative marketing; trade organization; public regulation. Fee for materials furnished and for transportation on trips, \$4.

**144. Marketing of Poultry Products.** Second term. Credit three hours. Lecture, T Th 10. Agricultural Economics Building 225. Laboratory, T 1.40-4. Agricultural Economics Building 140. Dr. VAN WAGENEN.

A study of the economic factors involved in the marketing of eggs and poultry, including: areas of production; distribution channels; sales methods; market costs; cold-storage operations; legislation; demand; terminal market and consumption problems. Fee for materials furnished, \$2.

## AGRICULTURAL ENGINEERING

**1. Farm Mechanics.** First or second term. Credit three hours. Lectures: first term, T Th 9, Dairy Industry Building 218; second term, T Th 10, Dairy Industry Building 218. Practice: first term, M T or W 1.40-4; second term, M or T 1.40-4. Agricultural Engineering Laboratories. Professor RILEY and Assistant Professor WRIGHT.



A course planned to give training in understanding the farm application of mechanical methods and appliances and to develop ability to think and reason in terms of these. Laboratory fee, \$2.

**21. Farm Engineering.** First or second term. Credit three hours. Lectures: First term, M W 9; second term, M W 10. Dairy Industry Building 119. Practice, M or T 1.40-4. Dairy Industry Building, Fourth Floor, and field. Professor McCURDY.

A study of the practical solution of the elementary problems involved in connection with surveying and mapping the farm; leveling for farm drainage and water supply; laying out building foundations. Farm drainage, concrete, and sewage disposal are studied. Laboratory fee, \$2.

[121. **Farm Engineering, Advanced Course.** Second term. Credit two hours. Alternates with course 122. Professor McCURDY.] Not given in 1938-39.

A course in topographic surveying and mapping; leveling, including cross-section and earthwork computations; a study of the use and adjustments of the better class of levels and of the transit. Laboratory fee, \$1.

**122. Drainage and Irrigation.** Second term. Credit two hours. Alternates with course 121. Lecture, T 10. Dairy Industry Building 119. Field work, W 1.40-4. Professors ROBB and McCURDY.

A course covering the principles and practice of drainage and irrigation; laying out drainage for farm lands, golf courses, gardens, and roads; a study of irrigation systems for humid climates; pumping plants for drainage, irrigation, and water supply. One two-day excursion to drainage projects near Ithaca is taken sometime in May. Laboratory fee, \$1.

**31. Farm Structures.** First term. Credit three hours. Lectures and recitations, M W F 8. Comstock 145. Extension Professor GOODMAN.

A study of the layout and structure of the buildings suited to various types of farming, with emphasis on the planning, construction, insulation, ventilation, maintenance, and remodeling of dairy, poultry, sheep, swine, and general-purpose buildings. Materials fee, 50 cents.

**40. Farm Shop Work.** First or second term. Credit two hours a term. First term: section 1, T Th 1.40-4; section 2, M F 1.40-4. Second term, T Th 1.40-4. Agricultural Engineering Laboratories. Professor ROEHL.

This course includes woodworking, with special jobs in carpentry, cabinet making, and fitting tool handles; metal working, with special jobs in saw fitting, tool grinding, cold-metal working, sheet-metal working, selecting and attaching builders' hardware; forge work, with special jobs in shaping and tempering tools; painting, with special jobs in repairing and refinishing furniture; harness repairing; problems in the use of rope. Mechanical drawing and free-hand sketching are done as they supplement the work. Laboratory fee, \$4.

## AGRONOMY

**6. Soils.** First term. Credit three hours. Lectures and recitations, M W F 10. Comstock 245. Laboratory, M T or W 1.40-4. Caldwell 143. Professor GUSTAFSON.

A course dealing with the composition, properties, and plant relations of soils, with particular reference to the practical use of lime, fertilizers, and other means of maintaining soil fertility. Fee for materials furnished, \$1.

**11. Production of Field Crops.** First or second term. Credit four hours. First term: Lectures, M W F 10. Caldwell 100. Laboratory, F 1.40-4. Caldwell 250. Second term: Lectures, M W F 11. Caldwell 100. Laboratory, Th or F 1.40-4. Caldwell 250. Professor HARTWIG.

A course dealing principally with the crops that are used for feeding livestock and poultry. Emphasis is placed on the hay, silage, pasture, and grain crops of the Northeastern States. Cultural methods, crop rotation, fertilizer practices, soil and climatic adaption, and the better varieties of the important crops are considered. Laboratory fee, \$3.

## ANIMAL HUSBANDRY

**1. Livestock Production.** First term. Credit three hours. Lectures, W F 10. Agricultural Economics Building 25. Laboratory, T Th or F 1.40-4, or W 11-1.

Judging Pavilion. Professors HARRISON, HINMAN, and SAVAGE, Assistant Professors SALISBURY and J. P. WILLMAN, Doctor J. I. MILLER, and assistants.

Introduction to types, breeds, judging, and management of livestock. Laboratory fee, \$2.

10. **Livestock Feeding.** First or second term. Credit four hours. First term: Lectures, M W F 11. Wing A. Laboratory, Th or F 1.40-4. Wing C. Doctor J. I. MILLER and assistants. Second term: Lectures, M W F 9. Wing A. Laboratory, T W Th or F 1.40-4. Wing C. Professor MORRISON, Doctor J. I. MILLER, and assistants.

The feeding of farm animals, including the general basic principles, feeding standards, the computation of rations, and the composition and nutritive value of livestock feeds.

21. **Animal Breeding.** First term. Credit three hours. Lectures, M W 9. Wing B. Recitation, demonstration, or laboratory, W 1.40-4. Wing C. Assistant Professor SALISBURY and assistants.

A general outline of the principles of physiology and heredity as applied to the breeding of farm animals. Laboratory fee, \$2.

30. **Health and Diseases of Animals.** First term. Credit three hours. Lectures, M W F 11. Veterinary College. Professor BIRCH.

The course is designed to give the student a clear conception of the causes and nature of the diseases of animals, with suggestions for their prevention. Special attention is given to the methods of preventing the spread of the infectious and epizootic diseases. Such information as is practicable is given for the treatment of slight injuries and for first aid in emergencies.

40. **The Horse.** Second term. Credit three hours. Lectures, T Th 9. Wing B. Practice, W 1.40-4. Judging Pavilion. Assistant Professor SALISBURY.

A general course treating of the horse and the mule. Judging, scoring, care and management, economy in feeding, breeding, and stable management, including harnessing, hitching, and the like. Origin, history, and development of the breeds of horses. Laboratory fee, \$2.

50. **Dairy Cattle.** Second term. Credit three hours. Lectures, T Th 10. Wing A. Practice, M or Th 1.40-4. Wing A and Judging Pavilion. Professors SAVAGE and HARRISON, and assistants.

Origin, history, and development of the breeds of dairy cattle; methods of breeding; economy of feeding; production of milk; care, management, and sanitation of the dairy herd. Practice in judging, scoring, tracing pedigrees, and keeping records. Laboratory fee, \$2.

60. **Beef Cattle.** Second term. Credit three hours. Lectures, W F 9. Wing C. Practice, W 1.40-4. Beef Cattle Barn. Professor HINMAN.

Origin, history, and development of the breeds of beef cattle; herd management; feeding for fattening; practice in judging. Lectures, recitations, discussions, reports, tracing of pedigrees, and field trips. Estimated cost of trips, \$6. Laboratory fee, \$2.

70. **Swine.** Second term. Credit three hours. Lectures, W F 11. Wing C. Practice, T 1.40-4. Judging Pavilion. Assistant Professor J. P. WILLMAN.

Origin, history, and development of the breeds of swine; herd management; practice in judging swine; and reports on assigned topics. Lectures, recitations, discussions, and field trips intended to give the student a knowledge of the feeding, management, production, and marketing of swine. Estimated cost of trips, \$4. Laboratory fee, \$2.

80. **Sheep.** First term. Credit three hours. Lectures, T Th 10. Wing B. Practice, M 1.40-4. Judging Pavilion. Assistant Professor J. P. WILLMAN.

Origin, history, and development of the breeds of sheep; flock management; feeding and fattening lambs; practice in judging. Lectures, recitations, discussions, reports, and field trips intended to give the student a knowledge of the management, production, and marketing of sheep and lambs. Estimated cost of trips, \$4. Laboratory fee, \$2.

90. **Meat and Meat Products.** First or second term. Credit three hours. Lecture, M 8. Wing B. Two laboratory periods a week, W 1.40-4 and a choice of M or T 1.40-4. Wing B and Meat Laboratory. One required inspection trip to Buffalo stockyards and slaughterhouses. Professor HINMAN and Mr. SCHUTT.

A course in the slaughtering of farm animals, the cutting of carcasses, and the preparation and curing of meats. Laboratory fee, \$2.

### BACTERIOLOGY

**1. General Bacteriology.** First term. Credit six hours. Lectures, recitations and laboratory practice, M W F 1.40-5. Dairy Industry Building 218 and 301. Professor STARK, Mrs. STARK, Mr. GUNSALUS, and assistants.

An introductory course; a general survey of the field of bacteriology, with the fundamentals essential to further work in the subject. Laboratory fee, \$15.

**3. Agricultural Bacteriology.** First term. Credit three hours. Lectures, M W F 9. Dairy Industry Building 218. Professor STARK.

The elements of bacteriology, with a survey of the relation of microorganisms to agriculture.

### BOTANY

**1. General Botany.** First and second terms. Credit three hours a term. Lectures, T Th 9 or 11. Plant Science 233. Laboratory, one period of two and one-half hours. Plant Science 240, 242, 262. Professor PETRY, Doctors LAUBENGAYER and PALMQUIST, Messrs. BANKS, JUSTICE, PALMATIER, WILLIAMS, and BERNSTEIN, and Miss ANDERSON.

A survey of the fundamental facts and principles of plant life. The work of the first term deals with the structures and functions of the higher plants, with special emphasis on their nutrition. The work of the second term traces the evolution of the plant kingdom, as illustrated by representatives of the principal groups, and concludes with a brief introduction to the principles of classification of the flowering plants. Laboratory fee, \$3.50 a term.

**31. Plant Physiology.** First or second term. Credit four hours. Lectures, T Th 10. Plant Science 233. Laboratory, T Th 1.40-4 or W F 1.40-4. Plant Science 227. Professor KNUDSON or Professor O. F. CURTIS, Assistant Professor HOPKINS, Dr. CLARK, and Mr. O. F. CURTIS, jr.

This course is designed to acquaint the student with the general principles of plant physiology. Topics such as water relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, growth, and reproduction are studied in detail. In both laboratory and recitations emphasis is placed on discussion of the principles taught and on their applications. Laboratory fee, \$4; deposit, \$3.

### DAIRY INDUSTRY

**1. Introductory Dairy Science.** First or second term. Credit three hours. Lectures, T Th 11. Dairy Industry Building 218. Laboratory: first term, M or F 1.40-4.30 or S 9-12; second term, M or Th 1.40-4.30. Dairy Industry Building 209. Professor HERRINGTON and Messrs. HOLLAND and STEELE.

The scientific and practical aspects of milk, and a survey of the dairy industry. Especial attention is given to the composition of milk and its physical and chemical properties, quantitative tests for fat and other constituents, and qualitative tests for preservatives and adulterants. Laboratory fee, \$7.

**2. Elementary Dairy Industry.** Second term. Credit three hours. Lecture and laboratory practice, S 8-1. Dairy Industry Building 119. Professor GUTHRIE.

A special course in milk testing and market dairying adapted to the needs of non-degree students in dairy farming. Laboratory fee, \$7.

**102. Market Milk and Milk Inspection.** Second term. Credit five hours. Lecture and laboratory practice, M W 12-5 or T Th 1-6. Dairy Industry Building 218 and 146. Professors ROSS and BRUECKNER and Assistant Professor AYRES.

The scientific, technical, and sanitary aspects of the fluid milk industry. Laboratory fee, \$10.

**108. Commercial Grades of Dairy Products.** Second term. Credit one hour. Lectures, recitations, and laboratory, T 8-10 p.m. Professor GUTHRIE and Assistant Professor AYRES.

The classification of dairy products and the factors involved in grading them.

## DRAWING

1. **Mechanical Drawing.** First or second term. Credit three hours. Lectures during laboratory periods. Laboratory: section 1, W F 1.40-4, or section 2, Th 1.40-4 and S 10.30-12.50. Two additional practice periods to be arranged to suit the schedule of the student. Dairy Industry Building, Fourth Floor. Student must apply at the time of registration regarding materials required. Assistant Professor REYNA.

A course dealing with the principles and practices involved in the art of conveying information by graphical methods. The work includes use of instruments; lettering; orthographic projection involving plans, elevations, and sections; isometric drawing; and the practical applications of these principles to simple problems. This course may well be taken early by students interested in agricultural engineering. Laboratory fee, 50 cents.

11. **Free-Hand Drawing.** First and second terms. Credit from two to four hours a term. One hour of credit means three hours of actual practice. Lectures during practice. Practice by appointment, daily 9-12.50 and 1.40-4, except F afternoon and S morning. East Roberts 371. Assistant Professor GARRETT and Mr. \_\_\_\_\_.

An elementary course for the development of graphic expression applicable to scientific studies. Of special value to those who expect to enter the field of teaching, nature study, or biological research.

## ENTOMOLOGY

42. **Elementary Economic Entomology.** Second term. Credit three hours. Lectures, T Th 9. Practical exercise, T or Th 1.40-4. Comstock 100. Professor READIO and Mr. MIDDLEKAUFF.

The course includes lectures, conferences, and discussions, on the life histories and habits of injurious insects, together with methods of control. The practical exercises include a study of the more important insecticides and of as many of the common pests as time permits. Laboratory fee, \$2.

## EXTENSION TEACHING

1. **Oral and Written Expression.** Throughout the year. Credit three hours a term. Lectures, and practice, M W F 8 or 9, Roberts 131; M W F 8, Roberts 392; M W F 11, Comstock 245. Criticism, by appointment, daily 8-1. Professor PEABODY and Messrs. PHILLIPS, GOODRICH, and BARNUM.

Practice in oral and written presentation of topics in agriculture, with criticism and individual appointments on the technic of public speech. Designed to encourage interest in public affairs, and, through demonstrations and the use of graphic materials and other forms, to train for effective self-expression in public. Special training is given to competitors for the Eastman Prizes for Public Speaking and the Rice Debate Stage. In addition, some study is made of representative works in English literature. Part of the work in the second term is a study of parliamentary practice.

## FLORICULTURE AND ORNAMENTAL HORTICULTURE

## FLORICULTURE

1. **Principles and Methods of the Propagation and Management of Greenhouse Crops.** First term. Credit three hours. Lectures, M W 10. Plant Science 37. Practice, T or Th 1.40-4. Plant Science 15 and greenhouses. Assistant Professor POST and Mr. ALLEN.

An elementary course in commercial flower growing, intended to acquaint students with the scientific principles and floricultural methods governing the propagation and culture of flowering plants under glass. The construction, heating, and equipment of greenhouses is also studied. Laboratory fee, \$4; deposit, \$2.

101. **Commercial Floriculture.** First and second term. Credit four hours a term. Lectures and recitations, M W F 9. Plant Science 22. Practice, W 1.40-4. Greenhouses. Assistant Professor POST.

The first term consists of a comprehensive study of the principles underlying the culture of greenhouse plants. The second term is devoted to a study of the

culture of greenhouse crops such as are grown by florists for commercial growers. Special attention is given to the methods of culture, timing the crop, packing, shipping, and to the cost of production. The class is required to participate in a fall and spring trip to near-by commercial greenhouses. Laboratory fee, \$3 a term.

**103. Wholesaling and Retailing Flowers.** Second term. Credit two hours. Lectures, M 11. Practice, M 1.40-4. Plant Science 22. Mr. KEYES.

This course is planned with the view of giving students a thorough knowledge of methods of retail-store management, store equipment, salesmanship, business methods, delivery, decorating for all functions, flower arrangement and the making of designs, methods of conducting cooperative flower exchanges, and wholesale markets. A required trip to Rochester, to visit wholesale establishments and retail stores, is made about May 1. Laboratory fee, \$7.

#### PLANT MATERIALS

**3a. Herbaceous Plant Materials.** Second term. Credit two hours. Lectures, T 8. Plant Science 37. Practice, T or Th 1.40-4. Plant Science 15 and gardens. Messrs. ALLEN and ———.

A study of the ornamental herbaceous plants used in landscape and garden plantings. Emphasis is placed on the identification and uses of spring and early-summer flowering perennials. All members of the class are required to participate in an excursion to Rochester parks and gardens. Laboratory fee, \$4.

**3b. Herbaceous Plant Materials.** First term. Credit one hour. Prerequisite, course 3a. Practice, W 10-12 or F 11-1. Plant Science 15 and gardens. Messrs. ALLEN and ———.

A continuation of course 3a dealing with annuals and late summer and fall-flowering perennials. Principles of the arrangement of herbaceous plants are studied. Laboratory fee, \$2.

**8. Woody-Plant Materials.** First and second terms. Credit two or four hours a term. Lectures, T Th 9. Plant Science 37. Laboratory and field trips, M and W or F 1.40-4. Plant Science 29. Professor R. W. CURTIS and Doctor PRIDHAM.

A study of the trees, shrubs, and vines used in landscape planting and in nursery work. All members of the class are required to participate in two excursions to the Rochester parks and gardens, one in the spring and one in the fall. Laboratory fee, \$4 a term.

**112. Lawn-making and Green-keeping.** Second term. Credit two hours. Prerequisite, course 8, Agronomy 1, and permission to register. S 8-1. Plant Science 29. Professor R. W. CURTIS.

This course deals with the principles, practices, and materials which have to do with the construction and maintenance of lawns and greens. It is a survey course, and includes a term report assigned to each student. Two inspection trips are taken late in the spring, first to the Arlington Turf Garden near Washington, D. C., and to golf courses at Philadelphia, Pennsylvania, and Utica, New York.

#### PLANT PROPAGATION AND NURSERY MANAGEMENT

**7. Plant Propagation.** First term. Credit three hours. Lectures, T Th 11. Practice, S 8-10.30 or 10.30-12.50. Plant Science 40, greenhouses, and nurseries. Mr. SKINNER.

This course is planned for both the general students and those specializing in floriculture and ornamental horticulture. It consists of a study of the elementary methods of plant propagation, and the care of the plant stocks produced. All members of the class are required to participate in an excursion to nurseries in Newark or vicinity early in November. Laboratory and excursion fee, \$5.

#### NURSERY LANDSCAPE SERVICE

**10. A Brief Introduction to Landscape Design and Ornamental Horticulture.** Second term. Credit three hours. Open to general election and required of students specializing in ornamental horticulture. Lectures, M W F 9. Plant Science 233. Acting Professor PORTER and members of the staff.

A discussion of the first principles of ornamental horticulture and landscape improvement as related to the problems of the small-residence property.

**113. Landscape Work on Small Properties.** First term. Credit three hours. Lecture, T 10. Plant Science 141. Laboratory, T 1.40-4 and F 10-12.50. Plant Science 433. Acting Professor PORTER and Mr. REICH.

A study of the arrangement of small properties. Laboratory fee, \$2.50.

**115. Planting Design.** First term. Credit four hours. Lecture, W 9. Plant Science 141. Laboratory, M S 10-12.50 and W 1.40-4. Plant Science 433. Acting Professor PORTER and Mr. REICH.

A study of the nature and characteristics of woody-plant materials in their relation to planting arrangements. The grouping of plants to produce serviceable as well as beautiful designs and compositions. A study of form, color, texture, and habit. Laboratory fee, \$2.

## FORESTRY

**1. The Farm Woodlot.** First term. Credit three hours. Lecture, W F 11. Fernow 122. Practice, M 1.40-4. Fernow 206. Professor RECKNAGEL.

A course covering those phases of forestry that are applicable to the farm woodlot. Identification of the principal trees of this region; measurement of logs, trees, and stands; nursery work, forest planting, thinning, and improvement cuttings; the preservative treatment of farm timbers. Laboratory fee, \$1.

## METEOROLOGY

**1. Elementary Meteorology.** First or second term. Credit three hours. Lectures, T Th 11. Plant Science 143. Laboratory, T W Th or F 1.40-4 or S 8-10.20. Plant Science 114. Professor MORDOFF and Mr. GRAVES.

A course designed to acquaint the student with the principles of the general and secondary circulation of the atmosphere; the elements of weather and climate; practical weather forecasting from weather maps and local observations. Laboratory fee, \$2.

## PLANT BREEDING

**103. Plant Breeding.** Second term. Credit three hours. Lectures, T Th 8. Lecture and practice, S 8-10. Plant Science 141. Professor C. H. MYERS.

A general study of the principles and practices of plant breeding; hybridization, selection, seed production, and distribution in relation to crop improvement; development of methods for different types of plants; lectures supplemented by periods in the greenhouse and experimental fields.

## PLANT PATHOLOGY

**1. General Plant Pathology.** First or second term. Credit three hours. Lecture, W 8. Plant Science 336. Practice and conferences, any two periods, T W Th F 1.40-4. Plant Science 336, 341, 343, and 362. Professor WHETZEL, Assistant Professor WELCH, and Messrs. SPROSTON, H. F. FITZPATRICK, CHANDLER, and WATSON.

A fundamental course treating of the nature, cause, and control of plant diseases, illustrated by studies of the commoner diseases of cultivated crops. Laboratory fee, \$4.50; breakage deposit, \$3.

## POMOLOGY

**1. General Pomology.** First or second term. Credit three hours. Lectures, T Th 8. Plant Science 233. Laboratory: first term, W Th or F 1.40-4; second term, M T W Th or F 1.40-4. Plant Science 107. Professor HEINICKE, Assistant Professors SMOCK and BOYNTON, and Messrs. SAVAGE, VAN DOREN, and LOUSTALOT.

A study of the general principles and practices in pomology; propagation and care of orchard trees and small fruits; harvesting, storing, and marketing fruit; practical work in budding, grafting, pruning, and planting; study of varieties, growth, and fruiting habits. Laboratory fee, \$1.50.

**2. Fruit Varieties.** First term. Credit two hours. Lecture, T 8. Laboratory, T 9 and Th 8-10 or T 1.40-4. Plant Science 107. Professor MACDANIELS and Mr. SAVAGE.

A study of the most important varieties of apples, pears, peaches, plums, grapes, and small fruits from the standpoint of their identification, growth, characters,

regional adaptation, season of ripening, storage quality, and other matters of a similar nature. A part of the time is given to the judging of exhibition fruit, and the Farm and Home Week fruit exhibit set up by the students in this course. Laboratory fee, \$1.50.

**111. Packing and Storage of Fruit for Market.** First term. Credit two hours. Lecture, S 8. Laboratory, S 9-11.30 or M 1.40-4. Plant Science 107 and the packing house. Assistant Professor SMOCK and Mr. VAN DOREN.

The important factors in harvesting and handling fruit that affect quality and marketability are studied. Particular emphasis is placed on the practices and problems of handling apples, but the work covers also such fruits as peaches, pears, and grapes, in so far as these are available. The effect of grades and packages on distribution and marketing is fully discussed, and consideration is given to some of the problems of market inspection. The principles and practices of common, cold, and freezing storage are considered. Laboratory fee, \$1.50.

**112. Advanced Laboratory Course.** Second term. Credit two hours. S 8-1. Plant Science 107. Professors HEINICKE and MACDANIELS.

This course is designed to give more extended practice in the various orchard operations than can be given in course 1. Special attention is given to problems of pruning, tree surgery, bracing, orchard-soil selection and management, and spray practice.

## POULTRY HUSBANDRY

**1. Farm Poultry.** First term. Credit three hours. Lectures, M W F 10. Poultry Husbandry Building 300. One recitation to be arranged. Poultry Husbandry Building 305. Assistant Professor HALL, assisted by other members of the staff.

A general course dealing with the practical application of the principles of poultry husbandry to general farm conditions.

**110. Poultry Nutrition.** Second term. Credit three hours. Lectures, T Th 9. Laboratory, T or W 1.40-4. Poultry Husbandry Building 305. Professors HEUSER.

The principles of poultry nutrition and their application to poultry-feeding management.

**20. Poultry Breeds, Judging and Breeding.** First term. Credit three hours. Lectures or recitations, M W 11. Poultry Husbandry Building 305. Laboratory, M or T 1.40-4. Breed-Observation House. Assistant Professor HALL.

The origin, history, and classification of breeds of domestic poultry; introduction to breeding; judging the principal breeds. A trip is made to one of the leading poultry shows. Laboratory fee, \$2.

**30. Incubation and Brooding.** Second term. Credit three hours. Lectures, W F 10. Laboratory, Th or F 1.40-4. Poultry Husbandry Building 100. Assistant Professor BRUCKNER.

Principles and practice of incubation and brooding of domestic and game birds; problems of hatchery management.

**50. Market Eggs and Poultry.** Second term. Credit two hours. Lecture, M 10. Laboratory, M or T 1.40-4. Poultry Husbandry Building 100. Assistant Professor HALL.

A detailed study of the interior and exterior qualities of eggs; abnormalities; egg grades and standards; practice in candling, grading, and packing. Grades and standards of market poultry; killing, dressing, and packing. General market information. Laboratory fee, \$2.

**170. Poultry Hygiene and Disease.** First term. Credit two hours. Lectures, T Th 10. James Law Hall. Dr. LEVINE.

The course deals with the nature of the infectious and parasitic diseases of poultry and with the principles of hygiene applicable to poultry farming for the prevention and control of diseases.

## VEGETABLE CROPS

**1. Vegetable Crops.** Second term. Credit three hours. Lectures, M W 11. East Roberts 222. Laboratory, M T or W 1.40-4. Vegetable greenhouse and East Ithaca Gardens. Professor WORK.

A general study of the principles of vegetable growing and handling, giving a comprehensive survey of the industry. Intended for the student who desires a brief general course, and as an introductory course for the student who wishes to specialize in commercial vegetable growing. Economic importance, geography, cultural requirements, marketing, storage, and uses of the important vegetables. A one-day trip is required; approximate cost, \$2. Laboratory fee, \$2.

2. **Special Cash Crops.** Second term. Credit three hours. Lectures, T Th 10. East Roberts 222. Laboratory, T W or Th 1.40-4. East Roberts 223. Professor HARDENBURG.

A study of those crops that are grown in New York principally as cash crops and for manufacture, including potatoes, field beans, field cabbage, and the important canning crops, peas, tomatoes, sweet corn, and snap beans. About one-half of the term's work is devoted to potatoes. A visit to near-by bean elevators is required; approximate cost, \$1. Laboratory fee, \$2.

12. **Grading and Handling Vegetable Crops.** First term. Credit three hours. Lectures, T Th 10. East Roberts 222. Laboratory, T W or Th 1.40-4. East Roberts 223, Vegetable greenhouse, and East Ithaca gardens. Professor WORK.

Geography of vegetable production and distribution, factors of environment, culture, and handling as affecting quality, condition, and marketing of vegetable crops. Harvesting, grades and grading, packing, shipping-point and terminal-market inspection, transportation, refrigeration, and storage are discussed with reference to the various crops. A two-day trip is required; maximum cost, \$8. Laboratory fee, \$2.50.

113. **Types and Varieties of Vegetables.** First term. Credit three hours. Lecture and laboratory, M 1.40-4. East Ithaca gardens or East Roberts 223. Professor WORK.

One week of laboratory work preceding the beginning of regular instruction is required, from September 22 to 28, 1938. Report at East Ithaca at 9 a. m., September 22. The department should be notified of intention to register in this course.

This course deals with the taxonomy, origin, history, characteristics, adaptations, identification, classification, exhibition, and judging, of kinds and varieties of vegetables; the characteristics, production, and handling of vegetable seeds. The leading varieties of the vegetable crops are grown each year. The value of the course depends to a great extent upon gaining an acquaintance with the plant material as it grows. For this reason, part of the laboratory work is done in the gardens prior to and during registration week. Laboratory fee, \$2.

## COURSES IN OTHER COLLEGES

102. **General Chemistry.** Throughout the year. Credit three hours a term. Both terms of the course must be completed to obtain credit unless the student is excused by the department. Open only to those students who do not offer entrance chemistry. Lecture, Th or F 11. Baker, Main Lecture Room. Recitation, one hour a week to be arranged. Laboratory, M T W Th or F 1.40-4. Professors BROWNE and LAUBENGAYER and assistants.

This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds. Deposit, \$11 each term.

104. **General Chemistry.** Throughout the year. Credit three hours a term. Both terms of the course must be completed to obtain credit unless the student is excused by the department. Prerequisite, entrance credit in chemistry. Lecture, M or T 11. Baker, Main Lecture Room. Recitation, one hour a week to be arranged. Laboratory, M T W Th or F 1.40-4. Professor LAUBENGAYER, Doctor HOARD, and assistants.

This course deals with the fundamental laws and theories of chemistry and the properties of the more common elements and their compounds. Deposit, \$11 each term.