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New York State College of Agriculture Announcement for 1950-1951 Sessions in the Two-Year Courses

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*On leave fall term.

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John Peter Willman, Ph.D., Professor of Animal Husbandry.

*On leave fall term.

New York State College of Agriculture
Two-Year Courses

The New York State College of Agriculture is maintained by the State as one of four state colleges or schools within Cornell University. It is equipped with a staff and facilities to teach resident students, to make investigations in all phases of agriculture and the underlying sciences, and to disseminate 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 placed at the disposal of the College by Cornell University.

GENERAL INFORMATION

THE COURSES AVAILABLE

The information contained in this announcement relates to the two-year courses. They 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 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 to Cornell University in subjects credited by the University of the State of New York toward a state diploma, or in the case of applicants whose secondary-school training has been outside New York State, the equivalent by school certificates. It is recommended that at least 1 unit shall be in mathematics. 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 the Director of Admissions, Administration Building, 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, because it often takes considerable time to procure the necessary credentials.

CERTIFICATION 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 FOUR-YEAR COURSE

Except in respect to the items of administration and curriculum specifically covered in this announcement, students in these courses 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 one of these curricula 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 record and on completion of the curriculum. The record must be considerably better than average. Students who transfer 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 time of their admission 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 $150 a 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 other 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 students will be assessed a fee of $2. A financial reinstatement fee of $5 will be assessed 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 Treasurer 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 deposit of $30 must be made after the applicant has received notice of provisional acceptance. Of this deposit, $18 is used as a matriculation fee; $12 is used as a guaranty fund to be returned, less any indebtedness to the University, upon permanent withdrawal or graduation.

A *deposit of $20* is required for a uniform, payable at registration in the first term, in the Basic Course in Military Science. Most of this deposit is returned as earned uniform allowance upon completion of the Basic Course.

A University and College Composite fee of $51.50 is required of every student at the beginning of each term. This fee covers the following services:

Infirmary and Health Clinic. For a statement of the privileges given, see the *General Information* booklet.

Willard Straight Hall membership. Willard Straight Hall is the student union; each student shares in the common privileges afforded by the operation of Willard Straight Hall, subject to regulations approved by the Board of Managers of the Hall.

Laboratory services for courses taken in the State colleges.

University administration and endowed college laboratory services.

Physical recreation. Each male student is entitled to the use of the gymnasium and the University playgrounds, and to the use of a locker, bathing facilities, and towels, in the gymnasium, Barton Hall, or the Schoellkopf Memorial Building; and a woman student to the use of the women's gymnasium, recreation rooms, and playgrounds, and to the use of a locker.

Student activities. This fee provides funds for worthy student organizations as approved by the Board of Trustees on recommendation of the Student Council.

Books, instruments, and *instructional supplies* may cost from $25 to $50 a term.

LIVING ACCOMMODATIONS

FOR MEN

Approximately 1800 spaces are available in the men's Residential Halls. These rooms are in both temporary and permanent dormitories, and accommodate one, two, or three persons. All rooms are completely furnished, including bedding and bed linen. The range of prices in the temporary units is from $166 to $218 a year; in the permanent units, from $225 to $323 a year. Application for assignment to space in the men's Residential Halls should be addressed to the Manager of Residential Halls, Administration Building, Cornell University, Ithaca, New York.

No dining rooms are operated in the men's Residential Halls, but meals are obtainable at any of the cafeterias or dining rooms on the campus; or in the restaurants and cafeterias within the city. From $12 to $14 a week is the minimum allowance recommended for meals, and many students spend more than that.

Off-campus housing may be obtained in private homes and rooming houses. While most of these are on East Hill and adjacent to the campus, some are downtown. Prices of off-campus accommodations range, in general, from $6 to $8 weekly for single rooms, and from $10 to $14 weekly for double rooms. The number of privately owned homes that offer both room and board is few, and the majority of students utilize the same eating places as outlined for use of men living in Residential Halls.

The University anticipates the publication about August 1 of a list of off-campus residences that have been inspected and approved. Approval is based on good sanitary arrangements, adequate fire protection, and both satisfactory furniture and living conditions. If a student rents a room not on this list, he should make sure, through personal inspection, that these requirements are satisfactory.

Students planning to live off-campus are advised to come to Ithaca prior to registration to complete room arrangements. Students are us-

ually requested to sign contracts for the full college year, and the details of such agreements should be clearly understood at the outset.

Inquiries on off-campus housing should be addressed to the Off-Campus Housing Office, Department of Residential Halls, Administration Building, Cornell University, Ithaca, New York.

THE CURRICULA

The two-year course has organized within it eight curricula giving preparation for the major types of farming in New York State and for certain allied business. A two-year student must select one of these curricula and follow closely the work 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.

All two-year men students must register for the Basic Course in Military Science. Men and women are required to register for Physical Training. These courses are described in the *Announcement of the Independent Departments.*

Requests for further information regarding these curricula should be addressed to L. H. Harden, in charge of admissions in the College of Agriculture, Roberts Hall, Ithaca, New York.

CURRICULUM IN DAIRY FARMING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Animal Husbandry 1 (Introductory Livestock Production)	3
Agricultural Economics 2 (Agricultural Geography)	4
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Military Science	
Physical Training	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Agronomy 2 (Introduction to Field Crops)	3
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	6 or 7
Suggested:	
Agricultural Engineering 1	
Agricultural Engineering 103	
Vegetable Crops 1, 2	

SECOND YEAR

Animal Husbandry 10 (Livestock Feeding) 4
Animal Husbandry 20 (Animal Breeding) 3
Animal Husbandry 50 (Dairy Cattle) 4
Military Science .....
Physical Training .....
Agricultural Elective 3
Suggested:
Agricultural Economics 126
Agricultural Engineering 31, 102
Botany 1
Entomology 42
Poultry Husbandry 1

Agricultural Economics 102 (Farm Management) 5
Animal Husbandry 30 (Health and Diseases of Animals) 3
Animal Husbandry 150 (Dairy Cattle, Advanced Course) 3
Military Science .....
Physical Training .....
Agricultural Elective .....5 or 6
Suggested:
Agricultural Economics 144

CURRICULUM IN GENERAL LIVESTOCK FARMING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Animal Husbandry 1 (Introductory Livestock Production)	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Military Science	
Physical Training	
Agricultural Elective .....3 or 5	
Suggested:	
Agricultural Economics 2	
Agricultural Engineering 1, 40	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Animal Husbandry 10 (Livestock Feeding)	4
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	6
Suggested:	
Agricultural Engineering 103	
Agronomy 2	
Animal Husbandry 60, 70	

SECOND YEAR

Animal Husbandry 20 (Animal Breeding) 3
Animal Husbandry 80 (Sheep)..... 3
Poultry Husbandry 1 (Farm Poultry) 3
Military Science .....
Physical Training .....
Agricultural Elective 6
Suggested:
Animal Husbandry 50
Entomology 42
Pomology 1

Agricultural Economics 102 (Farm Management) 5
Animal Husbandry 30 (Health and Diseases of Animals) 3
Military Science .....
Physical Training .....
Agricultural Elective .....6 or 7
Suggested:
Animal Husbandry 90
Vegetable Crops 2

CURRICULUM IN POULTRY FARMING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Poultry Husbandry 1 (Farm Poultry)	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Military Science	
Physical Training	
Agricultural Elective	4 or 5
Suggested:	
Agricultural Economics 2	
Agricultural Engineering 1, 40	
Animal Husbandry 1	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Poultry Husbandry 50 (Market Eggs and Poultry)	2
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	6 or 8
Suggested:	
Pomology 1	

SECOND YEAR

Poultry Husbandry 20 (Breeds, Breeding, and Judging)	3
Poultry Husbandry 30 (Incubation and Brooding)	3
Bacteriology 3 (Agricultural)	3
Military Science	
Physical Training	
Agricultural Elective	6
Suggested:	
Agricultural Engineering 31	

Poultry Husbandry 110 (Poultry Nutrition)	3
Agricultural Economics 102 (Farm Management)	5
Agricultural Economics 144 (Marketing Poultry, Eggs, and Livestock)	3
Military Science	
Physical Training	
Agricultural Elective	4

CURRICULUM IN FRUIT GROWING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Botany 1	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Military Science	
Physical Training	
Agricultural Elective	3–6
Suggested:	
Agricultural Economics 2	
Animal Husbandry 1	
Poultry Husbandry 1	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Botany 1	3
Agronomy 6 (Soils)	3
Pomology 1 (General)	3
Military Science	
Physical Training	
Agricultural Elective	3

SECOND YEAR

Pomology 111 (Handling, Storage, and Utilization of Fruit)	3
Pomology 102 (Fruit Varieties)	3
Agricultural Economics 142 (Marketing Fruits and Vegetables)	4
Entomology 42 (Elementary Economic Entomology)	3
Military Science	
Physical Training	
Agricultural Elective	3
Agricultural Economics 102 (Farm Management)	5
Agricultural Engineering 1 (Farm Mechanics)	3
Plant Pathology 1 (Elementary)	3
Pomology 112 (Advanced Laboratory Course)	2
Military Science	
Physical Training	
Agricultural Elective	3

CURRICULUM IN VEGETABLE GROWING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Botany 1	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Agricultural Economics 2 (Agricultural Geography)	4
Military Science	
Physical Training	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Vegetable Crops 1	4
Vegetable Crops 2	3
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	3
Suggested:	
Agricultural Engineering 103	
Botany 1	
Pomology 1	

SECOND YEAR

Vegetable Crops 12 (Post-Harvest Handling)	3
Entomology 42 (Elementary Economic Entomology)	3
Military Science	
Physical Training	
Agricultural Elective	9
Suggested:	
Agricultural Economics 142	
Animal Husbandry 1, 50	
Bacteriology 3	
Floriculture 1	
Pomology 111	
Poultry Husbandry 1	
Agricultural Economics 102 (Farm Management)	5
Plant Pathology 1 (Elementary)	3
Military Science	
Physical Training	
Agricultural Elective	6 or 7
Suggested:	
Agricultural Engineering 1, 42	
Animal Husbandry 10	

CURRICULUM IN GENERAL FARMING

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Agricultural Economics 2 (Agricultural Geography)	4
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Military Science	
Physical Training	
Agricultural Elective	3
Suggested:	
Animal Husbandry 1	
Poultry Husbandry 1	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Agricultural Engineering 1 (Farm Mechanics)	3
Agronomy 2 (Introduction to Field Crops)	3
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	3 or 4
Suggested:	
Pomology 1	
Vegetable Crops 1	

SECOND YEAR

Animal Husbandry 10 (Livestock Feeding)	4
Animal Husbandry 20 (Animal Breeding)	3
Animal Husbandry 50 (Dairy Cattle)	4
Military Science	
Physical Training	
Agricultural Elective	3 or 6
Suggested:	
Agricultural Economics 126	
Agricultural Engineering 102	
Botany 1	
Entomology 42	

Agricultural Economics 102 (Farm Management)	5
Military Science	
Physical Training	
Agricultural Elective	9 or 11
Suggested:	
Agricultural Engineering 42, 103	
Botany 1	
Vegetable Crops 2	

CURRICULUM IN COMMERCIAL FLORICULTURE

Students who take this curriculum are expected to enroll in the six-weeks Summer Session at Cornell University between the first and second years. Tuition is charged in the Summer Session.

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Botany 1	3
Floriculture and Ornamental Horticulture 1 (General)	3
Military Science	
Physical Training	
Agricultural Elective	0–3
Suggested:	
Agricultural Economics 2	
Agricultural Engineering 40	

Spring term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Botany 1	3
Floriculture and Ornamental Horticulture 2 (Introduction to Landscape Design)	3
Floriculture and Ornamental Horticulture 5 (Flower Arrangement)	2
Agronomy 6 (Soils)	3
Military Science	
Physical Training	
Agricultural Elective	0–3
Suggested:	
Agricultural Engineering 21	

SUMMER SESSION

Floriculture and Ornamental Horticulture A12 (Herbaceous Plant Materials	2
Botany A31 (Plant Physiology)	4

SECOND YEAR

Floriculture and Ornamental Horticulture 123 (Florist Crop Production)	4
Floriculture and Ornamental Horticulture 115 (Plant Propagation)	3
Entomology 42 (Elementary Economic Entomology)	3
Military Science	
Physical Training	
Agricultural Elective	5 or 6
Suggested:	
Agricultural Economics 141	
Agricultural Engineering 40	

Floriculture and Ornamental Horticulture 124 (Commercial Greenhouse Production)	3
Floriculture and Ornamental Horticulture 125 (Flower-Store Management)	2
Plant Pathology 1 (Elementary)	3
Floriculture and Ornamental Horticulture 12 (Herbaceous Plant Materials)	3
Floriculture and Ornamental Horticulture 126 (Orchid Culture)	1
Military Science	
Physical Training	
Agricultural Elective	3

CURRICULUM IN NURSERY LANDSCAPE SERVICE

Students who take this curriculum are expected to enroll in the six-weeks Summer Session at Cornell University between the first and second years. Tuition is charged in the Summer Session.

FIRST YEAR

Fall term	*Hours credit*
Extension Teaching 1 (Oral and Written Expression)	3
Biochemistry 2 (Introductory Agricultural Chemistry)	5
Botany 1	3
Floriculture and Ornamental Horticulture 1 (General)	3
Drawing 10 (Drawing for Landscape Students)	2
Military Science	
Physical Training	

Spring term	*Hours credit*
Extension Teaching 1 Oral and Written Expression)	3
Floriculture and Ornamental Horticulture 13 (Woody-Plant Materials)	4
Botany 1	3
Floriculture and Ornamental Horticulture 2 (Introduction to Landscape Design)	3
Drawing 10 (Drawing for Landscape Students)	2
Military Science	
Physical Training	
Agricultural Elective	0–3
Suggested:	
Agricultural Engineering 21	
Floriculture 114 (Required in first or second year)	

SUMMER SESSION

Floriculture and Ornamental Horticulture A12 (Herbaceous Plant Materials	2
Botany A31 (Plant Physiology)	4

SECOND YEAR

Entomology 42 (Elementary Economic Entomology)	3
Floriculture and Ornamental Horticulture 115 (Plant Propagation)	3
Floriculture and Ornamental Horticulture 32 (Elementary Design and Planting of Small Properties)	3
Floriculture and Ornamental Horticulture 119 (Planting and Maintenance of Ornamental Plants)	3
Military Science	
Physical Training	
Agricultural Elective	3 or 4
Suggested:	
Agricultural Economics 2	
Plant Pathology 1 (Elementary)	3
Floriculture and Ornamental Horticulture 117 (Commercial Nursery Management)	3
Agronomy 6 (Soils)	3
Rural Education 10 (Psychology)	3
Military Science	
Physical Training	
Agricultural Elective	2 or 3
Suggested:	
Floriculture 114	
Pomology 1	

Description of Courses

The courses described in the following pages are those required in one or more of the preceding curricula. They are 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.* The work given in several of the departments is not required in these 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 prerequisites will have been met if the courses are taken in the order in which they are listed. One should consult the four-year announcement for course prerequisites before making any change in the order of schedule.

AGRICULTURAL ECONOMICS

2. *AGRICULTURAL GEOGRAPHY.* Fall term. Credit four hours. Lectures, M W F 9 or 11. Warren 25. Discussions, W Th or F 2–4 or W or Th 7–9 p.m. Warren 325. Professor DEGRAFF.

Historical perspective on present-day agriculture; adjustment of agriculture to natural and to economic environment; crop and livestock production in New York State, the United States, and other countries; interregional trade in agricultural products.

102. *FARM MANAGEMENT.* Spring term. Credit five hours. Not open to first-year students. Lectures, M W F 10. Warren 25. Laboratory, T W Th or F 2–4. Warren 101. On days when farms are visited, the laboratory period is from 2–6. Professor WARREN.

Farming as a business; farm accounts; factors affecting profits; size of business; choice of enterprises; form of tenure and leases; methods of getting started in farming; choosing a farm; planning the organization and management of specific farms. One all-day trip and four half-day trips are taken to visit farms in near-by regions.

[122. *ACCOUNTING METHOD.* Spring term. Credit three hours.] Not given in 1950–51.

For persons who wish to understand the records and procedures commonly used in keeping accounts of cooperatives and other businesses. Recording business transactions and deriving financial statements, analysis of costs and budgets.

126. *FARMERS' COOPERATIVES.* Fall term. Credit three hours. Lectures, M W 10. Warren 25. Discussion, W or Th 2–4. Warren 225. Professor HEDLUND.

What cooperatives are, what they have tried to do, and what they have done; their special problems of organization, finance, and control.

141. *MARKETING.* Spring term. Credit three hours. Lectures, M W 10. Warren 25. Discussion, W or Th 2–4. Warren 225. Associate Professor BRUNK.

Development of agricultural marketing; characteristics of consumer demand; peculiarities of agricultural supply; and the costs, functions, and services involved in the marketing of farm products.

142. *MARKETING FRUITS AND VEGETABLES.* Fall term. Credit four hours. Lectures, M W F 9. Warren 225. Laboratory, W or F 2–4. Warren 25. 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 ratings; terminal problems; aspects of retailer- and consumer-demand.

144. *MARKETING POULTRY, EGGS, AND LIVESTOCK.* Spring term. Credit three hours. Lectures, T Th 10. Discussion Th 2–4. Warren 225. Associate Professor DARRAH.

A study of the economic factors involved in the marketing of poultry, eggs, hogs, cattle, and sheep. Subjects to be discussed include demand for and supply of poultry, eggs, and livestock; ways to balance demand and supply; marketing systems; marketing costs; and ways to reduce marketing costs. One all-day and two half-day field trips are taken during the term.

AGRICULTURAL ENGINEERING

1. *FARM MECHANICS.* Fall or spring term. Credit three hours. Lectures: T Th 10, fall term, Stocking 218; spring term, Rice 300. Laboratory, M T W Th F 2–4:30 or S 8–10:30. Agricultural Engineering Laboratories. Professor JENNINGS and assistants.

A course planned to give training in understanding the farm application of mechanical methods and appliances and to develop ability to think and to reason in terms of these. It covers such farm equipment as pumps, water systems, plumbing, hoists and elevators, farm wiring and motors, refrigeration, and air fans.

102. *FARM POWER.* Fall term. Credit three hours. Prerequisite, course 1, or Physics 103 and 104, or the equivalent. Lectures, T Th 11. Rice 300. One recitation period a week to be arranged. Laboratory, M T W or Th 2–4:30. Agricultural Engineering Laboratories. Associate Professor SHEPARDSON and assistants.

A study of the principles of operation and adjustment of internal combustion engines and their farm applications. Principal emphasis on farm tractors, including care and operation, power transmission, power requirements, and economic factors.

103. *FIELD MACHINERY.* Spring term. Credit three hours. Prerequisite, course 1, or Physics 103 and 104, or the equivalent. Lectures, T Th 11. Rice 300. One recitation period a week to be arranged. Laboratory, M T W or Th 2–4:30. Agricultural Engineering Laboratories. Associate Professor SHEPARDSON and assistants.

A study of the use, care, operation, and adjustment of farm field machines. Machines in each of the major groups, tillage, seeding, harvesting, processing, spraying and dusting, fertilizing, and crop loading are included.

21. *SURVEYING.* Fall or spring term. Credit three hours. Prerequisite, Trigonometry. Lectures, M W 10. Recitation, F 10. Laboratory, M T or W 2–4:30. Agricultural Engineering Research Laboratory, Tower Road, and field. Assistant Professor GRAY.

A study of the use and care of levels, transits, and plane tables, with special emphasis on their application to farm problems.

31. *FARM STRUCTURES.* Fall term. Credit three hours. Prerequisite, Intermediate Algebra and Physics. Lectures, M W F 8. Stocking 218. Assistant Professor GRAY.

A course in the elementary problems in farm buildings; a study of basic structural requirements, insulation, ventilation, and functional requirements for farm animals.

40. *GENERAL FARM SHOP.* Fall or spring term. Credit two hours a term. Section 1, T Th 2–4:30; section 2, M F 2–4:30. Agricultural Engineering Laboratories. Professor Foss.

A course designed to acquaint the student with the common woodworking, tool fitting, cold and sheet metal working, forging, welding, ropework, and wood-finishing jobs commonly found on the farm. The correct use of hand tools on new construction and repair work is emphasized.

42. *WELDING.* Fall or spring term. Credit one hour. One laboratory period, M or T 9–11:30, or M or T 2–4:30. Limited to sixteen students a section. Mr. CLOUGH.

A course giving fundamentals and practice of oxyacetylene welding and cutting of metals; spot welding and arc welding, with special emphasis on farm-shop construction and repair.

AGRONOMY

2. *INTRODUCTION TO FIELD CROPS.* Spring term. Credit three hours. Discussion periods, W F 10. Caldwell 100. Laboratory, M T W Th or F 2–4:30. Caldwell 250. Professor HARTWIG.

A study of the culture of the common field crops that are produced in the Northeastern States, with emphasis on the practical aspects. Rotations with their seed and fertilizer requirements are worked out for three or four type-farms where the objective is to produce feed and food.

6. *SOILS.* Spring term. Credit three hours. Lectures, T Th S 9. Caldwell 100. Laboratory, M T W Th or F 2–4:30. Caldwell 143. Associate Professor BRADY.

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 and of controlling soil erosion.

ANIMAL HUSBANDRY

1. *INTRODUCTORY LIVESTOCK PRODUCTION.* Fall term. Credit three hours. Lectures, W F 8 or 10. Wing A. Laboratory, T Th or F 2–4:30 or W 11–1. Judging Pavilion. Professors MILLER and J. P. WILLMAN and Assistant Professor WANDERSTOCK.

Introduction to types, breeds, judging, care, feeding, and management of sheep, swine, beef cattle, and horses.

10. *LIVESTOCK FEEDING.* Fall or spring term. Credit four hours. Lectures: fall term, M W F 11; spring term, M W F 9. Wing A. Laboratory: fall term, Th or F 2–4:30; spring term, M W Th or F 2–4:20. Wing C. Associate Professor S. E. SMITH 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.

20. *ANIMAL BREEDING.* Fall term. Credit three hours. Lectures, M W 9. Wing A. Recitation, demonstration, or laboratory, M T W Th or F 2–4:20. Wing C. Associate Professor R. W. BRATTON and assistants.

A study of the basic aspects of anatomy, physiology, and genetics that are related and applied to the reproduction and breeding of farm animals.

30. *HEALTH AND DISEASES OF ANIMALS.* Spring term. Credit three hours. Lectures, M W F 11. Veterinary College. Professor ————.

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 infectious and epizootic diseases. Such information as is practicable is given for the treatment of slight injuries and for first aid in emergencies.

50. *DAIRY CATTLE.* Fall or spring term. Credit four hours. Lectures: fall term, T Th S 8; spring term, T Th S 10. Wing A. Laboratory, fall term, S 9:30–12; spring term, M or Th 2–4:20. Wing A and Judging Pavilion. Professor TURK, Assistant Professor SCHULTZ, and assistants.

This course deals with some of the economic aspects of the dairy industry; factors in breeding and development of dairy cattle; milking methods and milk-production problems; efficient feeding; and care, management, and health of the dairy herd. Practice in selection, herd management, formulating rations, planning breeding programs, and keeping records.

150. *ADVANCED DAIRY PRODUCTION.* Spring term. Credit three hours. Lectures. T Th 11. Lecture and discussion, T 2–4:20. Wing A. Professor TRIMBERGER.

Analysis of breeding and management programs in successful herds. Evaluation of the programs of dairy-cattle breed associations. Emphasis is placed on the application of the principles of dairy breeding, feeding, and management to the development and operation of a successful dairy farm.

60. *BEEF CATTLE.* Spring term. Credit three hours. Lectures, W F 10. Wing B. Laboratory, F 2–4:20. Judging Pavilion and Beef Cattle barn. Professor MILLER.

A general course in beef-cattle production. The management, feeding, breeding, selection, and marketing problems involved in the beef-cattle enterprise are emphasized. A one-day field trip is taken to study successful beef production methods.

70. *SWINE.* Spring term. Credit three hours. Lectures, W F 11. Wing B. Practice, T 2–4:20. Judging Pavilion and Swine Barn. Professor J. P. WILLMAN.

A general course in the care, feeding, breeding, and management of swine. Lectures, recitations, and discussions; studies in swine selection; field trips and practical exercises in the handling and care of swine. A one-day field trip is taken.

80. *SHEEP.* Fall term. Credit three hours. Lectures, T Th 10. Wing B. Practice, M 2–4:20. Judging Pavilion and Sheep Barn. Professor J. P. WILLMAN.

A general course in the care, breeding, feeding, and management of the farm flock; feeding and fattening of lambs; practice in judging and handling of sheep and wool. Lectures, recitations, demonstrations, discussions, reports, and field trips intended to give students a practical knowledge of sheep production. A one-day field trip is taken.

90. *MEAT AND MEAT PRODUCTS.* Fall or spring term. Credit three hours. Lecture, M 8. Wing B. Two laboratory periods a week, one slaughter section, and one cutting section. Slaughter section, T 10–12 or W 2–4:20. Cutting section, M 1–3 or 3–5. Professor MILLER and Mr. SCHUTT.

A course in slaughtering of meat animals; cutting of carcasses into retail cuts; identification and grading of carcasses; and the preservation of meats.

BACTERIOLOGY

3. *AGRICULTURAL BACTERIOLOGY.* Fall term. Credit three hours. Lectures, M W F 9. Stocking 218. Professor STARK.

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

BIOCHEMISTRY

2. *INTRODUCTORY AGRICULTURAL CHEMISTRY.* Fall term. Credit five hours. Lectures and recitations, M W F 9, Plant Science 233; T Th 9, Caldwell 100. Associate Professor NEAL and assistants.

Lectures, demonstrations, and recitations, dealing with the fundamental principles of chemistry and their application to agricultural practices. The course is not accepted as a prerequisite for further courses in Chemistry or Biochemistry.

BOTANY

1. *GENERAL BOTANY.* Fall and spring terms. Credit three hours a term. Lectures, T Th 9 or 11. Plant Science 233. One laboratory a week, M T W Th F 2–4:30; T 10–12:30; W 8–10:30; F 8–10:30, S 10:30, 9–11:30. Plant Science 240, 242, and 262. Professor PETRY, instructors, and assistants.

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.

31. *PLANT PHYSIOLOGY.* Fall or spring term. Credit four hours. Lectures, T Th 10. Plant Science 143. Laboratory, T Th or W F 2–4:30, or M 2–4:30 and S 8–10:30. Plant Science 227. Professors KNUDSON and D. G. CLARK, and assistants.

This course is designed to acquaint the students 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. Particular emphasis is placed, both in laboratory and classroom, on the discussion of principles and their application to plants.

DRAWING

10. *DRAWING FOR LANDSCAPE STUDENTS.* Throughout the year. Credit two hours a term. First term: W F 1:40–4:30; second term, M F 11–1, S 9–11. East Roberts 341. Assistant Professor BURCKMYER.

A course planned to develop (1) practical ability in the sketching of outdoor plantings and landscaping; (2) facility in lettering, in isometric and perspective drawing, and in methods of rendering landscape plans.

ENTOMOLOGY

42. *ELEMENTARY ECONOMIC ENTOMOLOGY.* Fall term. Credit three hours. Lectures, T Th 9. Comstock 245. Laboratory, M T Th or F 2–4:30. Comstock 100. Professor WATKINS and assistants.

Lectures on the economic importance of insects, position of insects in the animal kingdom, orders of major importance, principles of insect control, life histories and habits of selected insects attacking plant and animal crops in New York. Laboratory exercises on life histories, recognition, and control of the commoner insects of New York.

EXTENSION TEACHING

1. *ORAL AND WRITTEN EXPRESSION.* Throughout the year. Credit three hours a term. Lectures and practice: Fall term, M W F 8 or 11 or T Th S 10; spring term, M W F 8 9 or 11. Roberts 131. Criticism by appointment, daily 8–5, and S 8–1. Associate Professor FREEMAN, Assistant Professor MARTIN, and Messrs. LUEDER and ————.

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

1. *GENERAL FLORICULTURE AND ORNAMENTAL HORTICULTURE.* Fall term. Credit three hours. Lectures, M W 10. Plant Science 143. Laboratory, T W or Th 2–4. Plant Science 15. Professor MACDANIELS and Mr. ANDREASEN.

An elementary course covering the principles and practices of growing ornamental plants in the gardens, greenhouse, and home.

2. *INTRODUCTION TO LANDSCAPE DESIGN.* Spring term. Credit three hours. Lecture, M W F 9. Plant Science 233. Associate Professor PORTER.

A consideration of the principles of landscape design as applied to the small-residence property.

5. *FLOWER ARRANGEMENT.* Spring term. Credit two hours. Lecture, T 10. Plant Science 37. Laboratory, T or W 2–4:30, or Th 10–12:30. Plant Science 22. Mr. Fox.

A study of the principles and methods of arranging flowers and other plant materials in the house and for decorative use.

12. *HERBACEOUS PLANT MATERIALS.* Spring term. Credit three hours. Lectures, T Th 8. Plant Science 37. Laboratory, W 10–12:30 or 2–4:30. Plant Science 15. Assistant Professor LEE.

A study of the ornamental herbaceous plants used in landscape and garden plantings. Emphasis is placed on the identification, use, and culture of spring-flowering bulbs and perennials. The class visits Rochester Parks and gardens in late May.

13. *WOODY-PLANT MATERIALS.* Spring term. Credit four hours. Lectures, T Th 9. Laboratory and field trips, M and W or F 2–4:30. Plant Science 29. Associate Professor CORNMAN.

A study of the trees, shrubs, and vines used in landscape planting. Emphasis is placed on their characteristics and values for use as landscape material. The class visits Rochester parks and gardens.

[114. *TURF.* Spring term. Credit two hours. Given in alternate years. Associate Professor CORNMAN.] Not given in 1950–51.

A course dealing chiefly with the principles, practices, and materials for the construction and maintenance of lawn areas. Some attention is given sports turf. A week-end inspection trip is taken to experimental test plots and special turf areas.

115. *PLANT PROPAGATION.* Fall term. Credit three hours. Lectures, T Th 8. Plant Science 37. Laboratory, Th 2–4:30 or S 9–11:30. Greenhouses and nurseries. Associate Professor SNYDER.

A study of the principles and methods involved in the propagation of woody and herbaceous plants by seeds, division, layers, cutting, budding, and grafting. The class visits nurseries at Geneva and Newark, New York.

117. *COMMERCIAL NURSERY MANAGEMENT.* Spring term. Credit three hours. Lectures, W F 11. Plant Science 37. Laboratory, T 2–4:30. Greenhouses and Nurseries. Associate Professor PRIDHAM.

A course supplementary to 115 dealing with the problems of the commercial propagation and growing of nursery plants. Pruning, digging, storage, and packaging of nursery stock are considered. Trips are made to near-by commercial nurseries.

119. *PLANTING AND MAINTENANCE OF ORNAMENTAL PLANTS.* Fall terms. Credit three hours. Lectures, T Th 11. Plant Science Laboratory, T 2–4:30. Greenhouses, Nurseries, Cornell Plantations. Associate Professor PRIDHAM.

A study of the principles and practices employed in the maintenance of ornamental plants, including the planting, watering, cultivation, pruning, and winter protection of landscape plant materials in garden and park planting. Both woody

and herbaceous materials are considered. Trips are made to estate and park plantings.

123. *FLORIST-CROP PRODUCTION.* Fall term. Credit four hours. Lectures and recitations, M W F 9. Plant Science 37. Laboratory, M 2–4:30, Greenhouses. Professor POST and Mr. KOFRANEK.

A comprehensive study of the application of basic science to the culture or ornamental plants, particularly under greenhouse conditions. A trip is taken to greenhouses in Rome and Utica, New York.

124. *COMMERCIAL GREENHOUSE PRODUCTION.* Spring term. Credit three hours. Lectures, M W 9. Plant Science 37. Laboratory, W 2–4:30. Greenhouses. Assistant Professor BING.

A course supplementary to course 123 dealing with the commercial production of florist crops; emphasis is upon the practical problems concerned. A trip is made to near-by commercial greenhouses.

125. *FLOWER-STORE MANAGEMENT.* Spring term. Credit two hours. Prerequisite, permission to register. Lecture, M 11. Plant Science 37. Laboratory, M 2–4:30. Plant Science 22. Miss HAKANSON.

Lectures devoted to flower-shop management, business methods, merchandising, and marketing of floricultural commodities. Laboratories to include the application of subject matter and the principles of commercial floral arrangement and design. A trip made to New York City at the time of the International Flower Show will include the Flower Shop, retail florist establishments, and the New York flower market.

[126. *ORCHID CULTURE.* Spring term. Credit one hour. Given in alternate years. Prerequisite, a knowledge of plant physiology, greenhouse practice, and permission to register. Professors KNUDSON and POST.] Not given in 1950–51.

A course dealing with the classification, propagation, and greenhouse culture of orchids.

32. *ELEMENTARY DESIGN AND PLANTING OF SMALL PROPERTIES.* Fall term. Credit three hours. Lecture, F 12. Laboratory, M W 2–4:30, and three additional hours. Plant Science 433. Associate Professor PORTER.

The application of the principles of design to the specific problems of the small residence property as related to both planning and planting.

METEOROLOGY

1. *BASIC PRINCIPLES OF METEOROLOGY.* Fall or spring term. Credit three hours. Prerequisite, one year of high-school physics. Lectures, T Th 11. Plant Science 143. Laboratory, T W or Th 2–4:30. Plant Science 114. Assistant Professor WIDGER and assistants.

Simplified treatment of the physical processes of the atmosphere that produce commonly observed weather phenomena; followed by discussions of condensation and precipitation, winds, the general and secondary circulations, air masses, fronts, and elementary climatology and micro-climatology. In the laboratory, emphasis is on common meteorological instruments and the weather map.

The course is designed both for those who wish a single survey course in meteorology and those who wish a foundation for further study in the field.

PLANT PATHOLOGY

1. *ELEMENTARY PLANT PATHOLOGY.* Fall or spring term. Credit three hours. Lecture, Th 11, Plant Science 141. Practice and conferences, T Th, T F, W Th, or W F 2–4:30. Plant Science 341, 343, and 362. Professors KENT, WELCH, and L. J. TYLER.

An introductory course dealing with the nature, cause, and control of disease in plants. Some of the commoner diseases of cultivated crops are studied in the laboratory.

POMOLOGY

1. *GENERAL POMOLOGY.* Fall or spring term. Credit three hours. Lectures, T Th 8. Plant Science 233. Laboratory, fall term, M T or W 2–4:30; spring term, M T W Th or F 2–4:30. Plant Science 107. Spring term: Professor SMOCK. Fall term: Associate Professor EDGERTON, and Messrs. GRIERSON-JACKSON, ————, and ————.

A study of the general principles and practices in pomology and their relation to the underlying sciences; 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.

102. *FRUIT VARIETIES.* Fall term. Credit three hours. Lectures, F 12, S 8. Laboratory, S 9–12. Plant Science 114. Professor BOYNTON, Associate Professor SLATE, Assistant Professor LAMB, and Mr. ————.

A systematic study of the most important varieties of apples, pears, peaches, plums, grapes, and small fruits from the standpoint of their identification, growth characters, and special cultural requirements. The development of new varieties by breeding and the methods of testing and evaluating them are discussed. At least one field trip is made.

111. *HANDLING, STORAGE, AND UTILIZATION OF FRUIT.* Fall term. Credit three hours. Lectures, T Th 8. Plant Science 143. Laboratory, Th or F 2–4:30. Plant Science 107. At least one field trip is given. Professor SMOCK and Mr. ————.

The important factors in harvesting and handling fruit that affect quality and marketability are studied. 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, with some attention to the problems of market inspection. Consideration is given to the principles and practices of common, cold, and modified air storage, and to the utilization of fruits in the dried, canned, frozen, or juice forms.

112. *ADVANCED LABORATORY COURSE.* Spring term. Credit two hours. S 8–1. Plant Science 107. Professors HOFFMAN and BOYNTON and Associate Professor EDGERTON.

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, grafting, orchard-soil selection and management, pollination, and spray practice. Several field trips extending into the afternoon are made.

POULTRY HUSBANDRY

1. *FARM POULTRY.* Fall term. Credit three hours. Lectures, M W F 10. Rice 300. One recitation period, to be arranged. Rice 305. Professor HALL, assisted by other members of the staff.

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

110. *POULTRY NUTRITION.* Spring term. Credit three hours. Lectures, T Th 9. Rice 100. Laboratory, Th or F 2–4. Rice 305. Professor HEUSER.

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

20. *POULTRY BREEDS, BREEDING, AND JUDGING.* Fall term. Credit three

hours. Lecture or recitation, T Th 10. Rice 100. Laboratory, T or W 2–4. Judging Laboratory. Professor HALL.

Selecting and judging birds for production and breed characters; origin, history, and classification of breeds; introduction to breeding. A one-day trip is made to one of the leading poultry shows. Estimated cost for transportation, $5.

30. *INCUBATION AND BROODING.* Fall term. Credit three hours. Lectures, T Th 9. Laboratory, W Th or F 2–4. Rice 100. Professor BRUCKNER.

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

50. *MARKET EGGS AND POULTRY.* Spring term. Credit two hours. Lecture, T 11. Laboratory, T W or Th 2–4. Rice 100. 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.

RURAL EDUCATION

10. *PSYCHOLOGY.* Fall or spring term. Credit three hours. M W 10 and one hour to be arranged. Plant Science 233. Professor GLOCK.

Designed for students who are not preparing to teach. Consideration of the outstanding psychological concepts that bear upon personal problems and upon business and social relationships.

VEGETABLE CROPS

1. *VEGETABLE CROPS.* Spring term. Credit four hours. Lectures, M W F 11. Plant Science 233. Laboratory, M T W Th or F 2–4:30. Vegetable greenhouses and East Ithaca gardens. Professor SWEET.

Intended for the student who wants a general course, and as an introductory course for the student who wishes to specialize in commercial vegetable growing, whether for fresh marketing or for processing. A general study of the principles of vegetable growing and handling, with a brief comprehensive survey of the industry. Consideration is given to the economic importance, geography, cultural requirements, marketing, and storage of the important vegetables. A one-day trip is required, usually the last Saturday of the term.

2. *SPECIAL CASH CROPS.* Spring term. Credit three hours. Lectures, T Th 10. Plant Science 233. Laboratory, T W or Th 2–4:30. East Roberts 223. Professor HARDENBURG.

The most important cash-crop vegetables grown in the East are given special emphasis in this course. About one-half of the term is devoted to potatoes; other crops include dry beans, cabbage, and the more important crops grown for processing. Laboratory work includes a study of potato and bean varieties; gross morphology of plants, tubers, and seedlings; mechanical equipment used in planting, care, and harvesting; disease and insect pests. Field trips are taken to nearby farms and processing plants.

12. *POST-HARVEST HANDLING OF VEGETABLE CROPS.* Fall term. Credit three hours. Lectures, T Th 11. East Roberts 222. Laboratory, T or W 2–4:30. East Roberts 223. Professor HARTMAN.

Horticultural aspects of marketing vegetables: vocational opportunities in the field; methods of estimating and measuring quality and grade; research results and practices in packing, storing, transporting, and selling. One two-day and three afternoon trips required. Estimated partial cost of transportation to be collected from the student, $2.