SHORT COURSES AT COLLEGE OF AGRICULTURE

The Winter Dairy Course. A 12 weeks' course beginning early in November is open to persons who have at least six months' experience in a creamery or cheese factory. For circular address E. H. Farrington, Dairy Department.

The Summer Dairy Course is intended for beginners or those having little practical knowledge of creamery or dairy work. Students are admitted at any time during the spring and summer after March 1. For particulars address E. H. Farrington, Dairy Department.

Tractor Courses. Five or ten weeks during the Short Course. Write F. W. Duffee for information, Agricultural Engineering Department.

Herdsmen's Courses. For information write R. S. Hulse, Animal Husbandry Department.

Nursery Salesman's Course. For information write J. G. Moore, Horticultural Department.

DEPARTMENTS OF INSTRUCTION

AGRICULTURAL BACTERIOLOGY

ASSOCIATE PROFESSOR W. H. WRIGHT

Farm Bacteriology. This course familiarizes the student with the nature of bacteria, how they grow and reproduce and the methods of artificial cultivation in the laboratory, the relation of bacteria to the soil, the changes in the composition of the soil caused by nitrification, nitrogen fixation and inoculation of legumes. The relation of bacteria to farm water supply and sewage disposal is discussed.

The relation of bacteria to milk and its products is considered from a point of view of practical milk production and the quality of butter and cheese. The preservation of other foods is also discussed. Transmissible diseases of animals of the greatest importance to the livestock industry of the state are studied from the standpoint of prevention and control.
Farm Chemistry. This course shows how the principles of chemistry operate on the farm. The subjects discussed are: The chemical elements in the air and soil and their relations to plant growth; processes of growth of crops and their relation to animal feeding; the composition of domestic animals and the processes involved in their use of the nutrients of feeding materials.

Attention is given to the composition and conservation of farm manure. The sources, composition and use of commercial fertilizers are discussed and also the chemistry of common insecticides and fungicides. Attention is given to the commercially important constituents of milk and their relation to dairy by-products.

Demonstrations are presented to show the properties of common chemical elements and compounds of plants and animals, with the aim of interpreting agricultural chemistry in the language of farm practice. Mr. Tottingham.

AGRICULTURAL ECONOMICS

Professors Hibbard, Macklin; Associate Professors McNall, Kolb; Assistant Allin

The work given is designed to improve the business ability of the farmer by teaching methods of keeping accounts, managing farms, selling the produce, and to point out means of improving the conditions of living in the country.

A. Farm Bookkeeping. Elementary principles of economics and the elements of bookkeeping as applied to the farm. Methods of taking farm inventories and the keeping of cash accounts, and accounts with livestock, farm crops, etc. Mr. Allin.

B. Farm Economics. This will consist of lectures and discussions with which farmers are in constant contact; how prices are made, the farmers' purchasing power, farm labor, farm credit, and farm tenancy and leases. A study will be made of farmer organizations through which it attempted to
better conditions, such as the Grange, Alliance, and Farm Bureau. Mr. Hibbard and assistant.

C. Marketing. Conditions and forces which determine the prices of farm products, methods of marketing, co-operative and independent types are studied, lessons to be learned by present systems. Mr. Macklin and assistant.

D. Rural Life. The country life movement with special reference to methods of improving the conditions of life in the farm home and in the farmer's community. Mr. Kolb and assistant.

E. Farm Management. To show the student how the various farm operations may be organized and correlated so the entire farm may be handled successfully and economically. The location and size of the farm and its adaptability to the raising of crops and livestock, the lay-out of the farm, the capital and equipment necessary for the various types of farming and the problem of farm help. Mr. McNall.

AGRICULTURAL ENGINEERING

Professor E. R. Jones; Assistant Professor Duffee; Instructor Fish; Assistants Arbuthnot, Meacham

The Department of Agricultural Engineering has unusual facilities for giving practical instruction to students. Thousands of dollars' worth of tractors, engines, machinery, tools and farm-building equipment are loaned to the department by manufacturers each year for the use of students in the lecture room and laboratory.
A special tractor course of five or ten weeks is given during the second and third terms or either of these terms. Special students registered in advance by the department may enter as regular Short Course students but take all their work in Agricultural Engineering or allied subjects. For information write F. W. Duffee.

A. **Gas Engines.** Demonstrational lectures supplemented by laboratory work. Adjustments and operation of gas engines. Fuel consumption tests. Trouble finding and remedy. Mr. Duffee and assistants.

B. **Farm Machinery.** Construction and operation of the different types of farm implements such as plows, binders, corn planters, cultivators, etc. Mr. Duffee and assistants.

C. **Land Drainage.** Exercises both in and out-of-doors with the surveyor's level, plane-table, drain tile and tiling tools. Planning drainage systems for topographic maps of typical areas and from sketches of particular areas furnished by students. Superintending the installation of farm drainage systems. Mr. Jones.

D. **Farm Tractors.** Engine and tractor troubles. Practice with different types of tractors. Course A, Gas Engines, must precede or accompany this course. Mr. Duffee and assistants.

E. **Farm Mechanics and Conveniences.** A study of the conveniences of the farm home such as lighting, heating, water supply. Laboratory work will also be given such as soldering, rope tying and splicing, belt lacing, babbitting and concrete construction. Mr. Fish.
F. Farm Buildings. Lectures and laboratory work in the planning and arrangement of farm buildings. The lectures include a discussion of silos, concrete construction, ventilating systems. Mr. Fish and assistants.

G. Advanced Gas Engines. A more intensive study of gas engine principles and troubles than is given in the first year. Additional problems are considered. (Omitted in 24-25.) Mr. Duffee.

AGRICULTURAL JOURNALISM

ASSOCIATE PROFESSOR SUMNER

Farm Advertising. Salesmanship is needed on the progressive farm. The farm name, the farm letterhead, the classified advertisement, display and sales advertisements, sales letters, catalogs, and auction posters are some of the mediums which will be studied. Mr. Sumner.

AGRONOMY

PROFESSORS MOORE, GRABER; ASSOCIATE PROFESSORS LEITH, WRIGHT; ASSISTANT PROFESSOR STONE; INSTRUCTOR HOLDEN; ASSISTANT ZERBEL

The work in agronomy will include studies of the culture, management, weed control, methods of improvement, rotations, and best varieties of all farm crops most suitable for Wisconsin conditions.

A. Farm Crops. This course gives the student a thorough understanding of the best varieties of field crops for Wis-
consin conditions and how best to handle them through all phases of culture and harvest. Special emphasis is laid upon identification of varieties, both in seed and plant forms, through the application of the principles and practices of judging show samples. Mr. Wright and Mr. Leith.

B. Forage Crops. A series of lectures on forage crops for Wisconsin conditions. The work covers a discussion of the best methods and practices in sowing, handling, testing, selection and improvement of all the leading forage crops. Mr. Moore, Mr. Graber.

C. Pure-bred Seed Production. A study of types, judging, breeding and improvement of the Wisconsin grains and corn. Mr. Moore, Mr. Leith.

D. Seed and Weed Control. A study of the ways and means of solving a most serious problem confronting the Wisconsin farmer. How to tell when crop seeds are of good quality and free from noxious weed seeds, and what happens when impure seeds are used. Know the noxious weeds and their seeds. Mr. Stone, Mr. Holden.

ANIMAL HUSBANDRY

Professors Humphrey, Fuller, Morrison; Associate Professor Hulce; Assistant Professors Kleinheinz and Fargo; Assistants O. J. Delwiche, Marshall, Harris and Cramer

The courses in animal husbandry given include livestock breeding, judging, pedigrees, feeding, care and management. The extensive herds and flocks of the University farm are supplemented by prize winning animals loaned by breeders of the state.

A. Elementary Stock Judging. Score card practice and textbook work in the study of market classes and breeds of livestock. Mr. Humphrey, Mr. Hulce, Mr. Fuller.

B. Feeds and Feeding. The study of feeding stuffs, principles of feeding and rations. Mr. Fargo.

C. Advanced Feeds and Feeding. A continuation of the study of feeds and feeding begun the first year with special application to practical problems.
D. Judging Swine and Dairy Cattle. Mr. Fargo, Mr. Hulce.

E. Judging Beef Cattle, Sheep and Horses. Mr. Fuller, Mr. Kleinheinz.

F. Livestock Pedigrees. A study of the principles of breeding farm animals as applied to livestock. Pedigrees and their interpretations will be studied with reference to the leading families. Dairy pedigrees will be emphasized. Mr. Humphrey, Mr. Hulce, Mr. Fuller.


H. Cow-testing Associations. Outlines problems of the association officers and the cow-tester. A complete set of records will be computed by each student and an attempt made to fit the students for cow-testing association work. The course is equally important to the man who is operating a farm and developing a herd. Advanced Registry standards and records will also be studied. Mr. Harris, Mr. Cramer.

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**ECONOMIC ENTOMOLOGY**

**Professor Wilson; Assistant Professor Fluke**

The importance of insect control on the farm is recognized by the farmer, but his opportunities for study are limited, and the occasional information which he picks up is usually gone
from his mind before he has an opportunity to apply it.

A. Farm Insects and Control. A study of the more important insect pests of farm garden and orchard crops to admit of ready recognition and treatment. Principles of insect control will be studied and applied to individual insects according to the best known methods. Mr. Fluke.

B. Beekeeping. Practical beekeeping for those who desire to study the elementary principles of the subject. Each student will have an opportunity to familiarize himself with up-to-date methods and equipment for the handling of bees, the production of comb and extracted honey, bee diseases, their recognition and treatment. Mr. Wilson.

FARM DAIRYING

Professor Farrington; Instructor Thomsen; Assistant Mohr

In farm dairying, students receive instruction in the general principles which are involved in the production, testing, and handling of milk and cream for city markets, creameries, condenseries, and cheese factories, and the making of butter on the farm.

A. Farm Dairying. The dairy laboratory is equipped with the most approved apparatus for the testing of milk, the separation of cream and the manufacture of butter and other dairy products. Practical instruction in all branches of farm dairying, including the testing of milk and cream, the detection of the more common adulterants of these products and the operation of hand separators, churns, butter workers, milk coolers, and other appliances of the dairy. Mr. Mohr.

B. Advanced Farm Dairying. A supplementary course to Dairy A. Designed for training men in the care of milking machines, the commercial handling of milk and cream on the farm, the paying of creamery and cheese factory dividends, organizing a cooperative factory and other advanced farm dairy operations. Mr. Thomsen.
The horticultural work in the Short Course is designed to give the student a knowledge of the principles and practices underlying the successful culture of horticultural plants.

A. **Fundamentals of Plant Life and Their Relation to Fruit Growing.** Structure of plants, their life processes and reproduction. The application of these principles to fruit growing practices and their relation to selection of site, planting, soil management, pruning, spraying and other farm orchard problems. Mr. Nightingale.

B. **Horticultural Practice.** An elective course designed for those desiring more detailed work in horticulture than is given in Horticulture A. Demonstration lectures and laboratory exercises on spraying, pruning, fruit identification and judging, tree planting, hotbed construction, propagation of fruit plants and small fruit culture. Mr. Moore.


D. **Farm Woodlot and Grounds.** The work given is designed to show the relation of forestry to agriculture. The care of the woodlot, windbreaks, shelter belts, tree planting, selections of species for planting, and methods of propagation, planting and protection. Methods of improving home grounds. Mr. Aust.
Library Practice. To teach students to use books, papers, and bulletins as tools. Lectures on classification and other library methods and on the literature of agriculture, including books and serial publications. The lectures will be supplemented by practical work in the library. Attention will be given to methods of keeping files and records of valuable articles read, how to get government and state bulletins and reports, how these may be filed so as to be a ready and valuable reference for the busy farmer. Mr. Hean.

Studying in the Laboratory

Parliamentary Practice

Parliamentary Practice. A working knowledge of the rudiments of parliamentary practice is of inestimable value to every young man. This course gives practice in the organization and handling of public meetings, farmers' clubs, public speaking and debating.
First Year—Principles of parliamentary practice and debating. Mr. Bewick.

Second Year—Review parliamentary practice. Organization of farmers' clubs, public speaking. Time to be arranged. Mr. Bewick.

**PHYSICAL EDUCATION**

PROFESSOR LOWMAN AND ASSISTANTS

All Short Course students will be given a thorough physical and medical examination, and will be required to take two one-hour periods a week of development exercises, athletics and recreational games under capable direction. An opportunity for voluntary exercise and for the organization of basketball and other teams and the holding of athletic contests between classes, will be given. These activities are carried on in the Stock Pavilion which has been equipped with facilities for this purpose, including gymnastics and athletic apparatus, lockers and shower baths. The course is closed by an indoor track meet, with track contests between teams representing the first and second year classes.

**PLANT PATHOLOGY**

ASSOCIATE PROFESSOR VAUGHAN

The limiting of the yield of all farm crops by disease is a present day problem of the farmer. Their control becomes more important as our lands are farmed more intensively.

**Plant Diseases and Control.** The symptoms of the common and more important plant diseases of Wisconsin crops that one may recognize them on sight. Attention will be given to the diseases of field crops, grains, fruits, potatoes, and other horticultural crops. Control measures and their application will be emphasized.

Individual laboratory work aiming to give first hand acquaintance with the symptoms of the diseased plants and the characters of the parasitic fungi and bacteria causing the diseases, including methods of over-wintering, spread and control. Mr. Vaughan.
The Poultry Department is equipped with modern poultry buildings, colony houses, a very complete line of incubators, brooders, and other poultry apparatus, such as cramming machines and bone cutters. In addition, some twenty-six varieties of chickens, five of geese, and three of ducks, furnish ample material for poultry judging. These will be used to help the student to become familiar with general poultry raising. Several years of careful trapnesting and pedigree hatching have developed strains of heavy laying chickens that will be used. An extensive file of poultry journals and books is to be found in the Agricultural Library.

A. Poultry Raising. Breeding and feeding for winter egg production, poultry house construction, incubating and brooding, both natural and artificial, killing and marketing dressed poultry, the common poultry diseases. Mr. Lampman.

B. Poultry Judging. The judging of poultry for exhibition and culling for egg production. Mr. Halpin, Mr. Johnson.

C. Demonstration and laboratory work in feeding for egg production, packing and marketing eggs, killing and dressing market poultry, caponizing and house construction. Mr. Lampman, Mr. Johnson.

D. Incubation and Brooding and a study of some of the common diseases of poultry. Mr. Lampman.
WORKSHOP DEPARTMENTS

SUPERINTENDENT DABNEY; INSTRUCTORS SCHUMANN, MALONE, SULLIVAN

A. Elementary Carpentry. Instruction given in the use of wood working tools, to sharpen chisels, saws and planes and keep them in order. A choice is allowed of several articles that would be of use around the house or farm, but the articles chosen must involve the use of all tools and principles. The list includes a mitre box, saw horse, feed trough, stool, stepladder, tool tray, hammer handle, or singletree. Several types of joints are made, and elementary instruction in the use of the steel square. Mr. Sullivan.

B. Elementary Forging. Instruction in the essential operations of forging, such as drawing out, upsetting, pointing, bending and welding mild steel, leading to the applications of these operations in making useful articles such as bolts, chain links, rings, clevises of various forms, cold chisels, metal and stone drills, hammers, knives, instruction in hardening, tempering, drilling, riveting and soldering. Mr. Schumann and Mr. Malone.

C. Advanced Carpentry. More advanced work to suit the needs of the individual student. The construction of stairs, window and door frames, cupboards, the making of models of houses, barns, and portable pens, silos and framing for concrete construction. Mr. Sullivan.

D. Advanced Forge Work. A continuation of first year work including more advanced practice. Mr. Schumann and Mr. Malone.

SOILS

ASSISTANT PROFESSORS RICHARDS, STEWART

The following courses in soils include lectures supplemented by laboratory exercises which demonstrate the principles taught in the lectures.

A. Soil Fertility. The soil and its relation to crop production is considered. The subjects studied are the soil, its origin and relation to plants and animals; conditions affecting plant
growth; plant-food elements and crop needs; importance of water and tilth in agriculture; land drainage; liming; relation of manure and commercial fertilizers to crop yields and soil improvement. Mr. Stewart.

B. Soil Management. Lectures on the management of special soil, crop rotation in relation to farm management, systems of farming in relation to soil fertility, determining the needs of soils, profitable crop production, and soil erosion. Mr. Richards.

VETERINARY SCIENCE

Professor Alexander

A. The Animal in Health. The principles of anatomy and physiology are taught so students become acquainted with the normal structure and functions of the animal body. Mr. Alexander.

B. The Animal in Disease. The causes, symptoms, and methods of preventing the common diseases of farm animals.

Sports on Ice

Ice boating, skating and other winter amusements are popular.

Practical demonstrations are given, to enable students to recognize diseases and unsoundness and give first aid treatment. Mr. Alexander.
DIRECTOR OF SHORT COURSE
College of Agriculture
Madison
Wisconsin
SHORT COURSE IN AGRICULTURE

Application for Admission

To the Director of the Short Course,
University of Wisconsin, Madison.

I hereby apply for admission to the Short Course in Agriculture for the term beginning November 17, 1924. I have had____________________years experience on a farm.

Should I change my address before November 16 or should anything occur which will prevent my attendance, I will at once notify you so that my place can be filled by some other applicant.

Name......................................................... Age.........................

Post Office........................................... State..................................

   Rural Route No...............or Street and No.................

Home County..............................................................

Dated .................................................................