

CROP SCIENCE CSC

College of Agriculture and
Natural Resources

101. **Crop Science**
Fall. 3(3-0)

Principles of identification, adaptation, management, and utilization of field crops for food and fiber. Fundamentals of crop management, breeding, weed control, crop quality, and tropical crops in world agriculture.

250. **Plant and Animal Genetics**
Spring. 4(4-0) B S 211.

Fundamental genetic principles with particular reference to problems in plant and animal biology.

251. **Plant and Animal Genetics Laboratory**
Spring. 1(0-2) 250 concurrently.

301. **Forage Crops**
Fall. 3(2-2) Sophomores.

Distribution, morphology, identification, physiology, management and utilization of forage crops for hay silage, and pasture for livestock and for soil improvement and conservation.

380. **Ecology and Physiology of Agricultural Plants**
Spring. 3(3-0) FOR 220 or BOT 301.

Interrelationships of physiological processes and environmental manipulation for higher yield of agricultural plants.

402. **Principles of Weed Control**
Fall. 3(2-2) Juniors. Interdepartmental and administered jointly with the Horticulture Department.

Comprehensive study of principles underlying weed control practices, and factors involved in both mechanical and chemical control.

406. **Crop Improvement and Seed Production**
Winter. 4(3-2)

Practical methods of crop improvement, seed production, storing, cleaning, packing, and distribution, seed certification of small grains, legumes, corn, beans, potatoes, visits to seed agencies and seed farms.

407. **Special Crop Problems**
Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 9 credits. Approval of department.

Independent study in any of the following specialties: special crop problems, production, physiology, ecology, weed control, turfgrass management, crop storage and preservation, and seed studies.

408. **Principles of Plant Breeding**
Winter. 4(3-2) 250. Interdepartmental and administered jointly with the Horticulture Department

Application of genetics and other sciences to breeding and improvement of agronomic and horticultural crops.

415. **Turfgrass Management**
Spring. 3(2-2)

Adaptation characteristics and utilization of turf grasses, management principles and physiological bases for the establishment and maintenance of turf for lawns, athletic fields, golf courses, cemeteries, parks, highways and airfields.

420. **Seminar**
Winter. 1(1-0) May re-enroll for a maximum of 4 credits. Interdepartmental and administered jointly with Soil Science.

420. **ICD. The Impact of Animal Resource Management Upon the World's Developing Nations**
For course description, see Interdisciplinary Courses.

485. **Seed Science**
Spring. 3(3-2) Approval of department.
Morphological and physiological changes during seed formation, development, maturation and germination. Practical and biological aspects of seed drying, storage, deterioration, dormancy and quality. Current problems and research in seed science.

801. **Crop Ecology**
Fall of even-numbered years. 3(3-0) Approval of department.
Environment within the crop community and the environmental stresses limiting crop survival. Temperature, light, water and atmospheric stresses and variations in the crop canopy will be discussed.

803. **Crop Physiology**
Spring. 3(3-0) Approval of department.
Role of physiological factors determining maximum crop yields and quality.

805. **Herbicidal Action and Metabolism**
Spring. 3(3-0) 402; BOT 415 or concurrently.

A study of the properties and characteristics of herbicides, the fundamental processes involved in the physiological action, behavior, and metabolism of herbicides.

814. **Advanced Field Crop Studies**
Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 6 credits. Approval of department.

Advanced work in any of the following specialties: advanced field crop studies, management, physiology, ecology, breeding, turfgrass culture, weed control, nutritional quality, tropical crops, crop extension, and seed studies.

820. **Seminar**
Winter, Spring. 1(1-0) May re-enroll for a maximum of 3 credits. Interdepartmental and jointly administered with Soil Science.

Studies and presentation of research in crop and soil sciences.

830. **Physiological Genetics**
Winter. 3(3-0) Approval of department. Interdepartmental with and administered by the Forestry Department.

Physiological bases for genetic variation in higher plants including adaptive physiology, quantitative genetics, growth correlations, biochemical genetics, hybrid physiology, and geneology.

831. **World Food Crops**
Spring of odd-numbered years. 3(3-0)
World food crop production and related systems of agriculture which provide this resource. The impact of modern discoveries and opportunities for change.

851. **Quantitative Genetics in Plant Breeding**
Fall of odd-numbered years. 4(3-1)
One course in genetics or breeding, and one course in biometry, or approval of department.
Genetic systems and quantitative inheritance in relation to the establishment of superior populations.

899. **Research**
Fall, Winter, Spring, Summer. Variable credit.

920. **Design and Analysis of Agronomic Experiments**
Spring. 3(3-0) STT 423 or approval of department.
Constructing and analyzing designs for experimental investigations in the biological sciences.

951. **Cytogenetics in Plant Breeding**
Winter of odd-numbered years. 3(3-0) BOT 427, 828, or approval of department. Interdepartmental with the Horticulture Department.
Application of cytogenetic principles to plant breeding. Significance of recombination, role of induced mutations, polyploid, chromosome substitution, and aneuploid analyses as they apply to the field of plant breeding.

952. **Plant Breeding Biometrics**
Winter of even-numbered years. 4(3-2) Approval of department.
Biometrical genetics as it applies to plant breeding. Includes studies of path coefficients, partitioning of variance, and the principles of selection in a changing environment.

999. **Research**
Fall, Winter, Spring, Summer. Variable credit.

DAIRY SCIENCE DRY

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Natural Resources

214. **Dairy Production**
Fall, Spring. 4(3-2)
Dairy cattle in modern agriculture. Normal cow behavior. Feeding, breeding and management of herd. Commercial milk production and marketing milk.

314. **Dairy Herdsman Techniques**
Winter. 2(0-4) 214, majors only.
Herd health and management procedures, disease prevention and detection, equipment maintenance and record systems for dairy herds.

323. **Dairy Cattle Judging**
Spring. 3(0-6)
Desired type in dairy cattle. Judging and show ring procedures. Competitive judging. Teams selected to represent Michigan State University in national competition.

371. **Dairy Seminar**
(471.) Spring. 1(1-0) Juniors.
Major issues pertinent to the dairy industry are described by authorities from MSU and the dairy industry of Michigan. Students are provided an opportunity for an exchange in ideas.

413. **Dairy Farm Management**
Spring. 3(2-2)
Analysis of dairy farm organization and operations. Dairy herd management practices. Dairy cattle housing with emphasis on economical and efficient usage. Use of dairy records in the farm operation.

424. **Dairy Cattle Breeding**
Spring. 4(2-4) ANS 461.
Applications of population genetics to improving dairy cattle. Use of selection, aids to selection, and systems of mating to formulate breeding plans. Inheritance of economic traits. Breed improvement programs.