CROP SCIENCE

College of Agriculture and Natural Resources

101. Crop Science
Fall, 3(0-0)
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(3-2) 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, soybeans, 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 specializations: 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.

1DC. The Impact of Animal Resource Management Upon the World's Developing Nations
For course description, see Interdisciplinary Courses.

455. 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 presentations of research in crop and soil sciences.

830. Physiological Genes
Winter, 3(3-0) Approval of department. Interdepartmental 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 ecology.

831. World Food Crops
Spring of odd-numbered years, 3(3-0) World food crop production and related systems of agriculture which provide these resources. 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, concurrent or approval of department. Genetic systems and quantitative inheritance in relation to the establishment of superior populations.

DAIRY SCIENCE

College of Agriculture and Natural Resources

214. Dairy Production
Fall, Spring, 4(3-2)

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

323. Dairy Cattle Judging
Spring, 3(0-4)
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 representatives 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(3-4) 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.

*Notes:*
- Descriptions of courses are subject to change. For the most current information, please consult the university catalog.
- Approval of department is required for some courses.
-Prerequisites may be needed for some courses.
- Students are encouraged to consult with academic advisors for guidance on course selection.
433. Dairy Cattle Nutrition
Winter. 4(5-2) AAS 325.
Principles of ruminal nutrition and application to actual feeding practices in commercial dairy herds. Rumen fermentation as related to feed utilization, milk production and milk composition.

444. Milk Secretion

445. Endocrinology and Reproduction of Farm Animals
Fall, 4(3-2) PSL 260. Interdepartmental and administered jointly with the Physiology Department. Endocrine and reproductive systems are presented with emphasis upon characteristics which can be altered for economic benefit and upon causes, prevention, and treatment of endocrine abnormalities.

460. Special Problems
Fall, Winter, Spring, Summer. Variable credit. May re-enroll for credit. Approval of department. Topics from breeding, management, nutrition, or physiology, changing from term to term to include recent technical advances.

499. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

925. Advanced Ruminant Nutrition
Fall of even-numbered years. 4(4-0) BCH 432, PSL 601 or approval of department. Microbiology, physiology and biochemistry of ruminant digestion and the absorption and utilization of common fermentation products.

999. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

EARTH SCIENCE
See Geology.

ECONOMICS
EC
College of Business
Courses are classified as follows:

Courses in economics are 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 410, 420, 430, 440, 450, 460, 470.

300. Introduction to Economics
Fall, Winter, Spring. Open to freshmen. Students may begin sequence with either 200 or 201. Problem of unemployment; meaning and determination of national income; the multiplier; the accelerator; fiscal policy; deficit spending; monetary policy; banks creation of money; economic policy; depression; growth; inflation; the role of money in the economy.

325. Microeconomics II
Fall, Winter, Spring. 3(3-0) 200 and 201, or 210, and 234. Consumer choice and theory of demand. Theory of distribution and factor rewards. Welfare economics and general equilibrium theory.

330. Investments and Security Markets
Fall, Winter, Spring. 3(3-0) 200 or 210.

337. American Social and Economic History: Foundations
Winter. 4(4-0) Interdepartmental with and administered by the History Department. Multiple sources of economic growth in economic, social and political change. Production, science and technology, political action, and other factors, mid-19th century.

338. American Social and Economic History: Modern Trends
Spring. 4(4-0) Interdepartmental with and administered by the History Department. Urbanization, origins and implications of large-scale organizations in business and other sectors of society, and sources of economic growth since mid-19th century.

361. Economic Development of Asia
Fall. 3(3-0) 200 and 201 or 210. Population and resources: comparison of three economic systems: Communism in China, free enterprise in Japan and socialism in India; the role of Japan in regional trade and development.

362. Economic Development of Latin America
Winter. 3(3-0) 200 and 210. Concentration of political and economic power as related to income distribution, tax structures, agrarian reform; inflation, trade, exchange rates, integration, population and employment policy.

363. Economic Development of Tropical Africa
Spring. 3(3-0) 300 and 210 or 200. African economic development in historical perspective. Analysis of contemporary economic development problems faced by tropical African countries. Alternative strategies for African economic development.