860. Soil Biochemistry

Spring of even-numbered years. 4 credits. CSS 850; MPH 442.

Biochemical transformations of mineral nutrients and of natural and exotic organic materials in soils, considered in relation to chemical, physical and ecological systems in the complex soil environment.

870. Origin and Classification of Soils

Winter. 4(3-2) CSS 470, CSS 840, or approval of department.

Genesis, morphology and classification of major soils of the world. Relationships among soils in natural and cultural landscapes. How soil properties affect their use, management and conservation. Land classifications for various purposes.

899. Master's Thesis Research

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

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, BOT 828, or approval of department. Interdepartmental with the Department of Horticulture.

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. Doctoral Dissertation Research

Fall, Winter, Spring, Summer. Variable credit.

DAIRY SCIENCE DRY

College of Agriculture and Natural Resources

1005. Dairy Career Alternatives

Fall. 1(1-0) Credits earned in this course are included in computation of GPA and MAPS but are not included in the 180 credits required for graduation.

Career and employment options for dairy majors including research, education, farming, agribusiness, government, and financial, including self-instructional unit on career planning.

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.

250. Dairy Physiology and Management

Fall. 4(3-2) B S 210 or B S 211; DRY 1005 or approval of department.

Basic reproductive and lactational physiology; management practices for maximum reproductive performance and maximum production of high quality milk.

314. Dairy Herdsman Techniques

Winter. 2(0-4) DRY 214, majors only.

Herd health and management procedures, disease prevention and detection, equipment maintenance and record systems for dairy herds.

315. Dairy Herd Management

Spring. 4(4-0) DRY 250.

Dairy herd management practices, dairy records systems, housing, milking, reproduction and feeding systems. Economic and efficient usage of inputs.

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. Seminar

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.

424. Dairy Cattle Breeding

Spring. 4(2-4) ANS 361.

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.

433. Ruminant Nutrition

Winter. 4(3-2) ANS 325. Interdepartmental with Animal Science.

Principles of ruminant nutrition and application to actual feeding practices in commercial dairy and beef operations. Rumen fermentation as related to feed utilization, growth, milk production and milk composition.

444. Mammary Physiology

Winter. 4(3-2) PSL 240, BCH 200. Interdepartmental and administered jointly with the Department of Physiology.

Anatomy of mammary gland. Hormonal and nervous control of mammary growth, initiation and maintenance of lactation. Biochemistry of milk secretion. Physiology of milking; physiological, pathological and management factors affecting lactation.

445. Endocrinology and Reproductive Physiology

Fall. 4(5-0) PSL 240. Interdepartmental and administered jointly with the Department of Physiology.

Processes of reproduction and endocrinology with special emphasis on anatomy of reproductive systems, folliculogensis, gametogensis, reproductive cycle, fertilization, sex determination, gestation and artificial regulation of these reproductive events for economic benefit.

450. Toxicology of Food Producing Animals

Spring. 4(4-0) PSL 240, BCH 200. Interdepartmental with and administered by Animal Science.

Fate and effects of toxic chemicals in food-producing animals: impact on animal production, residues in food products, safety assessment and control methods.

460. Special Problems

Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 10 credits. Approval of department.

IDC. The Impact of Animal Resource Management Upon the World's Developing Nations

For course description, see Interdisciplinary Courses.

850. Topics in Dairy Science

Fall, Winter, Spring. Variable credit. May reenroll for credit. Approval of department.

Topics from breeding, management, nutrition, or physiology, changing from term to term to include recent technical advances.

899. Master's Thesis Research

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

925. Advanced Ruminant Nutrition

Fall of even-numbered years. 4(4-0) BCH 452, PSL 801 or approval of department.

Microbiology, physiology and biochemistry of ruminant digestion and the absorption and metabolism of rumen fermentation products.

945. Physiology of Mammalian Reproduction

Winter of odd-numbered years. 4(5-0) DRY 445 or PSL 445 or approval of department. Interdepartmental with the Department of Physiology.

Chemistry and biosynthesis of reproductive hormones. Gonadal, hypothalamic and pituitary development of reproductive potential. Ovulation, fertilization, implantation and placentation will be studied. Relationships of conceptus, uterus and corpus luteum. Parturition.

999. Doctoral Dissertation Research

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

EARTH SCIENCE

See Geology.