AGRONOMY • AGRO

General education courses are marked with stars (★).

★ 1001 Introduction to Managed Plant Systems in the Modern World (3) S 2 hrs. lecture; 2 hrs. lab. Survey of plant kingdom; anatomy, growth, and development of plants; ecosystem structure, sustainable agriculture and animal/plant systems; plant nutrition, food additives, and food safety; plant breeding for improved food and fiber; biotechnology and its role in modern agriculture.

1051 Soils and the Environment (3) F★S Also offered as EMVS 1051. Complexity and diversity of the earth's land surface; soils and soil management, reclamation of mismanaged soils, and use of recyclable waste materials as soil amendments.

2051 Soil Science (4) Prereq.: CHEM 1002 or 1212 or equivalent. 3 hrs. lecture; 2 hrs. lab. Also offered as EMS 2051. Principles of soil science; properties of soils related to plant growth and the environment.

3000 Principles of Crop Production (3) F Prereq.: BIOL 1402 or equivalent. Crop production practices relative to major crops grown in Louisiana and the U.S.; seed bed preparation, planting, weed and pest control; harvest and processing practices related to each major crop group.

3010 Research Problems (3) F,S,Su Prereq.: consent of instructor. May be taken for a max. of 6 sem. hrs. of credit. Independent research under a faculty member, culminating in an oral and written report.

3011 Fall Crop Production Laboratory (1) F Prereq.: credit or registration in AGRO 3000. Field and laboratory research designed to provide an understanding of the growth and practices involved in production of soybeans, cotton, and sugarcane.

3012 Spring Crop Production Laboratory (1) S Prereq.: AGRO 3000. Field laboratory research designed to provide an understanding of the growth and practices involved in the production of winter small grains.

3013 Summer Crop Production Laboratory (1) Su Prereq.: AGRO 3000. Field laboratory research designed to provide an understanding of the growth and practices involved in the production of rice, corn, and sorghum.

3040 Soil Conservation (2) F Prereq.: AGRO 2051. Also offered as EMS 3040. Causes and effects of soil erosion and sedimentation; their effects on the quality of the environment; methods of reducing erosion and soil environmental pollution.

3090 Agronomic Internship (3) F,S,Su Prereq.: oral exam of 2.50 GPA and written consent of instructor. May be taken for a max. of 6 sem. hrs. of credit. Work experience in crop, soil, or environmental quality related areas culminating in an acceptable work experience report and a seminar presentation.

4005 Forage Ecology and Management (3) S Forage crop physiology, adaptation, production, utilization, and management; impact on people, animals, and the environment.

4052 Soil Fertility and Soil Management (4) S Prereq.: AGRO 2051. 3 hrs. lecture; 2 hrs. lab. Factors affecting plant growth and utilization of essential elements; mechanisms of nutrient uptake; diagnosis of nutrient deficiencies; application of fertilizers; potential nutrient losses.

4055 Chemical Properties of Soil (4) F Prereq.: AGRO 2051 and CHEM 2002. 3 hrs. lecture; 3 hrs. lab. Also offered as EMS 4055. Chemical and mineralogical properties of soils; their effect on nonpoint source pollution from agriculture; effects of nonhazardous amendments on soil properties.

4056 Microbial Ecology and Nutrient Cycling in Soils (4) S Prereq.: AGRO 2051 and BIOL 2051. 3 hrs. lecture; 3 hrs. lab. Also offered as BIOL 4256 and EMS 4056. Microorganisms in terrestrial environments and biogenic processes influencing C, N, S, and P cycling; role of microorganisms in biological nitrogen fixation, plant nutrient availability, formation of soil humus, and decomposition of organic and inorganic materials; impact of microbial processes on environmental quality.

4058 Soil Morphology and Classification (4) F 2 hrs. lecture; 4 hrs. lab (field and mapping). Genesis, profile morphology, processes related to classification and soil taxonomy; relationships of soil process and classification to environmental quality.

4064 Principles of Plant Breeding (4) F Prereq.: AGRI 2072 or equivalent. 3 hrs. lecture; 2 hrs. lab. Also offered as HORT 4064. Methods of plant genetic improvement: hybridization, genetic manipulation, and variety development; selection for insect, disease, and environmental stress resistance; genetic engineering and biotechnology.

4070 Weed Science and the Environment (3) F Prereq.: BIOL 1001, 1002, CHEM 1001, 1002; or equivalent. 2 hrs. lecture; 2 hrs. lab. Weed biology and economic importance of weeds in the diverse agriculture of Louisiana; weed management programs, characteristics of important herbicides, mechanisms of herbicidal action, fate of herbicides in the environment, and pesticide application, labeling, and safety.

4071 Weed Biology and Ecology (3) F-O Prereq.: BIOL 1402 or equivalent. 2 hrs. lecture; 2 hrs. lab. Study of general plant ecological principles, reproduction, dormancy, interference, allelopathy, competition, herbicide resistance, and the impact of weed control mechanisms on weed and crop communities.

4077 Environmental Soil Physics (3) Prereq.: AGRO 2051. Also offered as EMS 4077. The physical soil system; the soil components and their physical interactions; processes involving water flow in saturated and unsaturated soils, air, and heat; fate and transport of applied chemicals in the soil profile and processes governing the mobility of contaminants.

4078 Land Use Planning and Land Management (3) F-E Prereq.: consent of instructor. 2 hrs. lecture; 2 hrs. lab. Land use planning and management based on chemical, mineralogical, and physical properties of soils; includes soils, plants, data bases, hydrology, and remote sensing; areas of use and management include crops, pasture, forest and woodland, metropolitan, transportation, waste disposal, wetlands, and disturbed lands.

4080 Advanced Crop Production and Management (3) S-O Prereq.: AGRO 1021 and BIOL 3060 or equivalent. Effect of cultural practices on physiological/ecological interactions affecting crop growth, development, and yield.

4086 Turfgrass Management (3) See HORT 4086.

4090 Agronomic Problem Solving (3) S-E Prereq.: AGRO 2051 or equivalent; BIOL 3060 or AGRO 4080; AGRO 3000 or equivalent. Analysis and solution of specific agronomic problems; emphasis on researching literature, group discussion, and development of answers to hypothetical management questions.

4091 Special Topics in Crop Science (1-3) Prereq.: written consent of instructor. May be repeated for credit; a total of 6 sem. hrs. may be earned in AGRO 4091 and 4092 combined.

4092 Special Topics in Soil Science (1-3) Prereq.: written consent of instructor. May be repeated for credit; a total of 6 sem. hrs. may be earned in AGRO 4091 and 4092 combined.

7001 Agronomy Seminar (1) May be repeated for credit. 1 hr. seminar; reports.

7004 Research Methods in Plant Science (3) S-E Prereq.: EXST 7005; or equivalent; field research experience. Research activities and methodology used to conduct field research in plant science and pest management disciplines from initial planning through publication of results; areas of emphasis include: research proposal preparation and protocol development; selection of experimental design and implementation of research; data analysis, interpretation, and presentation, and manuscript preparation.

7051 Advanced Soil Fertility and Plant Nutrition (4) S-E Prereq.: AGRO 4052 and BIOL 3060 or equivalent. 3 hrs. lecture; 2 hrs. lab. Principles of bioavailability and management of mineral nutrients by plants; interactions of plants with the soil environment; fertilizer use efficiency.

7041 Plant-Herbicide Physiology (3) F-E Prereq.: AGRO 4070 or equivalent. 2 hrs. lecture; 3 hrs. lab. Lab project includes several techniques used in plant-herbicide physiology research. Physiological and physical interactions of herbicides with plants; emphasis on the specific mode of action, entry, movement, metabolism, and selectivity mechanisms of each chemical family of herbicides.

7042 Soil-Pesticide Interactions (3) F-E Prereq.: AGRO 2051 and AGRO 4070 or equivalent. Chemical, physical, and biological properties of soils as they affect performance and dissipation of pesticides; fate of pesticides in the environment.

7052 Micronutrients in Soils and Crops (4) S-O 3 hrs. lecture; 2 hrs. lab. Theory and current literature on the micronutrients (boron, copper, zinc, manganese, iron, molybdenum, chlorines, cobalt) and their influence on growth of crop plants.

7055 Advanced Soil Chemistry (3) F-O Prereq.: AGRO 4055, MATH 1352, and one semester of physical chemistry. Theory of physico-chemical properties of soils; emphasis on soil solution chemistry and soil environmental properties.

7056 Current Topics in Soil Microbiology (3) F-O Prereq.: AGRO 4056 or equivalent. 2 hrs. lecture; 2 hrs. lab. Role of soil microbial processes in maintaining environmental quality; fate and behavior of introduced microorganisms; methods of investigation; development of a laboratory consistent with students' interests.

7057 Advanced Soil Physics (4) F 3 hrs. lecture; 2 hrs. lab. Also offered as EMS 7057. Physical properties of the soil matrix, soil-water retention, and processes
governing water, gas, solute, and heat fluxes in the soil profile.

7058 Advanced Pedology (3) S-O Theory and current literature on pedogenic processes responsible for the physical, chemical, and mineralogical, properties found in soil environments.

7066 Agronomic Crop Breeding Techniques (1) F,Su 2 hrs. lab. May be repeated in the alternate semester for a max. of 2 hrs. of credit. Practical experience in hybridization of agronomic and horticultural crops; objectives, methodologies, and rationale of specific breeding programs; selection procedures; computerized record keeping and data management.

7068 Soil Mineralogy (3) F-O Prereq.: GEOL 2082 or AGRO 4055 or equivalent. 2 hrs. lecture; 3 hrs. lab. Variety, distribution, and alteration of major minerals in soils; their physio-chemical properties and reactions; their significance to agriculture and the environment.

7070 Advanced Plant Breeding (4) S-E Prereq.: AGRO 4064 and EXST 7014; or equivalent. 3 hrs. lecture; 2 hrs. lab. Also offered as HORT 7070. Advanced methods of plant breeding; emphasis on breeding for insect, pathogen, and abiotic stress resistance; breeding strategies and theory; resource allocation and evaluation of breeding methodologies.

7071 Advanced Plant Genetics (4) S-O See HORT 7071.

7074 Quantitative Genetics in Plant Improvement (3) F-E Prereq.: HORT 7063 or AGRO 7065 and EXST 7022. Also offered as HORT 7074. Genotypic and environmental values, their effects and interactions, homeostasis, stability; variances, covariances, combining ability, genetic advance, selection indices, molecular markers for quantitative trait loci.

7165 Biogeochemistry of Wetland Soils and Sediments S (3) Same as OCS 7165.

8000 Thesis Research (1-12 per sem.) “S”/“U” grading.

8901 Research in Crop Science (3-6) Prereq.: consent of department.

8902 Research in Soil Science (3-6) Prereq.: consent of department.

9000 Dissertation Research (1-12 per sem.) “S”/“U” grading.