

Stephen F. Austin State University – Courses in Forestry (FOR)

All courses are offered both fall and spring semesters unless a specific semester is indicated. A course not regularly scheduled may be offered on demand. Except for courses numbered 460 and 463, all undergraduate courses must have a minimum of 10 students to be offered. Courses with required field trips will have an additional fee.

- 111. Introduction to Forestry (FORE 1301)** – Three semester hours, two hours lecture and three hours lab per week. Introduction to the multiple use concept of forestry and basic techniques of forest resource management. Required field trips. Course fee required.
- 151. Introduction to Outdoor Recreation** – Three semester hours, two hours lecture and three hours lab per week. Survey of federal and state policies, commercial and private landowner outlooks, and development in outdoor recreation. Course fee required.
- 152. Introduction to Wildlife Management** – Three semester hours, two hours lecture and three hours lab per week. Historical perspectives of wildlife management and an introduction to basic wildlife management concepts. Course fee required.
- 205. Forest Biometrics I** – Three semester hours, two hours lecture and three hours lab per week. Individual tree measurements, forest sampling methods, applied statistics, and computer applications for data analysis. Required field trips. Prerequisite: MTH 138 or 143. Course fee required.
- 209. Forest Ecology (FORE 2309)** – Three semester hours, two hours lecture and three hours lab per week. Climatic, edaphic, and biotic factors and their relation to woody plant growth and development. Required field trips. Prerequisite: BIO 131. Course fee required.
- 219. Dendrology (FORE 1314)** – Three semester hours, two hours lecture and three hours lab per week. Identification, distribution and silvical characteristics of angiosperms and gymnosperms. Required field trips. Prerequisite: BIO 131. Course fee required.
- 223. Surveying and Mapping** – Four semester hours, three hours lecture and three hours lab per week. Introduction to principles and methods of land surveying and associated map production techniques. Prerequisite: MTH 138 or 143. Course fee required. Spring only.
- 240. Wood Science** – Three semester hours, two hours lecture and three hours lab per week. Physical and chemical properties of wood as related to its anatomy and economic use. Prerequisites: MTH 138 or 143, BIO 131, CHE 133.
- 241. Wood Properties** – Three semester hours, two hours lecture and three hours lab per week. Non-mechanical and mechanical properties of wood and their relation to timber grading, processing and manufacture of forest products and their end use. Prerequisite: FOR 240. Course fee required.
- 255. Forest Wildlife Management** – Three semester hours, two hours lecture and three hours lab per week. Principles and techniques of wildlife management. Required field trips. Prerequisite: FOR 152. Course fee required.
- 304. Arboriculture** – Three semester hours, two hours lecture and three hours lab per week. Establishment and care of individual trees in a non-forest context.
- 305. Wildlife Techniques** – Three semester hours, two hours lecture and three hours lab per week. Instruction and practice in a variety of field methods used to conduct and evaluate resource management and research. Assumptions, biases and problems associated with various techniques, as well as analysis of data, interpretations, and application of results. Prerequisites: FOR 152. Course fee required.
- 310. Field Silviculture** – One semester hour. Study of regeneration techniques, thinning and intermediate cultural operations. Required field trips. Prerequisite: All forestry core courses through 300 level. Course fee required. Summer only at forestry field station.

- 312. Tree Growth and Wood Quality Relations** – Three semester hours, three hours lecture per week. Introduction to the variability of wood structure and properties. Assessment of information regarding genetic, silvicultural and environmental factors influencing tree development and wood properties as related to end use. Prerequisite: FOR 240.
- 313. Forest Insects and Diseases** – Three semester hours, two hours lecture and three hours lab per week. Examination of the effects of forest pests on forest products, forest stand structure and function, and both economic and non-economic losses. Prerequisite: FOR 209. Course fee required.
- 317. Forest Biometrics II** – Three semester hours, three hours lecture per week. Quantifying forest timber stand structure with respect to basic stand parameters. Prerequisite: FOR 205. Fall only.
- 323. Land Measurement** – One semester hour. Study of boundary surveying of forestland. Required field trips. Prerequisite: All forestry core courses through 300 level. Course fee required. Summer only at forestry field station.
- 325. Timber Cruising** – One semester hour. Study of timber stand estimation. Required field trips. Prerequisite: All forestry core courses through 300 level. Course fee required. Summer only at forestry field station.
- 329. Harvesting and Processing** – One semester hour. Study of methods of harvesting materials from the forest and procedures used in the manufacture of wood products. Required field trips. Prerequisite: All forestry core courses through 300 level. Course fee required. Summer only at forestry field station.
- 335. Non-timber Resources Management** – Two semester hours. Study of inventory and management principles for non-timber uses of forestland. Required field trips. Prerequisite: All forestry core courses through 300 level. Course fee required. Summer only at forestry field station.
- 337. Introduction to Fire Management** – Two semester hours, two hours lecture per week. Explore fire history in the U.S., fire occurrence, effects and behavior, detection, and control. Study the integration of fire in land management planning and policy. Prerequisite: FOR 209 or permission of instructor. Course fee required.
- 344. Forest Entomology** – Three semester hours, two hours lecture and three hours lab per week. Study of insects that attack forest trees and products. Required field trips. Prerequisite: FOR 209 or eight hours of BIO. Course fee required.
- 347. Silviculture** – Three semester hours, two hours lecture and three hours lab per week. Study of silvicultural systems, regeneration and intermediate management from ecologic and economic viewpoints. Required field trips. Prerequisites: FOR 205, FOR 209. Course fee required.
- 348. Natural Resource Policy** – Three semester hours, three hours lecture per week. Forest history and natural resource policy in the United States including effects of the environmental movement. Spring only.
- 349. Principles of Forest Soils** – Three semester hours, two hours lecture and three hours lab per week. Physical, chemical and biological properties of forest soils. Management and classification of soils. Required field trips. Prerequisite: CHE 133. Course fee required.
- 351. Introduction to Wildland Recreation Administration** – Three semester hours, three hours lecture per week. Structure, staffing and financing of parks, wildernesses, and other forest recreation areas. Spring only.
- 402. Field Ecology** – Three semester hours, two hours lecture and three hours lab per week. Principles of synecology and population ecology as they affect vegetative and animal communities. Ecological impacts of management, quantitative analysis of communities. Prerequisites: FOR 209 or BIO 313. Course fee required. Fall only.

- 404. Urban Forestry** – Three semester hours, two hours lecture and three hours lab per week. Planning, establishment, protection, and management of individual trees and forest systems within an urban environment. Required field trips. Prerequisites: FOR 209, 349. Course fee required.
- 405. Environmental Communication and Interpretation** – Three semester hours, three hours lecture per week. Overview of the field of natural resource communication and interpretation. Of particular interest to those whose careers require public interaction. Fall only.
- 409. Forest Hydrology** – Three semester hours, two hours lecture and three hours lab per week. Study of the effects of forests and forest activities on water quantity and quality, soil erosion and stream sedimentation. Required field trips. Prerequisite: FOR 349. Course fee required.
- 411. Timber Management** – Three semester hours, two hours lecture per week. Concepts of stand-level and forest-level timber harvesting schedules. Prerequisite: FOR 317.
- 427. Regional Silviculture** – Three semester hours, three hours lecture per week. Multiple use management of the major forest types of the U. S. Prerequisite: FOR 310. Fall only.
- 428. Intensive Silviculture** – Three semester hours, two hours lecture and three hours lab per week. Study of tree improvement in silviculture context. Fundamental concepts of tree breeding, vegetation management and forest fertilization. Prerequisite: FOR 310. Course fee required. Spring only.
- 435. Forest Economics** – Three semester hours, three hours lecture per week. Economic analysis for decision making in forestry. Prerequisites: ECO 232, FOR 310. Summer II and fall.
- 438. Fire Use in Land Management** – Three semester hours, two hours lecture and three hours lab per week. Study of fire in land management. Preparation of burning plans and field applications of prescribed burns. Required field trips. Prerequisite: FOR 337 or permission of instructor. Course fee required. Spring only.
- 448. Range Management** – Three semester hours, three hours lecture per week. Principles of range management. Characteristics of rangelands and range plants, management of grazing animals, and vegetation. Emphasis on interactions with recreation, wildlife and forests. Spring only.
- 450. Forest Wildlife Habitat Management** – Three semester hours, two hours lecture and three hours lab per week. Theory and practice of evaluating and managing a forest habitat for wildlife. Required field trips. Prerequisite: FOR 305. Course fee required. Fall only.
- 451. Management of Outdoor Recreation Areas** – Three semester hours, two hours lecture and three hours lab per week. Planning, development and maintenance of parks and forest recreation areas. Required field trips. Prerequisite: FOR 351. Course fee required. Fall only.
- 452. Environmental Interpretation Methods** – Three semester hours, three hours lecture per week. Development of effective techniques for interpreting natural and cultural resources, and in planning and managing interpretive programs. Required field trips. Course fee required. Spring only.
- 454. Non-game Wildlife Ecology** – Three semester hours, two hours lecture and three hours lab per week. Ecology of non-game animals in forest ecosystems. Topics include population ecology and the relationships of animals to forest ecosystems. Some bird and small mammal sample techniques included as is management of some endangered species. Required field trips. Prerequisite: FOR 255 or permission of instructor. Course fee required. Spring only.
- 457. Environmental Attitudes and Issues** – Three semester hours, three hours lecture per week. Overview of the global historical origins and current influences on attitudes toward the outdoor environment. Examination and discussion of environmental policy, ethics and issues. Spring only.

- 458. Forest Resource Management** – Four semester hours, three hours lecture and three hours lab per week. Formulation, calculation, writing, and implementation of multiple-use resource management plans and environmental impact statements and assessments. Prerequisites: forestry field station and FOR 435. Course fee required.
- 460. Forestry Internship** – Three semester hours. Studies of resource management in an operational setting under the supervision of an approved organization. Must be arranged in advance and approved by the dean's office. May be repeated for credit for a maximum of six credit hours.
- 463. Special Problems** – One, two, or three semester hours. Individual study in an area of the student's choice. Must be arranged in advance and approved by the dean's office. May be repeated for credit for a maximum of nine credit hours.
- 464. Contemporary Problems in Forestry** – Three semester hours. Classes conducted on current topics in forestry. Must be arranged in advance and approved by the dean's office. May be repeated for credit for a maximum of nine credit hours.
- 465. Range Development and Evaluation** – Three semester hours, three hours of lecture per week. Principles of the development, improvement, and evaluation of rangeland resources. Required field trips. Course fee required. Spring only, odd years.
- 466. Urban Wildlife Management** – Three semester hours, three hours lecture per week. Techniques of managing wildlife population in urban/suburban landscapes. Includes nuisance wildlife and habitat restoration. Spring only, odd years.

Courses in Geographic Information Systems (GIS)

- 201. Introduction to Geographic Information Systems** – Three semester hours, two hours lecture and three hours lab per week. Overview of computer-based GIS concepts and components. Topics include spatial (location) and attributes (description of features), base maps, spatial data manipulation and analysis. Course designed for non-forestry/environmental science majors who want a broad overview of GIS. Course fee required.
- 224. Introduction to Spatial Science** – Three semester hours, two hours lecture and three hours lab per week. An introduction to the spatial disciplines of aerial photography, satellite remote sensing, global positioning systems and geographic information systems as applied to mapping, monitoring and managing natural resources. Prerequisite: MTH 138, 143 or 233. Course fee required.
- 301. GIS Applications** – Three semester hours, two hours lecture and three hours lab per week. Advanced overview of GIS applications. Develop GIS topics such as geodata-base construction, thematic map analysis, spatial modeling, data classification and verification and GIS application design. Prerequisite: GIS 201. Course fee required.
- 390. Geographic Information Systems** – Three semester hours, two hours lecture and three hours lab per week. Specific approaches to applications of geographic information systems (GIS), global positioning systems, (GPS) and remote sensing to problems in natural resource analysis. Prerequisite: GIS 224. Course fee required.

Courses in Environmental Science (ENV)

- 110. Introduction to Environmental Science (ENVR 1401)** – Four semester hours, three hours lecture and three hours lab per week. Introduction to the multidisciplinary study of the environment using the scientific method. Course fee required.
- 209. Forest Ecology - (FORE 2309)** – Three semester hours, two hours lecture and three hours lab per week. Climatic, edaphic and biotic factors and their relationship to woody plant growth and development. Required field trips. Prerequisite: BIO 131. Course fee required.

- 210. Environmental Measurements** – Three semester hours, two hours lecture and three hours lab per week. Introduction to sampling and measuring biological, chemical, and physical parameters of atmospheric, aquatic, and terrestrial systems. Prerequisite ENV 110. Course fee required.
- 348. Natural Resource Policy** – Three semester hours, three hours lecture per week. Forest history and natural resource policy in the United States including effects of the environmental movement. Spring only.
- 349. Environmental Soil Science** – Three semester hours, two hours lecture and three hours lab per week. Physical, chemical and biological properties of soils. Role of soils in environmental quality, biogeochemical cycles and management concerns. Prerequisite: CHE 134. Course fee required. Fall only.
- 402. Wetland Delineation and Function** – Three semester hours, two hours lecture and three hours lab per week. Introduction to the history, regulations and current technical criteria for the identification and delineation of wetland boundaries and the functional assessment of wetlands. Prerequisite: ENV 349. Course fee required. Spring only, odd years.
- 403. Remediation and Reclamation of Disturbed Land** – Three semester hours, two hours lecture and three hours lab per week. Remediation and reclamation of contaminated or disturbed lands. Required field trips including two all day trips. Prerequisite: ENV/FOR 349, AGN 331 or permission of instructor. Course fee required. Spring only, odd years.
- 405. Environmental Communication and Interpretation** – Three semester hours, three hours lecture per week. Overview of the field of natural resource communication and interpretation. Of particular interest to those whose careers require public interaction. Fall only.
- 412. Environmental Hydrology** – Three semester hours, two hours lecture and three hours lab per week. Study of the physical environment of agricultural and forested land, fundamental physics, biological significance, instruments, and monitoring techniques. Required field trips. Prerequisite: ENV 349. Course fee required. Fall only.
- 415. Environmental Assessment and Management** – Four semester hours, three hours lecture and three hours lab per week. Environmental planning in the U. S. with reference to the principles and procedures for preparing environmental assessments and impact statements. Prerequisite: Senior standing or permission of instructor. Course fee required. Fall only.
- 420. Landscape Ecology and Planning** – Three semester hours, two hours lecture and three hours lab per week. Structure, function and change within ecosystems measured on a landscape scale. Evaluation of current management techniques for their effects on landscapes. Required field trips. Prerequisites: GIS 224 or AGM 325, BIO 313 or FOR/ENV 209. Course fee required. Spring only.
- 460. Internship in Environmental Science** – Three semester hours. Studies of environmental science in an operational setting under the supervision of a cooperating organization. Must be arranged in advance and approved by the dean's office. May be repeated for credit for a maximum of nine credit hours.
- 463. Special Problems in Environmental Science** – One, two or three semester hours. Individual study in an area of the student's choice. Must be arranged in advance and approved by the dean's office. May be repeated for credit for a maximum of nine credit hours.
- 464. Contemporary Problems in Environmental Science** – Three semester hours. Classes conducted on current topics in environmental science. May be repeated for credit for a maximum of nine credit hours.
- 470. Senior Seminar** – Prerequisite: Fifteen credit hours in environmental science or permission of instructor. A participatory seminar where students condense, review and present research findings on focused topics. Subject matter varies by semester. May be repeated once for credit. Spring only.

Courses in Geographic Information Systems (GIS)

- 224. Introduction to Spatial Science** – Three semester hours, two hours lecture and three hours lab per week. An introduction to the spatial analysis disciplines of aerial photography, satellite remote sensing, global positioning systems and geographic information systems as applied to mapping, monitoring, and managing natural resources. Prerequisite: MTH 138, 143 or 233. Course fee required.
- 390. Geographic Information Systems** – Three semester hours, two hours lecture and three hours lab per week. Specific approaches to applications of geographic information systems (GIS), global positioning systems (GPS), and remote sensing to problems in natural resource analysis. Prerequisite: ENV/FOR 224. Course fee required.

Courses in Agriculture

Agribusiness and Economics (AEC)

- 261. Agricultural Economics (AGRI 2317)** – Production economics, agricultural prices, money, banking, credit, land economics and public finance. Prerequisite: Six semester hours of agriculture.
- 344. Agricultural Finance** – Analysis of capital requirements for farming and ranching; determination of credit needs; lending sources and requirements; risks, costs and legal aspects of credit.
- 349. Marketing of Agricultural Products** – Marketing system as it applies to the farmer, and methods of reducing costs and of improving efficiency of agricultural marketing. Farmer's cooperatives emphasized.
- 442. Natural Resource Economics** – Economic, institutional and physical factors involved in the utilization and control of natural resources as they are related to agriculture.
- 451. Farm Management** – Two hours lecture, two hours lab per week. Application of business principles to farming, organization and management of farms, farm records and farm accounts. Prerequisite: Twelve semester hours of agriculture.

Agricultural Development (AGD)

- 361. Agricultural Development** – Study of the structure and function of agricultural delivery systems and their impact on the industry of agriculture. Specific emphasis on the development of agricultural policy, agricultural research, market development, agricultural service agencies, ethics in agriculture and the adoption and diffusion of new technology. Laboratory field experience required. Prerequisite: Twelve hours of agriculture.
- 371. Agriculture Leadership** – Study of the various leadership functions and management styles necessary to work effectively within the professional industry of agriculture. Specific emphasis on oral communication, parliamentary procedure and the function of youth organizations and adult volunteer groups as support organizations in the agricultural community. Prerequisite: Twelve hours of agriculture.
- 400. Senior Seminar** – One hour lecture. Provides the student with information needed for transition from the college environment to a professional career in the industry of agriculture. Specifically addresses current trends shaping career opportunities, resume development, interviewing skills, intern opportunities, research and development activities, professional organizations, personal investing and retirement planning, community development and service opportunities, and critical issues facing agriculture.

- 481. Methods of Teaching Agricultural Sciences in the Secondary School** – Instructional methods and techniques that emphasize practical applications of the teaching-learning process. Special emphasis on reading in the content area, student evaluation, classroom management and discipline, and essential curriculum/programmatic elements unique to agricultural science and technology. Prerequisite: Nine hours professional education.
- 491. Student Teaching** – Nine semester hours. Class observation, development of lesson plans, and methods of teaching in-school, and adult classes. Prerequisites: AGD 361, 371 and 481.

Agricultural Machinery (AGM)

- 120. Fundamentals of Agricultural Technology** – Four semester hours, three hours lecture, two hours lab per week. Introductory course to acquaint students with a wide range of basic concepts, principles, procedures and applications of engineering and machinery in agriculture. Emphasis on skill areas and fundamental principles of agricultural operations and application. Lab fee \$5.
- 236. Welding and Metals** – One hour lecture, four hours lab per week. Arc welding, oxyacetylene welding, hot and cold metal work, plumbing and sheet metal work. Lab fee \$20.
- 310. Internal Combustion Engines** – Two hours lecture, two hours lab per week. Study of the theory and operation of single- and multi-cylinder internal combustion engines. Emphasis directed toward the application, maintenance, diagnosis and repair of internal combustion engines used in agricultural environments. Lab fee \$5.
- 315. Agricultural Electrification** – Two hours lecture, two hours lab per week. Electricity master controls, lighting, heating; maintenance of electric motors, safety, and automated equipment. Lab fee \$5.
- 325. Design Application Software I (CAD)** – Two hours lecture, two hours lab per week. Introduction to the use of computer assisted design (CAD) software. Acquaints students with basic 2-D design principles, utilizing the latest CAD and architectural software in a computer lab setting. Prerequisites: CSC 121 or 101; AGM 120, or consent of instructor. Lab fee \$10. (Same as HRT 325).
- 326. Design Application Software II (CAD)** – Two hours lecture, two hours lab per week. Advanced course on the use of computer assisted design (CAD) software. Emphasis on three-dimensional drawing and customized design. Experience with latest architectural, mechanical and landscape software. Prerequisites: AGM/HRT 325. Lab fee \$10. (Same as HRT 326).
- 383. Agricultural Machinery Design and Structure** – One hour lecture, four hours lab per week. Mechanical design and construction of equipment. Metal fabrication. Prerequisite: AGR 236. Lab fee \$20.
- 410. Agricultural Machinery Operation and Performance** – Two hours lecture, two hours lab per week. Study of the operation, performance and management of agricultural machinery. Prerequisite: AEC 261. Lab fee \$5.
- 421. Principles of Irrigation** – Designed to quantify the parameters necessary for the design, installation and operation of various types of irrigation systems. Emphasis on the fundamental principles of irrigation, water application systems and water distribution systems. Prerequisite: Junior standing.
- 425. Mobile Hydraulics in Agriculture** – Two hours lecture, two hours lab per week. Basic principles of hydraulics, hydrodynamics and hydrostatics; diagnosis and testing; hydraulic valves; and the history of hydraulics. Prerequisite: six hours of agriculture. Lab fee \$5.

Agronomy – Plant and Soil Science (AGN)

- 110. Crop Science** – Two hours lecture, two hours lab per week. Basic principles of plant growth as they relate to the production of major horticulture and agronomic crops. Lab fee \$5. (Same as HRT 110).
- 262. Forages** – Study of annual and perennial forages including their management for hay and grazing. Includes characteristics, adaptability, establishment, maintenance, harvesting and quality of the forage.
- 331. Soil Science** – Four semester hours, three hours lecture, two hours lab per week. Physical, biological and chemical properties, classification and fertilization of soil. Prerequisite: CHE 111 or 133. Lab fee \$5.
- 367. Weed Science** – Study of control of weedy plant species in row crops, pastures, fruit and vegetable crops, turf and around the home. Includes applicator calibration. Prerequisite: CHE 112.
- 445. Plant Breeding** – Improvement of crops through hybridization and selection with special emphasis on methods of breeding self-pollinated, cross-pollinated and vegetatively propagated plants. Prerequisite: BIO 341 or consent of the instructor.
- 448. Range Management** – Principles of range management. Characteristics of rangelands and range plants, management of grazing animals, and vegetation. Prerequisite: Junior standing (Same as FOR 448).
- 469. Plant Protection** – Biological, chemical, cultural and physical control of insects, diseases and weeds, including the concepts of integrated pest management. Prerequisites: BIO 353 plus 12 hours of agriculture or biology.

Animal Science (ANS)

- 131. Introductory Animal Science (AGRI 1319)** – Two hours lecture, two hours lab per week. Introductory course in the modern methods of producing, processing and marketing animals and animal products.
- 201. Basic Horsemanship** – A beginning riding course that will address the fundamental techniques and principles of horsemanship. Students will ride horses each day, learning the basic athletic maneuvers of the equine under saddle. Students are expected to provide an appropriate saddle and blanket. Students will be required to wear an appropriate riding helmet at all times during the lab.
- 241. Horse Production** – Two hours lecture, two hours lab per week. Survey of the western working and pleasure horse industry. Fundamentals of selection, nutrition, breeding, health and training pleasure horses.
- 242. Equitation** – Six hours lab per week. In-depth study of the finer points of riding involving athletic maneuvers of the horse essential to all performance horse events. Case studies in the behavior, communication and psychology between rider and the modern performance horse. Techniques for evaluation of pleasure and performance horse competition. Corequisite or Prerequisite: ANS 201
- 243. Beef Cattle Science** – Two hours lecture, two hours lab per week. Selection, breeding, feeding, management and health care of beef cattle.
- 250. Artificial Insemination** – One hour lecture, four hours lab per week. Basic reproductive physiology as related to artificial insemination, techniques of insemination, semen handling, heat detection, heat synchronization and breeding records. Prerequisite: ANS 131 or permission of instructor.

- 301. Livestock Evaluation** – Two hours lecture, two hours lab per week. Techniques of evaluation and selection of livestock for various agricultural uses. Subjective appraisal of breeding feeder and market swine, as well as beef cattle and sheep. Prerequisites: six hours of ANS including ANS 131.
- 333. Animal Nutrition** – Nature, function and metabolism of nutrients in animal production. Prerequisites: AGR 131; CHE 112 or 134; and junior standing.
- 342. Swine Production** – Two hours lecture, two hours lab per week. Production practices in the management of swine. Breeding, feeding and health care. Prerequisite: AGR 131.
- 343. Dairy Science** – Introduction to the basic principles and modern practices of dairy production and dairy products technology. Latest advances in record keeping, selection, breeding, feeding, location, facilities and milk marketing. Prerequisite: ANS 131.
- 351. Training Performance Horses** – Western - Riding and training the western performance horse to compete in western riding, roping, cutting, and working cow horse events.
- 352. Training Performance Horses** – English - Riding and training the English performance horse to compete in hunt seat horsemanship, stadium jumping, cross country jumping and dressage events.
- 428. Animal Reproductive Physiology** – Two hours lecture, two hours lab per week. Concepts and applications of reproduction in farm animals. Endocrinology, anatomy and physiology, spermatogenesis, oogenesis, fertilization, gestation, parturition and behavior are studied with practical application toward increasing animal production. Prerequisites: ANS 131 and Junior standing.
- 441. Principles of Animal Breeding** – Selection and systems of breeding livestock. Traits of economic importance. Genetic and statistical principles as they apply to farm animal selections. Prerequisites: BIO 320 or 341 and 12 semester hours of animal science or consent of instructor.
- 442. Equine Production and Management** – Two hours lecture, one hour lab per week. Provides the senior-level student with the scientific application of biological and biotechnological principles of horse production and management. Emphasis on reproduction, nutrition, genetics, disease, health, and exercise physiology that is unique to the horse.
- 444. Feedstuffs, Feeding and Formulation** – Two hours lecture, two hours lab per week. Feedstuffs, feed formulation, feed processing and livestock feeding. Prerequisite: ANS 333. Lab fee \$5.
- 452. Equine Law Studies** – The development of a basic understanding of the legal principles involved in common problems associated with horse ownership and horse production.

Poultry Science (PLS)

- 237. Introductory Poultry Science (AGRI 1327)** – Two hours lecture, two hours lab per week. Introduction to the scope and the importance of the poultry industry. Introduction to the basics of poultry science and modern methods of producing, processing and marketing of poultry and poultry products. Lab fee \$5.
- 252. Poultry Selection and Evaluation** – Two hours lecture, two hours lab per week (three credit hours). Techniques of evaluation and selection of poultry and poultry products. Subjective evaluation of breeders, broilers, commercial layers and market products.
- 317. Applied Agriculture Data Applications** – Two hours lecture, two hours lab per week. Introduction to the use of computerized applications that deal directly with agriculture and allied industries. Examples include feed mill operations, hatchery complexes, environmental control systems, office applications, as well as Internet Web design and its impact on the agriculture industry. Prerequisite: six hours of agriculture.

- 337. Broiler Production** – Study of production practices for the commercial broiler production industry with specific in-depth study in broiler houses and equipment, grow-out phases and disease control for typical broiler operations..
- 340. Advanced Poultry Science** – Two hours lecture, two hours lab per week. In-depth study of avian anatomy and physiology, incubation, poultry diseases and poultry genetics and breeding. Lab fee \$5. Prerequisite: ANS 237.
- 420. Agricultural Waste Management** – Principles of agricultural waste management, addressing animal and human waste as well as management and disposal of agricultural chemicals. Prerequisite: Junior standing.
- 437. Applied Poultry Production** – Two hours lecture, two hours lab per week. Advanced study of poultry nutrition, organization and management of commercial poultry production and processing operations. Use of computers in designing, planning and managing a modern commercial poultry operation. Lab fee \$5. Prerequisite: ANS 237.
- 440. Non-Ruminant Nutrition and Feeding** – Focuses on nutrition and feeding of non-ruminant animals. Address the interactions between nutrition and carcass product quality, immunology and environments in monogastric animals.
- 465. Agriculture Products Processing** – Study of the technological processes involved in the preparation, processing, and packaging of agricultural products, including: livestock, poultry, fish, fruits, nuts, vegetables and dairy. Study of consumer trends, governmental regulations and research efforts affecting agricultural products processing. May require an overnight field trip. Prerequisite: Junior standing.

Horticulture (HRT)

- 110. Crop Science** – Two hours lecture, two hours lab per week. Basic principles of plant growth as they relate to the production of major horticultural and agronomic crops. Lab fee \$5. (Same as AGN 110).
- 210. Ornamental Horticulture** – Two hours lecture, two hours laboratory per week. An overview of the ornamental horticulture industry including landscaping, nursery management, retail sales, floriculture, and other types of enterprises. Emphasis is placed on the propagation, production, and use of bedding, tropical foliage and indoor plants. Lab fee \$5.
- 212. Fruit and Vegetable Production** – Two hours lecture, two hours lab per week. Factors influencing the successful growing, harvesting, storing and marketing of fruit and vegetable crops. Special focus on low-input farming systems, irrigation efficiency, pest management and alternative crops and technology. Lab fee \$5.
- 213. Annuals and Perennials** – Two hours lecture, two hours lab per week. Principles and practices of herbaceous landscape color plants including annuals, perennials, tropicals and bulbs. Emphasis will be placed on identification, production, use and maintenance of year-round bedding plants in East Texas.
- 215. Turfgrass Management I** – Two hours lecture, two hours lab per week. Principles of turfgrass production and selection; establishment and maintenance of turfgrasses for residential and commercial landscape applications.
- 239. Basic Landscape Design** – Two hours lecture, two hours lab per week. History and basic principles, formal and informal designs, community planning and zoning. Lab fee \$5. Prerequisites: AGM 120 or some drawing experience.
- 247. Landscape Installation** – Two hours lecture, two hours lab per week. Application of design principles including interpretation of plans, costs and bidding, site preparation, construction materials, planting and maintenance.
- 321. Greenhouse Management** – Two hours lecture, two hours lab per week. Principles of greenhouse management. Prerequisite: HRT-AGN 110. Lab fee \$5.

- 322. Floriculture** – Two hours lecture, two hours lab per week. Principles and practical applications of commercial production of pot plants, cut flower crops, flower arrangements, post-harvest handling and marketing techniques. Lab fee \$20.
- 324. Landscape Plant Materials I** – One hour lecture, four hours lab. Emphasis on the plants most commonly used in East Texas landscapes. Requires the identification of 175 small trees, shrubs, vines, ground covers and herbaceous perennials. Prerequisites: six hours of agriculture or consent of instructor. Lab fee \$5.
- 325. Design Application Software I (CAD)** – Two hours lecture, two hours lab per week. Introduction to the use of computer assisted design (CAD) software. Acquaints students with basic 2-D design principles, utilizing the latest CAD and architectural software in a computer lab setting. Prerequisites: CSC 121 or 101; AGM 120, or consent of instructor. Lab fee \$10. (Same as AGM 325).
- 326. Design Application Software II (CAD)** – Two hours lecture, two hours lab per week. Advanced course on the use of computer assisted design (CAD) software. Emphasis on three-dimensional drawing and customized design. Experience with latest architectural, mechanical and landscape software. Lab fee \$10. Prerequisite: AGM-HRT 325 or HMS 414. (Same as AGM 326).
- 413. Nursery Management** – Two hours lecture, two hours lab per week. Study of the principles and practices involved in commercial production, marketing and management of nursery crops. Prerequisite: Six hours of agriculture or equivalent. Lab fee \$5.
- 416. Plant Propagation** – Two hours lecture, two hours lab per week. Physiological relationships involved in plant propagation-environmental factors as they relate to plant growth structures and nursery conditions. Prerequisite: six hours of agriculture or consent of instructor. Lab fees \$5.
- 417. Advanced Landscape Design** – Practical design applications for landscape situations using various plant materials, cost estimation, contracting, construction and maintenance. Prerequisites: HRT 239 and/or HRT-AGM 325. Lab fee \$5.
- 419. Turfgrass Management II** – Focuses on the skills needed by golf course, park, and athletic field managers to develop cost-effective management practices for facilities under intensive use. Emphasis is placed on site-specific needs including substrate modification, irrigation and drainage, fertilization, and pest management.

General Agriculture (AGR)

- 100. The Agriculture Industry (AGRI 1131)** – One semester hour credit, one hour lecture per week. Introduction to agriculture and its relationship to the sciences. Also careers and opportunities in agriculture. Required for all agriculture majors.
- 275. Special Problems** – One to four semester hours. Individual instruction in laboratory or field problems. May include enterprise projects. Prerequisites: Six hours of agriculture. May be repeated.
- 280. Special Topics** – One to four semester hours. Study of specific areas of agriculture approved by the agriculture curriculum committee and by the department chair. May be repeated.
- 431. Agricultural Internship** – Four semester hours, 40 hours per week for five weeks of work experience with industry in the use of equipment and materials of production in the intern's major field. Prerequisite: Twelve hours of agriculture.
- 432. Agricultural Internship II** – Four semester hours, 40 hours per week for five weeks. Production practices basic to the intern's major field of interest. Prerequisite: Twelve hours of agriculture. Fall, spring.

- 433. Agricultural Internship III** – Four semester hours, 40 hours per week for five weeks of applied management practices related to the intern’s major field of interest. Prerequisite: Twelve hours of agriculture. Fall, spring.
- 475. Special Problems** – One to four semester hours. Individual instruction in laboratory or field problems. Prerequisite: Twelve hours of agriculture. May be repeated.
- 480. Topics in Agriculture** – One to four semester hours. Study of specific areas of agriculture approved by the agriculture curriculum committee and by the chair of the department. May be repeated.