

Using the Clemson Experimental Forest as an Outdoor Laboratory: Clemson University Undergraduate and Graduate Courses

AG M 401, 601 Environmental Control for Plants and Animals 1(1,0)

Basic concepts of environmental control for plant and animal production and human housing are presented. Elements include heat transfer, psychrometry, heating, cooling, ventilation, and heat/moisture balances. *Preq:* PHYS 200 or consent of instructor.

AG M 403, 603 Structures for Plants and Animals 2(1,3)

Structures for agricultural production systems are planned and designed with regard to function, materials, loads, and component sizing, utilizing the approach of an engineering or construction technologist. *Preq:* PHYS 200 or consent of instructor

B E 322 Small Watershed Hydrology and Sedimentology 3(3,0) [W.1]

Fundamental relationships governing rainfall disposition are used as bases for defining the hydrology of watersheds. Application of modeling techniques appropriate for runoff and sediment control is emphasized. *Preq:* PHYS 122. *Coreq:* CSENV 202.

B E 421 Engineering Systems for Soil Water Management 2(1,3)

Fundamentals of design related to drainage of lands, irrigation, and modification of the microenvironment for optimum productivity are presented. *Preq:* MTHSC 208. *Coreq:* C E 341.

BIOSC 304, H304 Biology of Plants 3(3,0)

Survey of the major groups of plants, their biology, diversity, and evolution. *Preq:* BIOL 104 or 111 or BIOSC 205.

BIOSC 320 Field Botany 4(2,4)

Introductory study of the taxonomy, ecology, and evolution of plants in their natural environment with an emphasis on identification and characteristics of representative species and plant communities in the Carolinas. Includes one or two required Saturday field trips. *Preq:* BIOL 104, 111, or BIOSC 205, or consent of instructor.

BIOSC 447, H447, 647 Plant Ecology Laboratory 2(1,2)

Experimental and observational approach to addressing principles discussed in BIOSC 446. Students are introduced to field and laboratory methods involving individual organisms, populations, and communities. *Preq or Coreq:* BIOSC 446 or consent of instructor

C R P 807 Professional Studio 4-6(2-3,6-9)

Serves as a vehicle for synthesis and application of skills developed in other courses and includes participation in one or more real-world planning projects in addition to seminars and readings devoted to development of professional practice skills. *Preq:* Consent of instructor.

E N R 302 Natural Resources Measurements 3(2,3)

Introduction to measurements of natural resources including land, vegetation, animal habitat, water quality and quantity, climate, and recreation. Remote sensing techniques are also introduced. May not be taken for credit by Forest Resource Management majors. *Coreq:* EX ST 301.

ENT (BIOSC) 301 Insect Biology and Diversity 4(3,3)F

Introduction to the study of insects, with emphasis on their structure, function, ecology, and behavior. Identification of commonly encountered species is highlighted. Relationships between insect and human populations are discussed. Control technologies are introduced, with emphasis on environmentally responsible tactics.

ENT (BIOSC) 415, 615 Insect Taxonomy 3(1,6)S

Odd-numbered years. Identification of the principal families of the major orders of adult insects. Laboratory work consists of intensive practice of such identification; lecture material deals with theoretical discussion of taxonomic features observed in the laboratory. *Preq:* ENT 405 or consent of instructor.

ENT (BIOSC, W F B) 469, H469, 669 Aquatic Insects 3(1,6)S

Odd-numbered years. Identification, life history, habitats, and interrelationships of aquatic insects; techniques of qualitative field collecting; important literature and research workers. *Preq:* ENT 301 or consent of instructor.

ENT 700 Entomology for Teachers 3(2,2)S

General entomology course for secondary school science teachers with emphasis on collecting and identifying the more common insects; insect morphology, physiology, metamorphosis, and methods available for control of destructive species. Not open to Entomology majors pursuing the MS or PhD degrees. *Preq:* Consent of instructor.

ENT 808 Taxonomy of Immature Insects 3(1,6)F

Odd-numbered years. Identification of immature insects emphasizing the Holometabola. Identified collection is required.

FOR 205 Dendrology 3(2,3)F

Classification, nomenclature, and identification of the principal forest trees of the United States, their geographical distribution, ecological requirements, and economic importance. Field identification of native trees and commonly planted exotics in the Piedmont and surrounding areas. *Preq:* BIOL 103 or consent of instructor.

FOR 206 Forestry Ecology 3(2,3)S

Study of the nature of forests and forest trees, how they grow, reproduce, and their relationships to the physical and biological environment. *Preq:* BIOL 103, CSENV 202, FOR 205 or consent of instructor.

FOR 251 Forest Communities 2(0,6)

Study of forest plant species and their successful status and habitat requirements with respect to landform, soil type, and other appropriate aspects of site classification. *Preq:* FOR 205 or consent of instructor.

FOR 253 Forest Mensuration 4(0,12)

Introduction to measurements of land, individual trees, forest stands, forest products, and the application of mensurational techniques to the statistical and physical design of forest sampling methods, including measurement techniques of non-timber components of forest resources. *Preq:* FOR 205 or consent of instructor.

FOR 305 Woodland Management 3(2,2)F,S

Compendium of forestry subjects providing a broad view of the forest environment as it relates to ecology, management, and utilization of forests, especially those of South Carolina. Field and laboratory exercises in the fundamentals of forest-land management. Not open to Forest Resource Management majors. *Preq:* BIOL 103 or consent of instructor.

FOR 415, 615 Forest Wildlife Management 3(2,3)

Principles, practices, and problems of wildlife management with emphasis on upland forest game species. Habitat manipulation through use of appropriate silvicultural practices in association with other techniques is evaluated. *Preq:* Consent of instructor.

FOR 421, 621 Biology and Silviculture of Hardwood Forests 2(1,2)F

Study of silvics, growth, and development of major hardwood species of North America that relates these biological characteristics to the ecology, silviculture, and utilization of the hardwood forests of the eastern United States. *Preq:* FOR 205, 206 or consent of instructor.

FOR 425 Forest Resource Management Plans 2(1,3)

Development of multiple resource forest management plans. Economic and environmental impacts of implementing management plans. *Preq:* FOR 417 or consent of instructor.

FOR 431, 631 Recreation Resource Planning in Forest Management 2(1,3)S

Odd-numbered years. Analysis of forest recreation as a component of multiple-use forest management; techniques of planning; physical and biological effects on forest environments; and forest site, user, and facility management.

FOR 433, 633 GPS Applications 3(2,3)

Develops competence in global positioning system (GPS) technology including theory, methods, and application to natural resources mapping. Topics include basic concepts of GPS; projection systems; types of data; mission planning; and data capture, correction, and export to geographical information systems (GIS). *Preq:* Senior standing or consent of instructor.

FOR 460, 660 Silviculture I 3(2,3)

Discussion of the theory and practice of establishing, maintaining, and harvesting forest stands in accordance with ecological and economic principles. *Preq:* FOR 206 and Forestry Summer Camp or consent of instructor.

FOR 462, 662 Silviculture II 3(2,3)

Discussion of forest management practices that affect ability of the land to produce multiple forest resources, with emphasis on water, nutrients, and fire. *Preq:* Consent of instructor.

FOR 805 Forest Landscape Ecosystems 4(3,3)F

Even-numbered years. Three basic landscape components of soils, landform, and vegetation; their interrelationships in forest ecosystems; factors and processes of soils as interacting components with landform and vegetation. *Preq:* Graduate standing or consent of instructor.

FOR 806 Advanced Silviculture Forest Tree Growth and Development 3(3,0)F

Odd-numbered years. Growth and development of economically important forest tree species; structure, function, phenology, and wood formation related under forest stand conditions emphasizing manipulation of forest tree growth by cultural practice; current research in growth and culture of forest trees and stands. *Preq:* BIOSC 401 and 402 or consent of instructor.

L S 159 Hunting Traditions 1(0,3)

Basic, hands-on instruction in the shooting sports (shotgun, rifle, and archery) and the sport of hunting. Designed to introduce students to the safe and responsible use of firearms and archery equipment and safe hunting practices. Students are required to complete the SC Department of Natural Resources Hunter Education certification.

LARCH 252 Basic Design IV 6(1,10)

Studio devoted to the methodology of the process. Transition from the abstract to more landscape-specific applications. Lectures, demonstrations, and exercises support basic landscape architectural design and theory. *Preq:* LARCH 251.

LARCH 451 Landscape Architecture Design III 6(1,10)

Studio work of substantial scale or complexity such as multiple building complexes, neighborhoods, campus masterplans, research or business parks, or residential communities. Projects may be undertaken on a simultaneous basis to simulate professional practice. Projects may include the integration of computer technologies. Site construction technology issues may be introduced. *Preq:* LARCH 352.

PRTM 201, H201 The Recreation/Leisure Environment 3(3,0)

Discusses the development characteristics of built and natural environmental resource settings for recreation, tourism development, and community expression. Examines human/environment interactions during leisure, including the impact of the recreation environment on people and the impact of people on the recreation environment. Surveys public agencies and private interests in these settings.

PRTM 270, H270 Introduction to Recreation Resources Management 3(3,0)

Fundamentals of recreation resources management are presented to include the framework of management, management of specific resources, management of visitors, and management of services.

PRTM 474, H474 Advanced Recreation Resources Management 3(3,0)

Advanced topics in recreation resource management focusing on management strategies and techniques for addressing common resource and social problems in recreation resource management. Case studies and problem analysis are emphasized. *Preq:* Senior standing, 2.0 cumulative grade-point ratio.

PRTM 807 Recreation Behavior in Natural Environments 3(3,0)

Social, psychological, and environmental influences on human behavior; identification of theoretical perspectives to explain behavior and to resolve problems in recreation resource management.

W F B 412, H412, 612 Wildlife Management 3(2,3)S

Basic principles and general practices of wildlife management and conservation are covered. Major problems concerning the management of wildlife resources, with emphasis on upland game species. Laboratory work includes practical work on the Clemson University woodlands and field trips to several areas where wildlife management is being practiced.

W F B 462, H462, 662 Wetland Wildlife Biology 3(3,0)F

Study of wetland wildlife habitats, emphasizing classification by physical, chemical, and biological characteristics; importance of wetland habitat for management and production of wetland wildlife species. *Preq:* BIOL 103/104 or 110/111.