Forestry (FORS)

FORS 121 Introduction to Forestry (Lab) (4)
An environmental survey course which addresses the important features, processes, and issues of forested landscapes. Topics include major tree species, forest biology and ecology, tree structure and function, silviculture, forest management, forest products, and U.S. forest policy and laws. The focus on North American forests is set within a context of global forest issues. Lab exercises emphasize fieldwork, utilizing the diverse array of local forest types present on the Cumberland Plateau and nearby Appalachian Mountains. Lecture, three hours, laboratory and field trips.

FORS 202 Wood Anatomy, Properties, and Products (4)
Examines how tree structure shapes material performance through the study of secondary xylem at gross and microscopic scales. Students analyze samples to identify wood to species or group level, with emphasis on common U.S. commercial woods. The course links silvics and growth conditions to variation in mechanical properties, durability, and defects, and builds structure–property relationships. Content connects xylem anatomy to product selection and manufacturing processes, including sawing, drying, grading, and the production of lumber, panels, pulp, paper, and engineered wood. *Prerequisite: FORS 121 or GEOL 121.*

FORS 204 Forest Wildlife Management (4)
A survey and analysis of how vertebrate animals affect forest processes, with particular emphasis on forest regeneration on the Cumberland Plateau. This discussion-oriented class will also address the history and current status of U.S. and international wildlife management, and the effects of forest management on game and non-game species. Students will interact with wildlife management professionals in Tennessee and will design and implement a field study to quantify the effects of vertebrate animals on forest growth and development. *Prerequisite: FORS 121 or BIOL 130.*

FORS 211 Dendrology (Lab) (4)
This course explores the identification, biology and morphology of woody plants, with emphasis on the major forest species of North America. Primary focus is on the ecophysiological characteristics of species and their roles in forest succession, species distribution across the landscape, and responses to disturbance and environmental stress. Includes field identification of native trees and shrubs of the eastern U.S., with special emphasis on the Cumberland Plateau and the southeast. Lecture, laboratory, and weekend field trips. *Open only to sophomores, juniors, and seniors.*

FORS 212 Tropical Forest Ecology and Management (4)
An introduction to the ecology and management of forests and natural resources in the tropical biome. Social and technical aspects of forestry and natural resource management are considered. Topics include tropical forest ecology, techniques of forest and natural resource management, land tenure, the use of plants as pharmaceuticals, agroforestry, trees in traditional management systems, the forest as habitat, and the role of western environmental assistance in tropical countries.

FORS 215 Fisheries Ecology and Management (Lab) (4)
An introduction to the theory and practice of fisheries science. Particular emphasis is placed on approaches and techniques for assessing and managing fish populations, habitats, and ecosystems under commercial and recreational harvest; on human dimensions in fisheries management and policy; and on case studies of flawed management approaches throughout history. *Prerequisite: FORS 121 or BIOL 130.*

FORS 225 Forests and Global Change (4)
This course examines how natural and anthropogenic changes in the earth system are affecting the composition, functioning, and stability of the world's forests. Topics include: the impacts of climate change, altered atmospheric chemistry, land-use change, invasive species, species extinctions, and sea level rise on forests at the regional scale and the accompanying feedbacks on the earth system at the continental to global scales. *Prerequisite: BIOL 130 or FORS 121.*

FORS 230 Urban Forest Management (4)
Study of the environmental stresses associated with urban landscapes and their impact on establishing and maintaining trees in urban environments. Topics include the theory and practice of individual tree care; biology of tree response to stress, disease, and nutrient assessment; impacts of trees on urban climate; and urban forest inventory and planning. *Prerequisite: FORS 121.*

FORS 240 Special Topics (2 or 4)
A seminar on a topic related to forestry and natural resources. This course may be repeated for credit when the topic differs. *Prerequisite: Prerequisites vary by topic..*

FORS 250 Forests: Food, Medicine, and More (4)
An exploration of the wide range of edible, medicinal, and otherwise useful forest products found in forests of western and eastern North America, including the forests of Sewanee. In addition to learning about the biology and distribution of these plants, and about how they are gathered and processed, students discuss the ecological implications of harvesting these interesting plants and fungi. Note: The class involves some eating. *Prerequisite: FORS 121 or FORS 211.*

FORS 260 Forest Watershed Measurements (2)
A field and analysis course in which students learn the techniques of stream and watershed evaluation through active participation in a watershed monitoring project. Activities will focus upon stream and watershed sampling procedures, analytical laboratory techniques, and the synthesis, analysis, and reporting of data. Non-laboratory course. *Prerequisite: FORS 314 or GEOL 314.*

FORS 262 Forest and Watershed Restoration (Lab) (4)
A study of the principles and practices employed in forest and watershed restoration across North America. Emphasis placed on the scientific tenets of restoration (ecosystem function and process), field monitoring techniques, the concept of adaptive management, collaboration and conflict resolution, and the development of restoration policy. Laboratory course. *Prerequisite: FORS 121 or GEOL 121 or BIOL 130.*

FORS 270 Water Resource Policy and Law (4)
This case-studies based course focuses on the protection and management of water resources and associated biodiversity. Students are introduced to the principal federal and state laws governing the rights and responsibilities of landowners, with emphasis on how such regulation affects management decisions and economic outcomes. The course promotes understanding of the legal/regulatory environment through study of common and statutory law, as well as critical analysis of the outcomes. Case studies involve both international and local problems. Students gain practical experience by applying science-based monitoring guidelines and methods, together with opportunities for community engagement work.

FORS 303 Soils (Lab) (4)
A study of soils as they relate to land use, bedrock and geomorphology, site quality, and vegetation processes. Emphasizes field interpretation of soils as one component of terrestrial ecosystems. Lecture, three hours; laboratory and field trips. *Prerequisite: FORS 121 or GEOL 121.*

FORS 305 Forest Ecology (Lab) (4)
Explores the interrelationships between structure and function of forested ecosystems, approaching the forest community from a physiological perspective. Emphasizes the influence of microclimate, nutrient cycling, and disturbance on community productivity and composition. Lecture, three hours; laboratory and field trips. *Prerequisite: FORS 121 and one forestry course numbered 200 or above.*

FORS 307 Biometrics (4)
Principles and methods employed in the estimation of forest and other natural resource parameters. Introduction to the uses of statistical models in drawing inferences about biological populations with an emphasis on sampling theory and field methods. Topics include: the scientific method, methods to assist students in the interpretation of both experimental and observational data, and elements of experimental design with an emphasis on biological applications. *Prerequisite: FORS 121 and (MATH 101 or STAT 204).*

FORS 312 Silviculture (4)
Principles and practices of establishing, tending, and harvesting forest stands on a sustainable basis. Emphasis on ecologically sound techniques of managing forests to meet diverse landowner objectives such as watershed management, wildlife habitat enhancement, recreational use, insect and disease control, and/or timber production. *Prerequisite: FORS 121 and one forestry course numbered 200 or above.*

FORS 314 Hydrology (Lab) (4)
Occurrence, movement, quality, and behavior of water in the hydrologic cycle with emphasis on surface and underground water. Includes techniques and problems of measurement and utilization. Lectures, three hours; laboratory and field trips, three hours. *Prerequisite: GEOL 121.*

FORS 319 Natural Resource Management and Decisions (4)
A survey of theory and methods used in natural resource management analysis and decision making with an emphasis on forests and some other renewable resources such as wildlife. Students will use resource modeling and decision-making software to address problems in managing multiple resources. Emphasis will be on (1) evaluation of the effects of land characteristics, tax policy, risk, and interest rates on management; (2) choice among policy alternatives proposed by competing groups; and (3) application of concepts of management, policy, economics, and spatial analysis to land management. Practicums will involve analysis of resource data and presentation of preferred strategies. *Prerequisite: BIOL 130, ECON 120, or FORS 121.*

FORS 332 Oral Presentations (2)
Oral presentations of important topics and published data in forestry, geology, and other environmental sciences. Course goal is to train students through practice to give and critique oral presentations appropriate for scientific or other professional research. Each student gives several presentations and formally critiques other presentations as part of the course. *Open only to juniors or seniors pursuing majors in forestry, geology, or natural resources and the environment. Prerequisite: FORS 121 or GEOL 121.*

FORS 432 Senior Field Project (4)
An interdisciplinary field-based study of a selected portion of the university Domain or surrounding area. The primary focus of the study is to conduct a detailed analysis of interrelationships between the project area's geology, forest cover, hydrology, archeology, economics, history, and current use, and to use these parameters to critically evaluate the land-use issues of the area. Students produce a professional-quality written report of their analysis and also orally present their results to department faculty and seniors. *Open only to seniors pursuing majors in forestry, geology, or natural resources and the environment. Prerequisite: FORS 121.*

FORS 444 Independent Study (2 or 4)
An opportunity for students to explore a topic of interest in an independent or directed manner. *Prerequisite: Instructor prerequisite override required.*