

# FOREST RESOURCES AND CONSERVATION

## **FAS 6306C Spatial Sciences for Marine Environmental Characterization 4 Credits**

**Grading Scheme:** Letter Grade

An introduction to the geospatial technologies, concepts and methods required to acquire, analyze and manage geographic data used in a context of marine habitat mapping. Emphasis is given to the understanding and appreciation of maps as a mean of communication between stakeholders with different backgrounds and expertise.

## **FAS 6356 Fisheries Enhancement 2 Credits**

**Grading Scheme:** Letter Grade

Provides participants with knowledge and skills required for assessing where and when enhancements can contribute to fisheries management goals, and for developing and managing such initiatives effectively. Emphasizes integrative systems approaches and the key elements of population dynamics, aquaculture production, release strategies, genetic management, governance, and social/economic costs and benefits.

## **FNR 5072C Environmental Education Program Development 3 Credits**

**Grading Scheme:** Letter Grade

Comprehensive approach, from needs assessment to evaluation, applied to youth-based, nonformal environmental education. Required field trip and group project.

## **FNR 5608 Research Planning 3 Credits**

**Grading Scheme:** Letter Grade

History and philosophy of science, scientific method, development of a research proposal. Research facilities and programs are presented. Offered fall term.

**Prerequisite:** consent of instructor. Required for all new M.S. students.

## **FNR 5625 Managing Public Lands and Waters 3 Credits**

**Grading Scheme:** Letter Grade

Concepts, principles and practices of managing public lands and waters of the United States, and, to a lesser extent, other countries; the natural resources involved; and the roles and responsibilities of governing bodies, management organizations, constituents and the general public.

## **FNR 6061 Conflict and Collaboration in Natural Resources 3 Credits**

**Grading Scheme:** Letter Grade

Overview of major issues, theories, and approaches related to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict including co-management and community-based management.

## **FNR 6560 Intro to Bayesian Statistics for Life Sciences 3 Credits**

**Grading Scheme:** Letter Grade

Introduces life scientists to Bayesian statistics. Will explore basic ideas regarding integration through simulation (Monte Carlo integration), the philosophy and strengths of Bayesian statistics, and the Markov Chain Monte Carlo (MCMC) algorithms needed to fit such models.

## **FNR 6564 Ecohydrology 3 Credits**

**Grading Scheme:** Letter Grade

Introductory course on ecohydrology - the study of interactions between organisms, ecosystems, and the hydrologic cycle. Uses a blend of theory and case studies.

**Prerequisite:** permission of instructor

## **FNR 6628 Watershed Management and Restoration 3 Credits**

**Grading Scheme:** Letter Grade

Addresses science and policy of watershed management, focusing on biophysical factors, socioeconomic drivers, and the legal/policy context.

## **FNR 6668 Natural Resources in a Changing Climate 3 Credits**

**Grading Scheme:** Letter Grade

This course takes a multidisciplinary and systems approach to address potential global climate change (GCC) effects to our natural resources and understand how adaptive strategies may sustain these resources in a changing climate.

## **FNR 6669 Policy and Economics of Natural Resources 3 Credits**

**Grading Scheme:** Letter Grade

Factors in evolution of forest, range, wildlife and related natural resources administration and policies in the United States. Includes policy components, policy formation and implementation, change processes, and economic criteria for evaluating policy effectiveness.

## **FOR 5157 Ecosystem Restoration Principles and Practice 3 Credits**

**Grading Scheme:** Letter Grade

Application of ecological theory and economic and political constraints to restoration practice. Emphasizes regional, national, and international case studies.

## **FOR 5159 Ecology and Restoration of Longleaf Pine Ecosystems 3 Credits**

**Grading Scheme:** Letter Grade

History, structure, function and ecological and economic importance; regeneration ecology, stand dynamics, restoration techniques, ownership patterns, and socio-economic and political and policy aspects of restoration

## **FOR 5435 Forest Information Systems 3 Credits**

**Grading Scheme:** Letter Grade

Sampling methodology for natural resource inventories, involving remote sensing, geographic information systems (GIS), and global positioning system (GPS). Offered spring term of even-numbered years.

**Prerequisite:** consent of instructor.

## **FOR 5626 Forest Resource Manag 3 Credits**

**Grading Scheme:** Letter Grade

Forest Resource Manag

## **FOR 6005 Conservation Behavior 3 Credits**

**Grading Scheme:** Letter Grade

Methods for changing behavior in various groups to improve environmental sustainability.

## **FOR 6045 Science Communication & Public Education 3 Credits**

**Grading Scheme:** Letter Grade

Provides an introduction to science communication, environmental education, and public outreach. The course will focus on strategic message framing and how to convey scientific research to the public. The public outreach portion will focus on general audiences as well as K-12 specific outreach.

## **FOR 6151 Forest Ecosystem Health 3 Credits**

**Grading Scheme:** Letter Grade

Forest Ecosystem Health is an integrated course dedicated to the study of forest health and how it relates to ecological restoration.

## **FOR 6154 Analysis of Forest Ecosystems 3 Credits**

**Grading Scheme:** Letter Grade

Concepts of the forest ecosystem, the role of models for understanding ecosystem dynamics, disturbance regimes and stability theory, nutrient cycles, and ecosystem energetics.

**Prerequisite:** BSC 2010, or equivalent

**FOR 6155 Forest Ecosystem Resilience 3 Credits****Grading Scheme:** Letter Grade

Offers an overview of the abiotic and biotic drivers, and management activities that can either stimulate or suppress alterations in forest structure and function. The course also covers the methods used to detect change and surveys the models used to estimate how a forest will change in the future.

**FOR 6156 Simulation Analysis of Forest Ecosystems 3 Credits****Grading Scheme:** Letter Grade

Conceptual basis, evaluation, implementation, testing, and analysis of forest simulation models. Students develop and present modeling projects.

**FOR 6158 Management and Restoration of Invaded Ecosystems 3 Credits****Grading Scheme:** Letter Grade

An overview of the ecological basis for plant invasions in terrestrial ecosystems, with emphasis on applications for restoration and management of invaded ecosystems. Methods and techniques for prediction, prevention, control, and restoration will be discussed, and plant invasions from Florida and around the U.S. will be used as case studies. This course focuses heavily on applying scientific theory and research to on-the-ground management.

**FOR 6164 Silviculture: Concepts and Application 3 Credits****Grading Scheme:** Letter Grade

Principles governing establishment, treatment, and control of forest stands; regeneration systems; intermediate cuttings; intensive cultural practices; land use ethics; and management systems.

**Prerequisite:** Course in ecology.**FOR 6170 Tropical Forestry 3 Credits****Grading Scheme:** Letter Grade

Promise and pitfalls of production-oriented management as a conservation strategy for naturally regenerated tropical forests. Ecological constraints to sustainable forest management in the tropics; strategies, tools, and techniques for large- and small-scale management of old growth and secondary tropical forests for timber and non-timber forest products and services; future of forests and forestry in tropical landscapes. Offered spring term.

**Prerequisite:** Consent of instructor.**FOR 6215 Fire Paradigms 3 Credits****Grading Scheme:** Letter Grade

Reviewing dominant fire paradigms worldwide, including in-depth review of specific paradigm, its theoretical basis, and social/ecological/management implications.

**FOR 6340 Physiology of Forest Trees 3 Credits****Grading Scheme:** Letter Grade

Growth and development of woody perennial plants, with emphasis on understanding how environmental factors affect their physiology.

**Prerequisite:** graduate status or consent of instructor.**FOR 6436C Visualization of Ecological Data 3 Credits****Grading Scheme:** Letter Grade

Equip students to work with big (ecological) data, with focus on data visualization as exploratory data analysis. Students will understand the importance and basics of data management and effective visualization and will be able to read data into R from external sources (csv, txt) and be able to check and manipulate data types. They will communicate their data and/or findings using R, Rstudio, and Rprojects, as well as make basic statistical summaries and plots of data.

**Prerequisite:** Graduate standing.**FOR 6543 Natural Resource Economics and Valuation 3 Credits****Grading Scheme:** Letter Grade

Extending microeconomic principles to problems in forest production, supply behavior, forest valuation, and multiple use of forest lands. Offered spring term of odd-numbered years.

**Prerequisite:** consent of instructor.**FOR 6625 Issues in Southeastern Forest Health 3 Credits****Grading Scheme:** Letter Grade

Instructs students how to understand and address invasive and native forest and tree health issues and their management in the southeastern U.S. Topics include threats from insects, pathogens, wildlife, climate change, invasive plants and more. For each forest health topic, students will learn the biology, ecology, and management strategies.

**Prerequisite:** Graduate standing.**FOR 6628 Community Forest Management 3 Credits****Grading Scheme:** Letter Grade

Integrates theory from the socio-economic and bio-physical sciences with on-the-ground realities in implementing community-based forest management and conservation.

**FOR 6665 Landscape Planning for Ecotourism 3 Credits****Grading Scheme:** Letter Grade

Planning frameworks and techniques of large natural areas. Offered fall term.

**FOR 6670C Urban Forestry 3 Credits****Grading Scheme:** Letter Grade

Explores the nature, scope and components of the urban forest, including biology, culture, protection and aspects of management, planning and policy.

**Prerequisite:** Graduate standing.**FOR 6905 Research Problems in Forest Resources and Conservation 1-6 Credits, Max 10 Credits****Grading Scheme:** Letter Grade

Research Problems in Forest Resources and Conservation

**Prerequisite:** consent of instructor.**FOR 6910 Supervised Research 1-5 Credits, Max 5 Credits****Grading Scheme:** S/U

Supervised Research

**Prerequisite:** consent of instructor.**FOR 6933 Seminar 1 Credit, Max 2 Credits****Grading Scheme:** Letter Grade

Seminar

**FOR 6934 Topics in Forest Resources and Conservation 1-4 Credits, Max 12 Credits****Grading Scheme:** Letter Grade

Selected topics in forestry and natural resources.

**FOR 6940 Supervised Teaching 1-5 Credits, Max 5 Credits****Grading Scheme:** S/U

Supervised Teaching

**Prerequisite:** Consent of instructor.**FOR 6971 Research for Master's Thesis 1-15 Credits****Grading Scheme:** S/U

Research for Master's Thesis

**FOR 7979 Advanced Research 1-12 Credits****Grading Scheme:** S/U

Research for doctoral students before admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.

**FOR 7980 Research for Doctoral Dissertation 1-15 Credits****Grading Scheme:** S/U

Research for Doctoral Dissertation

**GIS 6116 Geographic Information Systems Analysis 3 Credits****Grading Scheme:** Letter Grade

Analytical tools such as software grid modules, database query, map algebra, and distance operators; analytical operations such as database query, derivative mapping, and process modeling; sources and nature of uncertainty and error, and project planning management.

**Prerequisite:** SUR 3393 and SUR 3393L**PCB 5530 Plant Molecular Biology and Genomics 3 Credits****Grading Scheme:** Letter Grade

Integrated overview of the fundamental mechanisms enabling plant growth, development, and function, and approaches to study these at molecular level. Topics include replication, repair, transcription, translation, cell cycle, transformation, gene tagging, structural genomics, proteomics, and metabolomics. Offered in fall term.

**Prerequisite:** undergraduate molecular biology or biochemistry.**PCB 6528 Plant Cell and Developmental Biology 3 Credits****Grading Scheme:** Letter Grade

Cellular and developmental biology of plants. Lecture format with frequent discussion of recent papers. Topics include signal transduction, organelles, protein trafficking, and developmental mechanisms. Offered in spring term.

**Prerequisite:** PCB 5530 and PCB 5065 or equivalent.**PCB 6555 Introduction to Quantitative Genetics 3 Credits****Grading Scheme:** Letter Grade

Intended for students of all disciplines who are interested in genetic principles and biometric evaluation of characters that exhibit continuous variation in natural populations or breeding programs.

**Prerequisite:** STA 6166.**SUR 6355 Analytical Photogrammetry 3 Credits****Grading Scheme:** Letter Grade

This course relates the principles of precise measurement and proper data reduction through measurements of photographs followed by calculations to determine spatial information.