

# Forestry (FOREST)

## FOREST 2151: Dendrology

An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200. Restricted to School of Natural Resources students (Environmental Sciences, Natural Resource Science and Management, and Parks, Recreation and Sport) during early registration. Other students may register after early registration, provided there is space available

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## FOREST 2340: Tree Physiology

This course introduces and develops understanding of physical and chemical phenomena involved in the functions and activities of trees that produce growth.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200, CHEM 1320; or instructor's consent

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## FOREST 2541: Forest Utilization

Field studies of logging and milling of timber.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2542, and FOREST 2544

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## FOREST 2542: Forest Measurement and Inventory Field Studies

Field measurement of standing trees including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2541 and FOREST 2544

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## FOREST 2543: Forest Ecology Field Studies

Field studies of vegetation, soils, habitats and ecological units. Application of ecological principles of natural resource management and understanding of natural and managed forested communities with an emphasis on southeastern Missouri.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2542 and FOREST 2544

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## FOREST 2544: Introduction to Silviculture and Management

Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2541, FOREST 2542

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## FOREST 2545: Forest Management Planning

Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2544 concurrently

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## FOREST 3207: Forest Fire Control and Use

This course will provide a background in the science, ecology, and application of fire. Students will gain an understanding of how fire is influenced by the physical environment and the fuels present. Concepts and application of fire behavior modeling will be presented for planning wildfire control and prescribed burning. The unique relationship between humans and fire and how that has changed over time will be discussed. We will survey fire effects on key ecosystem attributes such as vegetation, wildlife habitat/populations, forest products, biodiversity and conservation, and soil productivity. The technical aspects of prescribed burning planning and implementation will be discussed and demonstrated. We will overview how wildfire and prescribed fire management varies among state and federal natural resource agencies. Graded on A-F basis only.

**Credit Hours:** 3

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## FOREST 3212: Forest Health and Protection

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 3

**Recommended:** FOREST 2151

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## FOREST 3212W: Forest Health and Protection - Writing Intensive

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 3

**Recommended:** FOREST 2151

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**FOREST 3290: Urban Forestry**

The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required.

**Credit Hours:** 2

**Prerequisites:** FOREST 2151 or PLNT\_SCI 2210

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**FOREST 3300: Problems in Forestry**

Problems in Forestry

**Credit Hour:** 1-99

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**FOREST 3350: Special Readings in Forestry**

Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**Credit Hour:** 1-99

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**FOREST 4320: Forest Ecology**

(cross-leveled with FOREST 7320). Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** At least sophomore standing. Recommended FOREST 2151

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**FOREST 4320W: Forest Ecology - Writing Intensive**

(cross-leveled with FOREST 7320). Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** At least sophomore standing

**Recommended:** FOREST 2151

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**FOREST 4330: Practice of Silviculture**

(cross-leveled with FOREST 7330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

**Recommended:** FOREST 4375

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**FOREST 4341: Forest Harvesting and the Environment**

Forest harvesting is a critical phase for meeting ecological, economical, and societal objectives within forestland and woodland settings. We will be exploring different harvesting systems; planning and designing harvests given various management objectives; and understanding the complexity of mitigating short- and long-term environmental impacts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 2541 and FOREST 2542 or permission of the instructor

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**FOREST 4350: Forest Economics**

(cross-leveled with FOREST 7350). Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** ABM 1042 or ABM 1041 or ABM 2070

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**FOREST 4360: Forest Measurements**

(cross-leveled with FOREST 7360). Applied course in the area of forest inventory and forest growth models for developing, maintaining, and utilizing these tools in forest management.

**Credit Hours:** 3

**Recommended:** NAT\_R 4110

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**FOREST 4375: Forest Stand Dynamics**

(cross-leveled with FOREST 7375). Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Recommended:** FOREST 4330

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**FOREST 4380: Forest Resource Management**

(cross-leveled with FOREST 7380). The class covers fundamental decisions foresters make in managing the timber resource, including stand and forest-level decisions, and planning and administrating harvesting operations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FOREST 4330

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**FOREST 4380W: Forest Resource Management-Writing Intensive**

(cross-leveled with FOREST 7380). Teaches resource managers how to develop a plan for the management of forest resources using managerial,

economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FOREST 4330

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**FOREST 4385: Agroforestry I: Theory, Practice and Adoption**

(cross-leveled with FOREST 7385). Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**FOREST 4390: Watershed Management and Water Quality**

(cross-leveled with FOREST 7390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; Senior standing only

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**FOREST 4945: Experiential Learning in Industry Internship in Forestry**

Learning experience combining observation, application, and reflection in a discipline-based industry internship. Course appears on transcript for zero credit and does not count toward full-time enrollment. No tuition or fees are charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent

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**FOREST 4950: Forestry Undergraduate Research**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing, STAT 2530

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**FOREST 4955: Experiential Learning in Research in Forestry**

A supervised learning experience contributing to faculty research. Course appears on transcript for zero credit and does not count toward full-time enrollment. No tuition or fees are charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent

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**FOREST 4994: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent Required

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**FOREST 4995: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FOREST 7301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 7320: Forest Ecology**

(cross-leveled with FOREST 4320). Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** FOREST 2151 or BIO\_SC 3210 or instructor's consent

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**FOREST 7330: Practice of Silviculture**

(cross-leveled with FOREST 4330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

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**FOREST 7350: Forest Economics**

(cross-leveled with FOREST 4350). Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** Mathematics requirement completed; ABM 1042 or ABM 1041 or ABM 2070

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**FOREST 7360: Forest Measurements**

(cross-leveled with FOREST 4360). Applied course in the area of forest inventory and forest growth models for developing, maintaining, and utilizing these tools in forest management.

**Credit Hours:** 3

**FOREST 7375: Forest Stand Dynamics**

(cross-leveled with FOREST 4375). Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

**FOREST 7380: Forest Resource Management**

(cross-leveled with FOREST 4380). Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

**FOREST 7385: Agroforestry I: Theory, Practice and Adoption**

(cross-leveled with FOREST 4385). Understand biophysical, ecological social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**FOREST 7390: Watershed Management and Water Quality**

(cross-leveled with FOREST 4390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or instructor's consent

**FOREST 8050: Research in Forestry**

Original research not leading to preparation of dissertation.

**Credit Hour:** 1-99

**FOREST 8090: Masters Thesis Research in Forestry**

Original investigation for presentation in a M.S. thesis. Graded on a S/U basis only.

**Credit Hour:** 1-10

**FOREST 8385: Ecological Principles of Agroforestry**

The course prepares students to develop an understanding of the complexity of agroforestry. Students will critically analyze classical and contemporary ecological theories and apply them in designing agroforestry practices to solve complex production and environmental issues. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

**FOREST 8390: Physical Hydrology**

Students will obtain an understanding of hydrologic processes in terms of the occurrence, distribution and movement of water spanning the atmosphere and lithosphere. Students will have an opportunity to develop an understanding of physical processes governing mass and energy flux in wildland and anthropogenic systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

**FOREST 8395: Agroforestry Economics and Policy**

This course discusses basic economic and financial principles, and their applications in agroforestry. Specifically, the discussion includes market demand and supply, market failure, non-market valuations, cost and benefit analysis, short term and long term economic analysis, economic valuation of ecosystem services, and the applications in agroforestry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385, ABM 1041 or permission of instructor

**FOREST 8401: Topics in Forestry**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**FOREST 8430: Applied Silviculture**

Ecological and economic factors affecting application of silviculture in each of eighteen forest regions in United States.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

**FOREST 8450: Forest Soils**

Physical, chemical and biological properties of forest soils in relation to tree growth.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 8460: Advanced Forest Ecology**

Lecture/discussion based course emphasizing contemporary and classic ecological studies and concepts in the context of current forest ecology issues and research. Prerequisites: undergraduate ecology course

**Credit Hours:** 3

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**FOREST 8490: Advanced Forest Management**

Modern quantitative methods to facilitate decision-making in harvest scheduling and regulation, land use allocation, and production planning in natural resource management.

**Credit Hours:** 3

**Prerequisites:** FOREST 4380

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**FOREST 8515: Advanced Forest Biometrics**

An introduction to the topics and philosophy of ecological modeling. The course will guide students through the process of developing a conceptual model, formalizing the model, formulating, parameterizing, and running the model as well as analyzing the results.

**Credit Hours:** 3

**Prerequisites:** STAT 7070 or instructor's consent

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**FOREST 8530: Ecosystem Management: The Human Dimension**

Overview of cultural, social, political and economic dimensions of natural resource problems and issues from an ecologically grounded management perspective.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4353 or equivalent

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**FOREST 8620: Plant-Water Relations**

Absorption, translocation, utilization and loss of water by plants . Biophysics of water movement in the soil-plant-atmosphere continuum. Effects of water deficits on physiological processes.

**Credit Hours:** 3

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**FOREST 9087: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs. Graded on S/U basis only.

**Credit Hour:** 1

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**FOREST 9090: Dissertation Research in Forestry**

Original investigation for presentation in a doctoral dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-10

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