

# FORESTRY (FOR)

## FOR 111. INTRODUCTION TO FORESTRY. (3 Credits)

Forest resources in the world; forests and human well-being; where and how forests grow; environmental and human values; products, characteristics, and uses; basic elements of use, planning and management. Interpretation of forestry literature; professional origins in the U.S. Field trips required.

## FOR 112. COMPUTING APPLICATIONS IN FORESTRY. (3 Credits)

An overview of computing applications used in all aspects of forestry work, but largely focused on development of intermediate and advanced spreadsheet skills using Microsoft Excel (e.g., complex formulas and functions, charting, and pivot tables). Additionally, the course rounds out essential skills in document formatting and presentation development.

## FOR 199. SPECIAL STUDIES. (1-16 Credits)

*This course is repeatable for 16 credits.*

## FOR 206. \*FOREST SOILS LABORATORY FOR SOIL 205. (1 Credit)

Laboratory exercise and field trips designed to develop student competency in soil processes, description, analysis, and assessment with a particular emphasis on the role of soils in managed and unmanaged forest ecosystems. (Bacc Core Course if taken with SOIL 205)

**Attributes:** CPBS – Core, Pers, Biological Science; CPPS – Core, Pers, Physical Science

**Corequisites:** SOIL 205

## FOR 208. FOREST SOILS RECITATION. (1 Credit)

Readings, exercises, discussions designed to develop student competency in forest soil processes, description, analysis, and assessment. A particular emphasis will be placed on the role of soils in managed and unmanaged forest ecosystems.

**Recommended:** An introductory soils course.

## FOR 307. JUNIOR SEMINAR. (1 Credit)

College is the time to develop the skills necessary for the transition between academics and career. In conjunction with the expertise already available on campus, this course will guide students through career planning, exploration, placement, and employer expectations. CROSSLISTED as FE 307.

**Equivalent to:** FE 307

## FOR 312. FORESTRY FIELD SCHOOL. (2 Credits)

A hands-on experience in the major aspects of forestry, including regeneration surveys, silviculture, cruising, recreation, forest disturbances, logging site and mill visits, east and west of the Cascades Range. CROSSLISTED as FE 312.

**Equivalent to:** FE 312

## FOR 321. FOREST MENSURATION. (5 Credits)

Theory and practice of sampling and cruising techniques; stratified and nonstratified sampling systems with fixed plots, variable plots, and 3-P designs.

**Prerequisites:** (FOR 141 with C or better or FES 141 with C or better or FOR 241 with C or better or FES 241 with C or better) and FE 208 [C] and FE 209 [C] and (MTH 241 [C] or MTH 245 [C] or MTH 251 [C] or MTH 251H [C]) and (ST 201 [C] or ST 314 [C] or ST 314H [C] or ST 351 [C] or ST 351H [C])

## FOR 322. FOREST MODELS. (3 Credits)

Introduction to static and dynamic forest models: defining what they are, how they might be used, and, in general terms, how they are developed.

**Prerequisites:** FOR 321 with C- or better and MTH 241 [D-] and (ST 201 [D-] or ST 351 [D-])

## FOR 330. FOREST RESOURCE ECONOMICS I. (4 Credits)

Basic arithmetic of interest and capital budgeting. Basic wood products markets. Forest resource markets and market failures. Nonmarket valuation and multiple-use forestry. Impacts of forest management and policy decisions on forest resource use. Lec/lab.

**Prerequisites:** (AEC 250 with C or better or AREC 250 with C or better or ECON 201 with C or better or ECON 201H with C or better) and (MTH 241 [C] or MTH 245 [C] or MTH 251 [C] or MTH 251H [C] or MTH 252 [C] or MTH 252H [C])

## FOR 331. FOREST RESOURCE ECONOMICS II. (4 Credits)

Forest products markets, appraisal, rotation, thinning, uneven-aged management and forest regulation. Economics of timber management and harvest scheduling.

**Prerequisites:** ST 201 with C or better or ST 351 with C or better

**Recommended:** FOR 330

## FOR 346. TOPICS IN WILDLAND FIRE. (3 Credits)

An interdisciplinary survey of concepts relating to fire science, ecology, management, and policy. Includes case studies of several representative ecosystems, ranging from west- and eastside forests of the Pacific Northwest to shrub steppe ecosystems of the Intermountain West and chaparral ecosystems of southern California. Distance and campus-based delivery using videos, website, and discussion.

**Recommended:** Coursework in forest biology or ecology (eg. FOR 240 or FES 240 or FES 341)

## FOR 399. SPECIAL TOPICS. (0-16 Credits)

**Equivalent to:** FOR 399H

*This course is repeatable for 16 credits.*

## FOR 399H. SPECIAL TOPICS. (1-16 Credits)

**Attributes:** HNRS – Honors Course Designator

**Equivalent to:** FOR 399

*This course is repeatable for 16 credits.*

## FOR 401. RESEARCH AND SCHOLARSHIP. (1-16 Credits)

*This course is repeatable for 16 credits.*

## FOR 403. THESIS. (1-16 Credits)

*This course is repeatable for 16 credits.*

## FOR 405. READING AND CONFERENCE. (1-16 Credits)

*This course is repeatable for 16 credits.*

## FOR 406. PROJECTS. (1-16 Credits)

Section 4: Integrated Projects, Graded.

*This course is repeatable for 16 credits.*

## FOR 407. SEMINAR. (1-16 Credits)

*This course is repeatable for 16 credits.*

## FOR 408. WORKSHOP. (1-3 Credits)

*This course is repeatable for 16 credits.*

## FOR 410. INTERNSHIP. (1-16 Credits)

Full-time supervised professional experience emphasizing functional proficiency under joint sponsorship of university and agency personnel. Graded P/N.

*This course is repeatable for 16 credits.*

## FOR 413. FOREST PATHOLOGY. (3 Credits)

Effects of diseases on forest ecosystems. Recognition of important groups, prediction of pathogen responses to environmental changes, and management strategies for protection of forest resources. Field trips. Lec/lab. CROSSLISTED as BOT 413.

**Prerequisites:** BI 204 with C or better or BI 212 with C or better or BI 212H with C or better or BI 213 with C or better or BI 213H with C or better

**Equivalent to:** BOT 413

**FOR 417. ADVANCED FOREST SOILS. (4 Credits)**

Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems. Lec/lab.

**Prerequisites:** SOIL 205 with C- or better and ((CH 231 with C- or better or CH 231H with C- or better) and (CH 261 [C-] or CH 261H [C-]) or CH 201 [C-]) and (MTH 241 [C-] or MTH 251 [C-] or MTH 251H [C-] or MTH 252 [C-] or MTH 252H [C-])

**FOR 429. INTEGRATED PRESCRIPTIONS. (3 Credits)**

Using an actual stand and real data, we will cultivate systematic approaches for: 1) characterizing site conditions and limiting factors; 2) harmonizing multiple management objectives; 3) modeling long-term responses to silvicultural manipulations; 4) assessing environmental impacts; 5) building public acceptance; and 6) communicating alternatives and rationales for decisions. This expanded course will allow a deeper project experience and more integration among the faculty in the co-requisite course, and providing the lab component of three other inter-related forest management courses.

**Prerequisites:** (FOR 240 with C- or better or FES 240 with C- or better) and FOR 321 [C-]

**Corequisites:** FOR 443

**FOR 431. ECONOMICS AND POLICY OF FOREST WILDLAND FIRE. (3 Credits)**

General overview of the history of fire and the interaction of people with fire on forested landscapes. Forest fire policy history and current issues in the U.S. Basic legal concepts relevant to forest fire policy. An economic framework for understanding spatial externalities, decision-making under certainty, institutional economics, and incentives.

**Prerequisites:** AEC 351 with C or better or FOR 330 with C or better or AEC 352 with C or better or ECON 352 with C or better

**FOR 436. WILDLAND FIRE SCIENCE AND MANAGEMENT. (4 Credits)**

Principles and applications of fire as a natural resource management tool; the role of fire in conservation management, restoration, and preservation of ecosystems. Covers basic techniques and current research used to describe fire behavior and spread, fuels and fuel manipulation, and fire effects on the biota. Focus will be on fire as a natural process in ecosystem dynamics. Lec/lab.

**FOR 441. SILVICULTURE PRINCIPLES. (4 Credits)**

Nursery operation, vegetation management, herbivores, fire, seeding and planting techniques. Introduction to principles and techniques involving vegetation control, thinning, fertilizing, and harvesting. Environmental considerations related to forest stand treatments. Lec/lab.

**Prerequisites:** (FES 240 with C or better or FOR 240 with C or better) and (FES 141 [C] or FES 241 [C])

**FOR 442. SILVICULTURE REFORESTATION. (4 Credits)**

Silvicultural principles and practices needed to successfully regenerate forestlands in North America. Topics include artificial and natural regeneration, genetic improvement, seed orchards, forest tree nurseries, site preparation, seedling quality and handling, vegetation management, animal damage protection, early stand management, and ecological and ecophysiological considerations. Emphasis is placed on regeneration methods applied to plantations in western Oregon. Field trips required.

**Prerequisites:** SOIL 205 with C or better and (FES 240 [C] or FES 240H [C] or FOR 240 [C])

**Corequisites:** FOR 443

**FOR 443. SILVICULTURAL PRACTICES. (4 Credits)**

Manipulation of forest stand structure and dynamics to meet various resource management objectives. Covers key concepts and practices associated with vegetation control, thinning, fertilization, even-aged and uneven-aged regeneration systems including social and environmental considerations associated with treatments. Two-day field trip required. Lec/lab.

**Prerequisites:** (FES 240 with C or better or FES 240H with C or better or FOR 240 with C or better) and FOR 321 [C]

**Corequisites:** FOR 442

**FOR 456. \*INTERNATIONAL FORESTRY. (3 Credits)**

An introduction to the biological, physical, and sociological factors that shape the world's forests and the activities used to manage those forests. What influence these factors have on forest policies, practices, and outcomes. CROSSLISTED as FE 456. (Bacc Core Course)

**Attributes:** CSGI – Core, Synth, Global Issues

**Equivalent to:** FE 456

**Recommended:** Introductory course in biology.

**FOR 457. TECHNIQUES FOR FOREST RESOURCE ANALYSIS. (4 Credits)**

Use of linear programming, nonlinear programming, dynamic programming, and simulation to solve complex forest management problems, with emphasis on intertemporal multiple use scheduling. Forestry transportation problems, multiple-use allocation, and investment analysis. Field trips required. CROSSLISTED as FE 457/FE 557.

**Prerequisites:** AREC 351 with C or better or FOR 330 with C or better

**Equivalent to:** FE 457

**FOR 459. FOREST MANAGEMENT PLANNING AND DESIGN I. (4 Credits)**

Integration of environmental, economic, and social aspects of forestry in management planning. Development of strategic and tactical plans using diverse data types and sources. Senior capstone class projects. Lec/lab. CROSSLISTED as FE 459.

**Prerequisites:** FE 457 with C or better or FOR 457 with C or better

**Equivalent to:** FE 459

**FOR 460. \*FOREST POLICY. (4 Credits)**

Policy formulation and analysis for forest resources. Consideration of policy affecting land management approaches to planning, management, and social and economic development. Major forestry policy areas covered include outdoor recreation, range, timber, wilderness, and wildlife and fish. Lec/lab. (Writing Intensive Course)

**Attributes:** CWIC – Core, Skills, WIC

**FOR 462. NATURAL RESOURCE POLICY AND LAW. (3 Credits)**

First of two offerings designed to provide an introduction to current environmental and natural resource law issues and disputes for students who will have to meet, consult, and work with lawyers throughout their professional career. Focus is on mechanisms governing resource allocation within the constraints of private property rights. Emphasis is placed on the federal Endangered Species Act and its relation to water allocation and public trust doctrines. Students will also gain a broad understanding of regulatory .

**FOR 469. FOREST MANAGEMENT PLANNING AND DESIGN II. (4 Credits)**

A team-based, project-centric course for integrated timber harvest planning. Establish tactical and operational planning goals and constraints, identify feasible harvesting and transportation systems, and design harvest units to meet objectives and constraints. Lec/lab. CROSSLISTED as FE 469.

**Prerequisites:** FE 459 with C or better or FOR 459 with C or better

**Equivalent to:** FE 469

**FOR 499. SPECIAL TOPICS. (0-16 Credits)**

Topics of current importance in forest resources issues, education, policies, economics, management, business, social values, silviculture, and biometrics. Topics will change from term to term. May be repeated with different topics for credit. Section 8: Social aspects of natural resource management (3 credits) graded.

*This course is repeatable for 16 credits.*

**FOR 501. RESEARCH AND SCHOLARSHIP. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 503. THESIS. (1-16 Credits)**

*This course is repeatable for 999 credits.*

**FOR 505. READING AND CONFERENCE. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 506. PROJECTS. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 507. SEMINAR. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 508. WORKSHOP. (1-3 Credits)**

*This course is repeatable for 16 credits.*

**FOR 510. INTERNSHIP. (1-9 Credits)**

*This course is repeatable for 16 credits.*

**FOR 513. FOREST PATHOLOGY. (3 Credits)**

Effects of diseases on forest ecosystems. Recognition of important groups, prediction of pathogen responses to environmental changes, and management strategies for protection of forest resources. Field trips. Lec/lab. CROSSLISTED as BOT 513.

**Equivalent to:** BOT 513

**Recommended:** BI 204 or BI 212 or BI 212H or BI 213 or BI 213H

**FOR 517. ADVANCED FOREST SOILS. (4 Credits)**

Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems. Lec/lab.

**Recommended:** SOIL 205 and (((CH 231 or CH 231H) and (CH 261 or CH 261H)) or CH 201) and (MTH 241 or MTH 251 or MTH 251H or MTH 252 or MTH 252H) all with a minimum grade of C-

**FOR 518. MANAGING FOREST NUTRITION. (3 Credits)**

Synthesize current information on nutrient limitations of forest productivity, long-term forest productivity, and mitigating and managing forest nutrition with emphasis on forests of the Pacific Northwest.

**FOR 520. GEOSPATIAL DATA ANALYSIS WITH MATLAB. (3 Credits)**

An introduction into analysis of spatial and other data using Matlab. The course will provide a practical introduction and is designed as a hands-on learning experience.

**FOR 524. FOREST BIOMETRICS. (3 Credits)**

Advanced topics in forest biometrics, including measurement of forest structure and dynamics, application of sampling theory and methods, and statistical techniques for interpreting forestry data.

**Recommended:** FOR 322 and ST 511

**FOR 525. FOREST MODELING. (3 Credits)**

Examination of regression techniques and assumptions used to develop static and dynamic equations of tree and stand attributes.

**Prerequisites:** ST 552 with C or better

**FOR 531. ECONOMICS AND POLICY OF FOREST WILDLAND FIRE. (3 Credits)**

General overview of the history of fire and the interaction of people with fire on forested landscapes. Forest fire policy history and current issues in the U.S. Basic legal concepts relevant to forest fire policy. An economic framework for understanding spatial externalities, decision-making under certainty, institutional economics, and incentives.

**Recommended:** FOR 330 or AEC 351 or AEC 352 or ECON 352

**FOR 534. ECONOMICS OF THE FOREST RESOURCE. (3 Credits)**

Topics include optimal stand and forest management for timber production, economics of ecosystem services (e.g. recreation, biodiversity, carbon sequestration, water quality and regulation), non-market valuation methods, management under risk and uncertainty, discounting, intergenerational equity, sustainability, international trade and other global issues.

**Recommended:** FOR 330 and FOR 331

**FOR 536. WILDLAND FIRE SCIENCE AND MANAGEMENT. (4 Credits)**

Principles and applications of fire as a natural resource management tool; the role of fire in conservation management, restoration, and preservation of ecosystems. Covers basic techniques and current research used to describe fire behavior and spread, fuels and fuel manipulation, and fire effects on the biota. Focus will be on fire as a natural process in ecosystem dynamics. Lec/lab.

**FOR 542. INTERNATIONAL INTENSIVE SILVICULTURE. (2 Credits)**

Operational and ecological aspects of intensive silvicultural management of planted forests around the world. Guest speakers in different countries will describe the type of silvicultural management that is carried out in the speaker's country from species and genetic selection, to harvest and rotation length, including site preparation and planting techniques. Emphasis on comparing silvicultural practices in each country to the management of plantations in western Oregon.

**FOR 543. SILVICULTURAL PRACTICES. (5 Credits)**

Manipulation of immature and mature forest stands for various resource management objectives. Principles and techniques involving vegetation control, thinning, fertilizing, and harvesting. Environmental considerations related to stand treatments. Two-day field trips required.

**Recommended:** (FOR 240 or FES 240) and FOR 321 and concurrent enrollment in FOR 429

**FOR 549. SILVICULTURAL INFLUENCES ON FOREST ECOSYSTEM DYNAMICS. (3 Credits)**

Fundamental biological and ecological principles for the design and implementation of silvicultural regimes that achieve a wide diversity of forest ecosystem management objectives.

**Recommended:** Undergraduate course in silviculture and in forest mensuration.

**FOR 550. SUSTAINABLE FOREST MANAGEMENT. (3 Credits)**

Sustainable forestry as part of the global sustainability movement. History of sustainability and its influence on decision-making in forest management. Current dimensions of sustainability: forest certification, climate change, role of environmental ethics, biodiversity conservation, maintenance of long-term site productivity, conservation of soil and water resources, roles of social institutions, and links to concerns for social justice.

**FOR 557. TECHNIQUES FOR FOREST RESOURCE ANALYSIS. (4 Credits)**

Use of linear programming, nonlinear programming, dynamic programming, and simulation to solve complex forest management problems, with emphasis on intertemporal multiple use scheduling. Forestry transportation problems, multiple-use allocation, and investment analysis. Field trips required. CROSSLISTED as FE 457/FE 557.

**Equivalent to:** FE 557

**Recommended:** AREC 351 or FOR 330

**FOR 561. FOREST POLICY ANALYSIS. (3 Credits)**

Basic elements of forest policy problems, including resource allocation and efficiency, distribution, and interpersonal equity, taxation, regulation, and control, and planning and uncertainty. Emphasis on policy and analysis and its uses in policy decision.

**FOR 562. NATURAL RESOURCE POLICY AND LAW. (3 Credits)**

First of two offerings designed to provide an introduction to current environmental and natural resource law issues and disputes for students who will have to meet, consult, and work with lawyers throughout their professional career. Focus is on mechanisms governing resource allocation within the constraints of private property rights. Emphasis is placed on the federal Endangered Species Act and its relation to water allocation and public trust doctrines. Students will also gain a broad understanding of regulatory .

**FOR 563. ENVIRONMENTAL POLICY AND LAW INTERACTIONS. (3 Credits)**

Second of two offerings designed to provide an introduction to current environmental and natural resource law issues and disputes for students who will have to meet, consult, and work with lawyers throughout their professional career. Focus is on the arena of regulatory environmental laws. Environmental torts, regulation of point and non-point source pollution under the federal Clean Water Act, wetlands protection, and laws governing agricultural and forest practices will be examined as examples of regulatory frameworks for achieving resource protection. Students will be exposed to the basic framework of federal laws regulating air and hazardous waste pollutants.

**FOR 599. SPECIAL TOPICS. (1-16 Credits)**

Topics of current importance in forest resources issues, education, policies, economics, management, business, social values, silviculture, and biometrics. Topics will change from term to term. May be repeated with different topics for credit. Section 8: Social aspects of natural resource management (3 credits) graded.

*This course is repeatable for 16 credits.*

**FOR 601. RESEARCH AND SCHOLARSHIP. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 603. THESIS. (1-16 Credits)**

*This course is repeatable for 999 credits.*

**FOR 605. READING AND CONFERENCE. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 606. PROJECTS. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 607. SEMINAR. (1-16 Credits)**

*This course is repeatable for 16 credits.*

**FOR 699. SPECIAL TOPICS. (1-16 Credits)**

Topics of current importance in forest resources issues, education, policies, economics, management, business, social values, silviculture, and biometrics. Topics will change from term to term. May be repeated with different topics for credit.

*This course is repeatable for 16 credits.*

**FOR 808. WORKSHOP. (1-9 Credits)**

*This course is repeatable for 16 credits.*