Forest, Watershed, and Wildland Sciences

GRADUATE

FWWS 501. Research Methods and Planning [2]. Methods of inquiry into the ecology and management of forests and wildlands. Review and composition of grant proposals and current literature. Planning and presentation of scientific research. [Open to upper-division students in FWWR required for all FWWR graduate students.]


FWWS 695. Field Research Problems [1-3]. Directed individual research on field or laboratory problems. [Passing grade of B- required. Rep.]


Forestry

LOWER DIVISION


FOR 117. Forestry First Year Seminar [1]. Review of current topics in forestry, fire, watershed, or soils. Presentations by speakers and development of professional writing and oral presentation skills. [CR/NC. Rep.]

FOR 130. Dendrology [3]. US trees/shrubs. Ranges, botanical characteristics, commercial and noncommercial uses, growth rates, and relationship of plants to their total environment. Identify under field conditions and using herbarium specimens. [Weekly: 2 hrs lect, 3 hrs lab.]

FOR 131. Forest Ecology [3]. Ecological principles applied to forest management. Production, ecology, biogeochemistry, disturbances, environmental factors, populations, community ecology, forest succession, and forest classification/description. [Weekly: 2 hrs lect, 3 hrs lab.]


FOR 223. Introduction to Wildland Fire [2]. An introduction to the elements of wildland fire behavior; fire management and suppression, and fuels management. History and policy development of forest and rangeland fire management. [Prereq: FOR 130 or FOR 131. Weekly: 1 hr lect, 3 hrs lab.]

FOR 250. Introduction to Forest Operations [3]. Overview of forest operations and environmental issues associated with today’s forest management practices. Use of mechanized equipment as a tool to meet various forest management objectives. [Weekly: 2 hrs lect, 3 hrs lab.]

UPPER DIVISION

FOR 302. Forest Ecosystems & People [3]. Interaction between forest science principles of different forest ecosystems and social expectations and needs. Evolution of how people use the forests of California, from wilderness to city parks. California as the leading edge of forest users. Nonmajors only. [B-UD.]


FOR 311. Forest Mensuration & Growth [4]. Sampling techniques in forest inventory; timber cruising, and site index determination. Develop volume tables and predict stand growth. Use growth models and computer applications. [Prereq: FOR 130, FOR 210. Weekly: 3 hrs lect, 3 hrs lab.]

FOR 315. Forest Management [3]. Managing forest-covered lands to achieve a variety of objectives by applying economic, sociological, ecological, silvicultural, and operational principles. Nonmajors only. [Weekly: 2 hrs lect, 3 hrs lab.]

FOR 321. Fire Ecology [3]. Fire as an ecosystem and physical process. Fire history, fire effects, fire regimes; interactions with abiotic and biotic ecosystem components; managing fire in California bioregions. [Prereq: Course in Ecology or IA. Weekly: 2 hrs lect, 3 hrs lab.]

FOR 323. Wildland Fire Behavior & Use [3]. Role of weather; topography, and fuels on fire behavior; Mechanism of ignition and spread of fires. Fire behavior and effects modeling. Objectives, planning, operations, smoke management and post-fire monitoring. [Prereq: FOR 223. Weekly: 2 hrs lect, 3 hrs lab.]


FOR 352. Forest Road Location & Design [3]. Road design procedures, standards, and techniques for forest management. Reconnaissance, route surveying, office and field design and location, geometrics, drainage systems, soil engineering, construction sequencing and techniques, erosion control, maintenance. [Prereq: FOR 210, FOR 250, SOIL 260. Weekly: 2 hrs lect, 3 hrs lab.]

FOR 359. CA & US Forest and Wildland Policy [3]. US and California government and policies are introduced with an emphasis on the interactions between these institutions and natural resource management. Regulations are analyzed from creation to implementation and interpretation. Meets requirement in “US Constitution and California State and Local Government” established by CA legislature.

FOR 365. Forest Economics and Finance [3]. Capital budgeting; benefit/cost analysis; forest appraisal and taxation; welfare economics, management decision making; uncertainty and risk. [Rec: FOR 311 (C). Weekly: 2 hrs lect, 3 hrs lab.]

FOR 374. Wilderness Area Management [3]. Paradox of “managing” wilderness; scientific, legislative, philosophical frameworks; managing human use of, and influences on, wilderness. [Weekly: 2 hrs lect; weekend field trips.]

FOR 400. Forestry in Modern Society [3]. “Humans are moral creatures” as a model for human integration. Role of professional forestry to serve society and conserve the landscape. Social and environmental reasoning for integrating layers of moral obligation.


FOR 424. Wildland Fire Internship [3]. Gain practical experience in the field of wildland fire management outside the classroom through working with governmental agencies, non-profit organizations, or private companies. [Prereq: FOR 321 and FOR 323, or IA. Evening presentations may substitute for class meetings.]

FOR 430. Forest Ecosystems [3]. Environmental factors on tree, stand, and landscape dynamics. Investigation at physiological, population, sustainability-focused; sustainability-related; active activity; [C] may be taken concurrently; coreq prerequisite(s); CR/NC mandatory credit/no credit;/disc discussion;
Community, ecosystem, and landscape scales. Analysis of ecological data, scientific writing, and presentation. Extensive field trips in region. [Prereq: FOR 131 or course in ecology. Weekly: 2 hrs lect, 3 hrs lab.]

**FOR 431. Forest Restoration** (3). Forest restoration at multiple spatial scales from stand to landscape level. Goals for biological conservation, carbon sequestration, economic viability. Restoration techniques and case studies. Managing invasive plant species. [Prereq: FOR 131 or FOR 315 and junior or senior standing.]

**FOR 432. Silviculture** (4). Theory and practice of controlling forest establishment, composition, and growth. Fundamentals of forest stand development and dynamics. Forest stewardship techniques to satisfy a range of possible objectives [biological, economic, and social]. [Prereq: FOR 222, FOR 311 and FOR 331. Weekly: 3 hrs lect, 3 hrs lab.]

**FOR 450. Harvesting Systems Design & Cost Analysis** (3). Designing integrative harvesting and transportation systems. Computer applications in harvesting cost analysis, equipment purchase and replacement, break-even/sensitivity analysis, statistical analyses and operations research techniques applied to forest operations. [Prereq: FOR 250. Weekly: 2 hrs lect, 3 hrs lab.]

**FOR 471. Forest Administration and Ethics** (3). Policy making; administrative behavior; legislative, regulatory, legal, and ethical considerations as applied to forest management. [Prereq: FOR 250; FOR 311; junior standing or greater. Rec: FOR 432.]

**FOR 475. Forest Management Decision Making** (3). Social, political, economic, ecological, and silvicultural principles relating to contemporary forestry decision making processes. Predicting forest outcomes, tactical and strategic forest planning sustainability, risk assessment, monitoring and adaptive management. [Prereq: FOR 311 and FOR 365, or IA. Weekly: 2 hrs lect, 3 hrs lab.]

**FOR 476. Advanced Forest Management** (2). In discussion with land management professionals, students will develop projects on contemporary issues in forest disturbance-based management such as resilience amid a changing climate and management for ecosystem services. [Prereq: AI. Coreq: FOR 432.]

**FOR 479. Forestry Capstone** (3). A forestry-related project, produced either by a team or by an individual, culminating in a public presentation. [Prereq: must be in final term prior to graduation.]

**FOR 480. Selected Topics in Forestry** (1-4). Topics as demand warrants. [Rep.]

**FOR 482. Internship** (1-3). Students reflect critically upon work experience and report their critical reflections in a written report under faculty guidance. [Prereq: FOR 131 and FOR 210, or IA.]

**FOR 480. Senior Thesis** (1). Student-designed research project done by a single student with faculty approval before the project is begun. Public presentation of the results and a written paper in journal-ready format. [Prereq: IA.]

**FOR 499. Directed Study** (1-4). Individual study at upper division level. Conference, directed reading, field research, or problems. [Prereq: IA. Rep.]

**GRADUATE**


**FOR 523. Advanced Wildland Fuels Management** (3). Meets jointly with FOR 423. Students enrolled in FOR 523 are expected to carry out additional independent analysis of fuels treatment effects and deliver a lecture on an independent topic. [Prereq: FOR 311 (C) and FOR 323, or IA.]

**FOR 530. Advanced Forest Ecosystems** (3). Meets jointly with FOR 430. Students enrolled in FOR 530 are expected to carry out additional independent field research projects and deliver a lecture on an independent topic. [Prereq: FOR 131 or IA. Weekly: 2 hrs lect, 3 hrs lab. Rep.]

**FOR 532. Advanced Principles in Silviculture** (4). Meets concurrently with FOR 432. Students enrolled in FOR 532 are expected to carry out additional independent analyses of silvicultural topics and deliver a lecture on an independent topic. [Prereq: IA. Weekly: 3 hrs lect, 3 hrs lab. Rep.]

**FOR 680. Advanced Topics in Forestry** (1-4). Topics as demand warrants. [Rep with different topics.]

**FOR 685. Forestry Graduate Seminar** (1). Review important current literature. [Rep.]