

FIRE SCIENCES (FIRE)

FIRE 111 Saws and Pumps (1 credit)

Basic operation of chainsaws for use on the fireline and wildland fire pumps. Typically Offered: Spring and Summer.

FIRE 142 Introduction to Wildland Fire Management (2 credits)

Introduction to wildland fire management including fire behavior, fire weather, management practices, and fire ecology. Typically Offered: Spring.

FIRE 144 Wildland Fire Management (3 credits)

Introduction to wildland fire management including fire behavior, fuels, fire prevention and suppression, fire policy and fire ecology. Includes discussion of current fire management issues. Typically Offered: Varies.

FIRE 145 Career in Fire and Fuels (2 credits)

Introduction to the spectrum of career paths related to fire and fuels. Students will meet professionals from a variety of agencies and levels. Students will work through the application process for selected agencies and may be able to secure meaningful summer work. Typically Offered: Fall.

FIRE 202 Leadership and Decision-Making in Fire Management (2 credits)

Survey of contemporary issues related to wildland fire, and the development of skills in conflict resolution, collaborative problem solving, and decision making to help adapt to new situations and incorporating new people and information in the natural resource management process. Typically Offered: Spring.

FIRE 210 Introduction to Fire Effects and Management (2 credits)

Introduction to fire effects on soils, aquatic ecosystems, cultural resources, flora, fauna, plant disease, and invertebrates. Introduction to how adaptive management can be used to manage complex systems. Typically Offered: Fall.

FIRE 213 Vegetation Management (3 credits)

General Education: Senior Experience
Introduction of the various methods for managing vegetation including prescribed fire, wildfire, thinning, mastication, and herbicide. Use case studies to understand when and how to apply these treatments and how these treatments have influenced fire behavior. Typically Offered: Spring and Summer.

Prereqs: FIRE 210

FIRE 226 Wildland-Urban Interface Assessment and Communication (3 credits)

Introduction to the management challenges and strategies in the wildland-urban interface. Includes communication with the public. Typically Offered: Fall.

FIRE 253 Introduction to Fuels Inventory and Sampling (2 credits)

Sampling design and protocols used to measure and report fuel loading, fire behavior fuel model, fuel moisture, and species diversity. Typically Offered: Fall.

FIRE 254 Fire Environment (3 credits)

Intermediate fire behavior, fire weather, fire management, and ecology including monitoring of the fire environment. Typically Offered: Spring.

FIRE 256 Science Synthesis in Fire Ecology and Management (1 credit)

Synthesis of the current scientific and professional publications related to fuels and fire management. Typically Offered: Fall.

FIRE 261 Fire Technology (3 credits)

Applied techniques for using technology to map and model fire. Modeling using programs such as BehavePlus, FireFamilyPlus, and IFTDSS. Mapping using ArcGIS, Avenza, and Lidar with an optional unit on UAS. Typically Offered: Spring.

Prereqs or Coreqs: FIRE 210

FIRE 284 Fire Policy and Administration (2 credits)

Synthesis of historic and current fire policy and how it is implemented across agencies. Typically Offered: Spring.

FIRE 290 Medical Response and Stress Management in Natural Resources (2 credits)

Emergency medical response in remote areas including patient care and extrication. Stress management from traumatic incidents and long-term exposure. Typically Offered: Fall.

FIRE 298 Wildland Fuels and Fire Internship (1 credit, max 2)

Employment in wildland fuels or fire at an approved facility or organization structured to provide varied occupational experiences. Typically Offered: Summer.

FIRE 321 Cultural Use of Fire (3 credits)

General Education: American Diversity
Fire is an integral part of the natural world, largely because of the use of fire by native cultures. This course will explore the methods and purposes of using fire and the mindsets influencing the use of fire. Students will complete reading and reflection assignments and will consider their own relationship with fire and the natural environment. Typically Offered: Spring. Cooperative: open to WSU degree-seeking students.

FIRE 323 Communication and Facilitative Instruction in Fire Management (2 credits)

Best practices for communication and instruction inside and outside of agencies. Typically Offered: Fall.

FIRE 326 Fire Ecology (3 credits)

The global study of wildfire as a biophysical and ecological process, including controls of wildfires, ecological effects of wildfires, fire history, and fire in the context of global environmental change. Evolutionary plant adaptations to fire and mechanistic impacts of fire on organisms. Current issues in fire science in the Western US and globally, including readings and discussions of recent scientific literature. Typically Offered: Fall.

Prereqs: FOR 221 or REM 221 or WLF 220

FIRE 407 GIS Application in Fire Ecology and Management (3 credits)

Introduces applications of GIS in fire ecology, research, and management including incident mapping, fire progression mapping, GIS overlay analysis, remote sensing fire severity assessments, fire atlas analysis and the role of GIS in the Fire Regime Condition Class concept and the National Fire Plan. Typically Offered: Spring.

Prereqs: FOR 375 or GEOG 385

FIRE 427 Prescribed Burning Lab (3 credits)

General Education: Senior Experience
Planning, conducting and evaluating prescribed burns designed to accomplish natural resource management objectives. Sampling, models and analysis used in writing required fire use plan. 5 days of field trips; some on Saturdays. (Fall only)

Prereqs: FIRE 144 and Senior standing; and Permission Prereqs or
Coreqs: FIRE 326

FIRE 433 Fire and Fuel Modeling (2 credits)

Learn to operate and evaluate contemporary spatial and non-spatial fire and fuel modeling systems and tools (e. g. , FireFamilyPlus, Fire Behavior Fuel Models, BehavePlus, LANDFIRE, FlamMap, and IFTDSS). Perform a landscape-scale fire and fuels assessment for an area of your choice and evaluate the modeling results for management applications on fuel treatment effectiveness or potential fire behavior impacts. Typically Offered: Varies.

Prereqs: FOR 375, GEOG 385, or Permission

FIRE 435 Remote Sensing of Fire (3 credits)

Joint-listed with FOR 535

The course describes the state of the art algorithms and methods used for mapping and characterizing fire from satellite observations.

The course will link the physical aspects of fire on the ground with the quantities that can be observed from remote sensing, and present an overview of the different aspects of environmental fire monitoring.

The course will be accompanied by weekly lab sessions focused on the processing of satellite data from sensors used operationally for fire monitoring. This course assumes that you are familiar with the fundamental concepts of mathematics and physics, understand basic remote sensing techniques, and can use maps and GIS data layers. For graduate credit, additional literature review and a class project including evaluation of new, advanced technologies is required. (Spring) Typically Offered: Spring.

Prereqs: FOR 375 or Permission

FIRE 450 Fire Behavior (2 credits)

Understand the physical and chemical processes controlling combustion and fire behavior. Gain in-depth knowledge of commonly-used, point-scale fire behavior models and tools, including key assumptions and limitations. Critically review and discuss scientific literature, current topics, and case studies. Lab sessions include designing and undertaking small-scale fire behavior experiments, developing simple quantitative models, and a field trip. Typically Offered: Varies.

Prereqs: FIRE 326; and PHYS 100/PHYS 100L or PHYS 111/PHYS 111L

FIRE 451 Fuels Inventory and Monitoring (3 credits)

Tools, quantitative analysis, and approaches for inventory and management of fuels for wildland fires over large, diverse areas in forests, woodlands, shrubland, and grasslands. Critically review and synthesize relevant scientific literature. Typically Offered: Spring.

FIRE 454 Air Quality, Pollution, and Smoke (3 credits)

Cross-listed with GEOL 454

Joint-listed with FIRE 554

Provides details of the controls and drivers of emission processes and impacts on air quality from fires, industry, and natural sources. The course provides an overview of relevant policy and health impacts of various air pollutants on humans. It also includes detail on atmospheric chemistry and physics related to natural and anthropogenic emissions and how these impact atmospheric chemistry and climate. Overview of the combustion and emission process, how these emissions impact air quality, and what models exist to monitor these emissions. Other topics to include: guidelines for smoke management planning, attainment issues, atmospheric transport and deposition processes. Additional work required for graduate credit. Typically Offered: Spring and Summer.

FIRE 526 Fire Ecology (3 credits)

Fire-related ecology of plant and animal species in wildlands; effects of fire occurrence and suppression on physical environment, landscapes, and processes in both natural and managed ecosystems. Typically Offered: Fall and Summer.

Prereqs: General ecology course

FIRE 554 Air Quality, Pollution, and Smoke (3 credits)

Joint-listed with FIRE 454, GEOL 454

Provides details of the controls and drivers of emission processes and impacts on air quality from fires, industry, and natural sources. The course provides an overview of relevant policy and health impacts of various air pollutants on humans. It also includes detail on atmospheric chemistry and physics related to natural and anthropogenic emissions and how these impact atmospheric chemistry and climate. Overview of the combustion and emission process, how these emissions impact air quality, and what models exist to monitor these emissions. Other topics to include: guidelines for smoke management planning, attainment issues, atmospheric transport and deposition processes. Additional work required for graduate credit. Typically Offered: Spring and Summer.

FIRE 557 Advanced Fire Behavior (3 credits)

Credit may be earned in only one of the following: FIRE 450 or FIRE 557.

This course is an online course only. Understand the processes that control fire behavior in forest and rangelands, including combustion, emissions and heat release, and related fire effects. Use theory and advanced knowledge with scientific literature and case studies to critically assess the assumptions and limitations of limitations of surface and crown fire models, including the varying influences of fuels, terrain, and environmental conditions.

FIRE 587 Wildland Fire Policy (2 credits)

This course is an online course only. Relationships between fire science and management and the federal laws and regulations that affect fire management in wildland ecosystems; the politics of wildland fire; and the effects of wildland fire on wildland-urban interface (WUI) communities. Recommended preparation is an upper division course in natural resource, environmental policy, or FOR 584. (Fall only)