



Course Name: Wildland Fire Ecology

Course Number: FES 440

Term Offered: Spring 2021

Credits: 3

Instructor name: Meg Krawchuk

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Teaching Assistant name: Allison Swartz

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Please contact your Teaching Assistant (*details above*), for questions related to the course. Dr. Meg Krawchuk is providing supervisory guidance to the Teaching Assistant but not directly involved in day-to-day workings and marking of the course.

Course Description

This course is designed to provide students with the principles required to evaluate the impacts of fire on vegetation, soils, and wildlife across a broad range of ecosystems and landscape conditions. Students will explore concepts associated with fire regimes/histories and the ecology of major forest and rangeland ecosystems as they relate to natural and anthropogenic fire and/or fire exclusion. This includes an understanding of:

- (1) How fire interacts with physical and biotic components of ecosystems (i.e., plant communities, fuels, weather/climate, topography and soils) to affect stand and landscape composition and structure, both historically and currently;
- (2) The role of fire as an ecosystem process - its effects on ecosystem structure, composition, and other processes, including plant and animal population dynamics; and
- (3) The utilization of fire (prescribed and/or wildfire) in natural resource management, ecological restoration, and wildlife habitat enhancement, and basic approaches to these land conservation issues.

The study of fire is a diverse blend of ecology, anthropology, natural history, meteorology, physics, soil science, natural resource management, chemistry, engineering, and social sciences. This course will focus on the ecological aspects of fire science and how it relates to broader information that land managers, biologists and policy makers are likely to require when making decisions associated with wildland fires.

Prerequisites: Junior or senior standing, with course work in ecology and natural resource management.

Communication

Please post all course-related questions in the 'General Questions?' Discussion Forum so that the whole class may benefit from our conversation. Email your Teaching Assistant (TA) or Instructor for matters of a personal nature.

We do not have formal office hours, but your TA will aim to reply to course-related questions and email within 24-48 hours. Your TA will strive to return your assignments and grades for course activities to you within a week of the due date.

Course Credits

This course combines approximately 90 hours of instruction, online activities, and assignments for 3 credits.

Learning Resources

Textbook: Sugihara, N. G., editor. 2006. *Fire in California's Ecosystems*. University of California Press, Berkeley. ISBN:13 948-0-520-24605-8.

Note, text is available FREE online through the OSU library. Details in the 'Announcements' area of our class website and specific readings are provided as .pdf documents in Canvas.

Note to prospective students: Please check with the OSU Bookstore for up-to-date information for the term you enroll (<http://osubeaverstore.com/Academics> or 1-800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

Additional assigned readings will be provided in PDF format through Canvas.

Student Learning Outcomes

By the end of this course, students should be able to:

- evaluate the impacts of fire, including pre- and post-fire conditions of sites, to predict potential short- and long-term outcomes of fire and fire exclusion on ecosystems
- describe and explain fire regimes, histories and current fire dynamics associated with major forest and range ecosystems across North America
- evaluate the rigor/quality of fire history and fire ecology studies and the extent that they can be extrapolated across a landscape
- list the conditions under which prescribed fire and/or wildfire may or may not aid in ecosystem or habitat restoration/management
- develop a framework of questions to properly address ecological restoration and management issues related to fire in any given setting

Evaluation of Student Performance

Grades will be based on performance in four categories:

Synthesis assignments	140
Midterm (week 5/6)	100
Final Exam (end of term)	100
Participation points (Discussion)	<u>105</u>
Total Points:	445

Canvas

This course will be delivered via Canvas where you will interact with your classmates and with your TA/instructor. Within the course Canvas site, you will access the learning materials, such as the syllabus, class discussions, assignments, and exams. To preview how an online course works, visit the [Ecampus Course Demo](#). For technical assistance, please visit [Ecampus Technical Help](#).

Technical Assistance

If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the [OSU Computer Helpdesk](#) online.

Course Content

See Course Schedule at end of syllabus for details on course content. All materials are provided through Canvas.

Discussion

The weekly discussion posts and participation are based on required assigned reading(s). The goal of the weekly posts and participation is to give us a chance to dig into ideas, think critically, ask questions, and learn from one another. You are responsible for reading the assigned materials, writing an **Initial Discussion Post**, and responding/commenting on posts from classmates for **Discussion Participation**. The Initial Discussion Post should be about one paragraph (4-5 sentences) in your own words addressing the following 3 questions:

1. What is this paper about?
2. Why does the topic/contents of the paper matter?
3. What is one thing that either: caught your eye as a new idea, disagree with, or a concept you didn't understand?

The **Initial Discussion Post** is worth 6pts and due by Thursday 11:59pm. For **Discussion Participation** points, you are required to comment on and/or respond to two other student posts. Each responses should be 2-3 sentences that aim to create an engaging dialogue. Discussion participation is worth 4 points and final posts must be made by Sunday 11:59 pm.

Note: You will be unable to see other people's discussion posts until you have made your initial discussion post. The goal here is to encourage everyone to consider their own response to the discussion reading.

Online **Pinned Discussions** are public messages, and all writings in this area will be viewable by the entire class or assigned group members. If you prefer that only the instructor sees your communication, send it to me by email, and be sure to identify yourself.

Posting of personal contact information is strongly discouraged (e.g. telephone numbers, address, personal website address), though links to appropriate social networking sites are allowed. The discussion boards are your space to interact with your colleagues (including me) related to current topics and/or responses to your colleagues' statements. It is expected that each student will participate in a mature and respectful fashion, and actually enjoy this part of the class. Guidelines for discussions boards follow:

Discussion etiquette:

- Participate actively in the discussions after having completed the readings and consideration of the issues.
- Pay close attention to what your classmates write in their online comments even when you disagree with what is being expressed. Comments that you make (asking for clarification, sharing critiques, expanding on a point, etc.) should reflect that you have paid attention to the writer's comments.
- Ask clarifying questions, when appropriate. These questions are meant to probe and shed new light, not to minimize or devalue comments.
- Think through and re-read your comments before you post them.
- Support your statements. Use evidence and provide a rationale for your points.
- Respect others' rights to hold opinions and beliefs that differ from your own. Challenge or critique the idea, not the person.
- Value the diversity of the class. Recognize and value the experiences, abilities, and knowledge each person brings to class.
- Embrace being challenged or confronted on your ideas or prejudices.

Please bring any communications you believe to be in violation of this class policy to the attention of your TA or instructor.

Assigned Reading

All reading materials are found in the Modules under the overview and assigned reading for each week. These include both readings to complement lecture materials and the assigned discussion reading. Some Assigned readings come from the text: Sugihara *et al.* (2006) "*Fire in California's Ecosystems*" ISBN: 13 948-0-520-24605-8. This text is available for FREE through the OSU online library. This is not a required text but is an excellent resource.

Synthesis Assignments

There are three assignments that challenge you to do some thinking, research, and concise writing relating to the fire ecology topics we cover in class. The details for each assignment will be posted in Canvas, but here's a summary:

- **Assignment 1**, Experiences with fire (15 points). Write a 200-300 word post in the *Experiences with Fire* Discussion thread on Canvas that describes a fire you witnessed, have heard about, or received smoke from. Stuck on your post? Write about a newspaper article about fire, or try writing about a photo of fire or effects of fire. See Canvas for details.
- **Assignment 2**, Fire ecology fact sheet (40 points). Prepare a two-page fire ecology fact sheet for a species of plant, animal, or fungus using the online Fire Effects Information System (FEIS; <http://www.feis-crs.org/feis/>) for your research. See Canvas for details.
- **Assignment 3**, Fire ecology of home (85 points). Research and write a polished, short paper describing the wildland fire ecology of your "home". In this case, home can be landscapes near where you grew up, where you live now, where your family lives, where you spent some time, or want to spend time/explore or learn more about. I want you to research and write about a place that's meaningful to you.
 - Part A (5 points): You are required to submit a three-sentence description of the general ideas/topics and location you're considering for your paper, due the end of week 7. See Canvas for details.
 - Part B (80 points): Written report. The writing can take on a variety of trajectories, but must outline general ecology, fire regime adaptive traits, conservation concerns, management issues, prominent fire events, species of concern. See the Assignment for specific, required details.

Late Policy

Emergencies are inevitable for most of us. If you notify me prior to the assignment due date, I will likely grant you an extension without point loss. Otherwise, assignments lose 10% per day.

Exams

This course requires that you take a midterm and final exam.

- Midterm exam: bridges Weeks 5 and 6. Please budget a minimum of one hour to write your exam.
- Final exam: occurs in Week 11, in "exam week" after the completion of course materials. See the Assignments area for more details.

Makeup Exams

Makeup exams will be given only for missed exams excused in advance by the TA or instructor. Excused absences will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will generally not be given after the absence has occurred, except under very unusual circumstances.

Dropping the course, withdrawing from the course, and incompletes

Please see the formal guidelines regarding timeline and expectations for dropping or withdrawing from a class:

<https://ecampus.oregonstate.edu/soc/registration/changing.htm>

Or taking an incomplete: <https://ecampus.oregonstate.edu/faculty/manual/grading.htm>

If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away and check the OSU eCampus guidelines.

Statement Regarding Students with Disabilities

Accommodations are collaborative efforts between students, faculty, and [Disability Access Services \(DAS\)](#). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.

Accessibility of Course Materials

All materials used in this course are accessible online. If you require accommodations please contact [Disability Access Services \(DAS\)](#).

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities.

Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the [Student Conduct Code](#).

Academic Integrity

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit [Student Conduct and Community Standards](#), or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.

b) It includes:

(i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

(ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

(iv) TAMPERING - altering or interfering with evaluation instruments or documents.

(v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without

This course is offered through Oregon State University Extended Campus. For more information, contact:
Web: ecampus.oregonstate.edu Email: ecampus@oregonstate.edu Tel: 800-667-1465

appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

Turnitin Plagiarism Prevention

Your instructor may use the Canvas-Turnitin plagiarism prevention service. Your assignment will be checked for potential plagiarism against Internet sources, academic journal articles and the papers of other students. Turnitin generates a report that highlights any potentially unoriginal text in your paper. Papers that you submit through Turnitin for this class or any class will be added to the OSU Turnitin database and may be checked against other OSU paper submissions. You will retain all rights to your written work.

Conduct in this Online Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the [university's regulations regarding civility](#).

Tutoring

[NetTutor](#) is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours. Access NetTutor from within your Canvas class by clicking on the NetTutor button in your course menu.

OSU Student Evaluation of Teaching

Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the 19 multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. You will log in to "Student Online Services" to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.

Diversity, Equity, and Inclusion

OSU is a community that includes and values the voices of all people. As such, we recognize the social barriers that have systematically marginalized and excluded people and communities based on race, ethnicity, gender, sexual identity, socioeconomic background, age, disability, national origin and religion. We are committed to the equity of opportunities, and strive to promote and advance diverse communities. We value and proactively seek genuine participation from these historically under-represented and underserved groups, and recognize them as an essential component of creating a welcoming and rich academic, intellectual, and cultural environment for everyone. For more information on the DEI initiative, please see: <https://diversity.oregonstate.edu/>

FES 440 Wildland Fire Ecology

Week	Lecture/Discussion	Topic	Assigned Reading
1	Lectures	Introductions to fire and fire ecology	Sugihara Ch. 3, 4
	Discussion	Discussion	Bowman et al. (2013)
Introductions: Introduce yourself to the class, due Wednesday 11:59pm			
2	Lecture	Fire Regimes	--
	Lecture	Fire History 1 & 2	Agee Ch. 4
	Discussion	Discussion	Pausas (2015)
Assignment 1 due Sunday 11:59pm			
3	Lecture	Disturbance, succession, and the effect of fire on plants	Sugihara Ch. 6
	Lecture	Fire effects on Animals	Sugihara Ch. 7
	Discussion	Discussion	Johnston et al. (2016)
4	Lecture	Environmental Response	Sugihara Ch. 5
	Lecture	Burn Mosaics	Turner et al. (1997)
	Discussion	Discussion	Swanson et al. (2011)
Assignment 2 due Sunday 11:59pm			
5	Lecture	Grasslands1	Anderson (2006)
	Lecture	Sagebrush	Sugihara Ch. 11
	Discussion	Discussion	Balch et al. (2013)
Midterm Exam opens Monday of Week 5			
6	Lecture	Ponderosa Pine	Fitzgerald (2005)
	Lecture	Mixed Severity Fire (Western US)	Perry et al. (2011)
	Discussion	Discussion	Williams & Baker (2012); Fule (2014)
Midterm Exam due Monday of Week 6 11:59pm			
7	Lecture	Mixed Severity Fire (Eastern US)	Nowacki & Abrams (2003)
	Lecture	Piñon-juniper and hot deserts	Sugihara Ch.16
	Discussion	Discussion	Ponisio et al. (2016)
Assignment 3A due Sunday 11:59pm			
8	Lecture	Boreal Ecosystems	Amiro (2001)
	Lecture	Short-interval disturbances	Hutto (2016)
	Discussion	Discussion	Harvey et al. (2014)
9	Lecture	People and fire – fire shapes everything Era of mega fire	Sugihara Ch.17
	Lecture	Social perceptions Aboriginal burning	--
	Discussion	Discussion	McCaffery et al. (2013)
Assignment 3B due Sunday 11:59pm			
10	Lecture	Bringing it all together for the future: climate change and wildfire	Stephenson and Millar (2015)
	Lecture	Nexus between climate, weather, and ignitions Interview	--
	Discussion	Discussion	Stevens-Rumann et al (2018)
11	Final Exam due Wednesday 11:59pm (opens Friday of Week 10)		