Fire Ecology - FOR 526

Course Objectives:
Fire Ecology, FOR 526, is designed to give you an in-depth understanding of fire ecology in a variety of ecosystems. We'll study fire effects on plants, animal habitat, soils, water and air. We'll also read extensively from current literature to gain familiarity with fire ecology research. We will emphasize fire as an ecological process in wildland ecosystems, how to characterize and predict fire effects over time and space, with some discussion of implications for restoration and ecologically-based fire management. We will draw upon ecological theories about succession, disturbance, and ecological processes.

Learning Outcomes:

Upon completing this course, you and the other students will be able to:

1. Synthesize and critique published fire effects research from a variety of grassland, shrubland, woodland, and forest ecosystems.
2. Predict the response of vegetation to fire based upon available knowledge and a thorough understanding of the concepts of fire history and fire effects.
3. Understand how fire effects are related to climate, topography, vegetation, and land use.
4. Research topics in fire ecology and discuss them with others in the class.
5. Apply your fire ecology knowledge to restoration ecology.

Optional field trips:

We will have one or two optional all-day field trips. These are scheduled well in advance and involve seeing and learning hands-on about fire effects, post-fire management, and vegetation response to recent fires.

Reading:
Reading assignments for discussions and as background for the presentations include a number of journal articles (available electronically from the UI library). Although there is no required text for this class, I expect you to read extensively about fire ecology in journal articles, books, and web sites. Specific reading assignments will be made for some in-class discussions. Whenever possible, I will choose assigned readings that are available electronically through the University of Idaho library. The take-home essay exams will require extensive independent library research and reading of journal articles and other references beyond those assigned.

Both specific assigned articles and others you will need to read for your research can be accessed directly on the internet, while others will be ones you find using Google Scholar or an online search engine, and still others you will need to access through the University of Idaho library. To learn how to find articles and to access them for free through the University of Idaho, take the short tutorials

(http://www.lib.uidaho.edu/classes/instruction/videos/index.html) available from the UI library The College of Natural Resources Learning Resources Center (http://www.cnr.uidaho.edu/learn) may also be very helpful to you in writing research papers and in remembering statistical, math and ecological concepts -- these were developed with funding from Joint Fire Science Program specifically for fire professionals taking online courses.

If you wish to have a fire ecology text, I recommend these three:

Agee, J. K. 1993. *Fire ecology of Pacific Northwest forests.* New York: Island Press.
Baker, W.L. 2009. *Fire Ecology in Rocky Mountain Landscapes*. Island Press.
Keeley, J.E., Aplet, G.H., Christensen, N.L., Conard, S.G., Johnson, E.A., Omi, P.N., Peterson, D.L. & Swetnam, T.W. 2009. Ecological Foundations for Fire Management in North American Forest and Shrubland Ecosystems. USDA Forest Service General Technical Report: PNW-GTR-779. (Available online for free)

Accommodations for disabilities: Reasonable accommodations are available for students who have a documented disability. Please notify the instructor during the first week of class of any accommodations) needed for the course. Late notification may mean that requested accommodations might not be available. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Rm. 333, 885-7200, dss@uidaho.edu.

Plagiarism will NOT be tolerated: In this class, you must summarize, paraphrase, quote and reference sources to avoid plagiarism in your writing. Academic honesty is expected of you at the University of Idaho. Plagiarism violates the code of academic conduct at the University of Idaho. Under UI policy, regulation O-2, "Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course". If you are accused of plagiarism, you must meet with the course instructor and the chair of the department to discuss the evidence, circumstances, and consequences. If you have indeed plagiarized text, you will receive 0 points on the assignment, you may fail the course and your unethical behavior will affect recommendations for jobs and graduate school.

Cite sources to support and lend credibility to your writing. Please be careful in citing sources for your ideas when you write. You should be aware that web-based searches for plagiarized text have become quite sophisticated. Even a sentence or two plagiarized in a long document is inexcusable. It is very tempting and easy to copy text directly, but it works against the educational process and is a form of theft. There are some good examples of plagiarized text as well as acceptable alternatives on the departmental web site and elsewhere on the World Wide Web.

Grading:
For all written assignments, including take-home exams, citations & summaries, 10% of the your grade will be based on organization, clarity of reasoning, grammar, and spelling. Your grade for participation in class discussions will be subjectively assigned based on how the

frequently you ask pertinent questions and otherwise contribute substance to our class discussions. Your final grade will be assigned according to the University of Idaho scale (90-100%=A, 80-89%=B, etc.) based on points earned out of total available:

Course Activity	**Points**
Introduction	25
Citation (Optional)	
Exams (2 total, each 300 points)	600
Muddy Moments (4 total, 5 pts each)	20
Reflective essay on an out-of-class activity	100
Briefing Paper	150
Discussion questions (3 total, 25 points each)	75
Why science synthesis and communication?	30
TOTAL	**1000**
Extra credit (Optional)	*20*

Exams: Your two exams are take-home essay exams requiring you to use and synthesize primary literature. You will draw upon concepts and specific examples from course materials, but you will also need to find additional literature. I encourage you to work with other students to find background literature and to discuss your ideas, for you will learn more that way, but each of you must turn in your own answers.

RUBRIC for Take Home Exams (300 points each)	**Possible Points (75 for each of 4 questions)**
Content: Answer addresses the question, writer synthesizes current scientific information and uses this to support conclusions.	40
Examples and literature citations are used effectively to support and lend credibility to your answer.	10
Correct grammar, spelling and punctuation. Citations are formatted as required. Limited use of technical jargon. Terms are defined. Tables and figures, if any,	10

are used effectively, formatted correctly, referred to in the text, and the source(s) of data are identified in the title of the table(s) or figure(s).	
Very well organized; reasoning is clear and logical throughout; writing is concise.	15
TOTAL	75

Reflective essay on out-of-class activity. Complete an out-of-class activity related to fire ecology and write a reflective essay about it. Out-of-class activities might include participating in a webinar or seminar on a fire ecology topic, evaluating a prescribed burn to see if it met ecological objectives, interviewing a fire ecologist, or some other activity you think appropriate. When I grade this, I am looking for insights and reflection, (much more than a summary of the activity), so think deeply and link it to your learning. Reflection is a powerful learning tool. For those of you familiar with After Action Review, this is the part when we ask ourselves what we learned from an experience. Your reflective essay must be between 400 and 800 words (not counting tables, figures, and literature citations) in length.

RUBRIC for **Reflective Essay on Out-of-Class Activity**	**Possible Points**
Include a very brief summary of the activity. Include specific examples from the event and from your own experience or a related current event.	10
Reflect on what you learned. Include topics such as: How did it change your thinking, what surprised you, and what did you disagree with and why?	40
Examples and literature citations are used effectively to support and lend credibility to inform your learning. Your opinion(s) are clearly identified and supported by the science and examples not included in the activity.	20
Correct grammar, spelling and punctuation. No slang. Format as required for citations. Limited use of technical jargon. Terms are defined. Tables and figures, if any, are used effectively, formatted correctly, referred to in the text, and the source(s) of data are	10

identified in the title of the table(s) or figure(s).	
Very well organized; reasoning is clear and logical throughout; writing is concise; writer synthesizes current scientific information and uses this to support conclusions.	20
TOTAL	100

Why science synthesis and communication? Read Smith (2015) about the value of science synthesis and communication (focus on the key points). Then find a science synthesis or literature review (could be one cited by Smith (2015) or a review about a fire ecology topic that is of interest to you. Write a short summary of the synthesis to share with other students in the discussion board on BbLearn. Include why you are interested in this topic and identify 3 ideas you learned from reading the synthesis that you were new to you and that you think will be important to managers. Identify ways in which you think the synthesis is effective. Include citations.

RUBRIC for **Science Synthesis and Communication**	**Possible Points**
Include a very brief summary of the synthesis document in your own words (DO NOT copy the abstract). Include why you are interested in this topic.	5
Describe 3 ideas you learned from reading the synthesis that you were new to you and that you think will be important to managers. Draw upon Smith (2015) to identify ways in which you think the synthesis is effective.	20
Very well organized; reasoning is clear and logical throughout. Writing is concise correct grammar, spelling and punctuation. Citation formatting fits requirements.	5
TOTAL	30