FOR3214: Fire Ecology and Management

SCHOOL OF FOREST RESOURCES & CONSERVATION
UNIVERSITY OF FLORIDA
SPRING 2020

INSTRUCTORS
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Credits: 2
Prerequisites: FOR 3153C or PCB 3034C or PCB 4044C, or the equivalent
Class Hours: Friday, periods 2-3 (8:30-10:25am), MCCB 2102

COURSE DESCRIPTION & LEARNING OBJECTIVES

Course Description
Detailed study of the role, occurrence and function of wildland fires in natural ecosystems and the use of prescribed burning to simulate those functions. Key topics include factors that influence natural fires, effects of fires on the environment, management and control of wildfires, and the use of prescribed burning. Students [in the lab section] will plan and conduct several prescribed burns.

Course Learning Objectives
The basic objective of this course is to understand the principles, concepts, and issues surrounding fire, and to integrate this information into the context of natural resource management, protection, and stewardship. At the end of this class, you should be able to:

- Analyze fire as a physical process, including the chemistry and dynamics of fire
- Understand fire as an ecological process, including effects on plants, animals, soil, water, and air
- Identify social and political forces that affect the use of fire, and how they can be incorporated into land management decisions

General Course Overview
Fire is one of the most important natural disturbances in terrestrial and coastal ecosystems, affecting a complex network of biological communities as well as ecological processes. Many fire ecology and management topics draw from biological disciplines including ecology, evolution, biogeography, wildlife biology, as well as physical sciences such as physics, chemistry, meteorology, geology, and soil science. These scientific disciplines are combined with social sciences such as anthropology, economics, political science, and sociology. Fire has the potential to affect practitioners and stakeholders including businesses, governmental agencies, private organizations and landowners, scientists, and the public. Furthermore, restoration advocates from these diverse groups work together to advance science, educate, and affect policy with respect to using fire to promote biodiversity and ecosystem functioning. There are few people that do not use, affect, or are affected by fire in our natural communities. Learning the science behind fire and how to effectively communicate across audiences is essential for management now and in the future.
EVALUATION OF STUDENT PERFORMANCE

Brief Overview of Major Assignments (additional details and grading rubrics will be provided on Canvas)
40% Exams: Two comprehensive exams composed of a combination of multiple choice, short answer, labeling, and essay questions.
30% Assignments: Seven assignments due Thursday by 5pm. Complete assignment instructions and grading rubrics are available on Canvas.
15% Quizzes: Four 30-minute online quizzes due Thursday by 5pm.
15% In-Class Activities: Inquiry-based exercises will be periodically completed in class. These exercises will be short, but require you to reach conclusions through problem solving, evaluation of scenarios, and case studies.

Grading Scale (no rounding)

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<thead>
<tr>
<th>Percentage</th>
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<tbody>
<tr>
<td>100-93</td>
<td>A</td>
<td>76-73</td>
<td>C</td>
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<tr>
<td>92-90</td>
<td>A-</td>
<td>72-70</td>
<td>C-</td>
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<tr>
<td>89-87</td>
<td>B+</td>
<td>69-67</td>
<td>D+</td>
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<tr>
<td>86-83</td>
<td>B</td>
<td>66-63</td>
<td>D</td>
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<tr>
<td>82-80</td>
<td>B-</td>
<td>62-60</td>
<td>D-</td>
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<tr>
<td>79-77</td>
<td>C+</td>
<td>59-0</td>
<td>F</td>
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For information on current UF policies for assigning grade points, see:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

NOTE: Occasionally, there will be in-class assignments that require you to be present to complete the assignment and receive credit. To earn credit for these activities, you must be present in class. If you have reason to miss a class, you must contact your instructor PRIOR to the beginning of the class. Acceptable excuses are determined at your instructor’s discretion. Late assignments will be graded but receive a zero.

Policy on Late Work
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policy and can be found in the online catalog at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

RESOURCES TO HELP YOU SUCCEED

Required course readings
Selected peer-reviewed papers and news articles will be posted on Canvas (see individual modules on Canvas).
See Canvas for lists of helpful websites and resources on fire in the Southeastern U.S. and around the world, instructions on how to conduct a literature search, and helpful advice on how to read a scientific paper.
Course Website
The course website can be accessed on Canvas using your myUFL key. The course site will contain readings, announcements, helpful links, and important course information, as well as an online grade book.

Software use
All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Academic Civility
Meaningful and constructive dialogue is encouraged in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. Respect for individual differences and alternative viewpoints will be maintained in this class. One’s words and use of language should be temperate and within acceptable bounds of civility and decency. Friendly persuasion wins friends and influences people. Aggressively arguing your point often does the opposite and stops dialogue.

Academic Honesty
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: https://www.dso.ufl.edu/scrr/process/student-conduct-honor-code/

Wellness
UF Counseling and Wellness Center offers individual counseling, wellness counseling, couples counseling, problem solving help, CERC crisis services, and other assistance. For more information, visit: http://www.counseling.ufl.edu/cwc/Default.aspx

Students with Disabilities
The Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.
Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university’s counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- **University Counseling & Wellness Center**, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)
- **U Matter We Care**, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- **Career Resource Center**, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

UF/IFAS Field and Fork Food Pantry

The Pantry ([http://pantry.fieldandfork.ufl.edu](http://pantry.fieldandfork.ufl.edu)) is a resource on the University of Florida campus committed to eradicate food insecurity. Food insecurity is not having a reliable access to nutritious foods for yourself on a regular basis. If you, or anyone you know is experiencing food insecurity, the Pantry is a resource to visit. They offer non-perishable food, toiletries and fresh vegetables grown at the Field and Fork Gardens to provide a well-balanced diet. Protecting the privacy of its guests and providing food to those in need within our campus community is their priority. Guests do not need any proof of need to use this resource, all that is needed is a Gator 1 ID to prove you are a current Student, Faculty or Staff at the University of Florida.

Student Complaints

Residential Course: [https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

Feedback

Student assessment of instruction is an important part of efforts to improve teaching and learning. We encourage your constructive criticism, suggestions, ideas, and other feedback for improving the course. Please refer to contact information on the first page.

Additionally, at the end of the semester, students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at [https://evaluations.ufl.edu](https://evaluations.ufl.edu). Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at [https://evaluations.ufl.edu/results/](https://evaluations.ufl.edu/results/).
## Lecture Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Readings to be completed PRIOR to class</th>
<th><strong>Due on Thursday by 5pm</strong></th>
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</thead>
<tbody>
<tr>
<td>Jan. 10</td>
<td>Course expectations • Introduction to fire in natural resource management</td>
<td>Waldrop &amp; Goodrick, pgs. 1-10</td>
<td>Assignment: Introduction on Canvas</td>
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<tr>
<td>Jan. 17</td>
<td>What is fire? • Why use fire? • Combustion</td>
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<tr>
<td>Jan. 24</td>
<td>Measuring fire behavior • Ignition techniques</td>
<td>Waldrop &amp; Goodrick, pgs. 35-42</td>
<td>Quiz</td>
</tr>
<tr>
<td>Jan. 31</td>
<td>Climate and weather</td>
<td>Pyne et al., Ch. 4 (optional)</td>
<td>Communication assignment Part 1: Overview of project topic</td>
</tr>
<tr>
<td>Feb. 7</td>
<td>Test fire behavior using a matchstick forest</td>
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<td>Quiz</td>
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<tr>
<td>Feb. 14</td>
<td>Aspect and topography • Fuels and fuel management</td>
<td>Prior et al. 2017</td>
<td>Assignment: Meteorology</td>
</tr>
<tr>
<td>Feb. 21</td>
<td>Fire laws • Smoke management • Living with fire</td>
<td>Waldrop &amp; Goodrick, pgs. 43-53</td>
<td>Assignment: Evaluation of Smith et al. 2018: Living with Fire</td>
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<tr>
<td>Feb. 28</td>
<td>Exam 1</td>
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<td>Mar. 6</td>
<td>SPRING BREAK</td>
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<tr>
<td>Mar. 13</td>
<td>Introduction to fire ecology • Populations, communities, and landscapes</td>
<td>Platt 1999</td>
<td>Communication assignment Part 2: First draft of essay on fire management and ecology of selected habitat</td>
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<tr>
<td>Mar. 20</td>
<td>Fire adaptations • Tree mortality</td>
<td>Varner et al. 2009</td>
<td>Communication assignment Part 3: Peer review due</td>
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<tr>
<td>Mar. 27</td>
<td>Plants and succession • Vegetation-fire feedback</td>
<td>Fill et al. 2015</td>
<td>Quiz</td>
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<td>Hess &amp; Tschinkel 2017</td>
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<tr>
<td>Apr. 3</td>
<td>Wildlife management</td>
<td>Hovick et al. 2017</td>
<td>Communication assignment Part 4: Final essay on fire management and ecology of selected habitat</td>
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<td>Stephens et al. 2019</td>
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<tr>
<td>Apr. 10</td>
<td>Soil, water, and air • Super fire regimes • Fire in deep time</td>
<td>Lavoie et al. 2010</td>
<td>Quiz</td>
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<td>Bowman et al. 2011</td>
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<tr>
<td>Apr. 17</td>
<td>Exam 2</td>
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### Disclaimer

We reserve the right to revise the lecture schedule and reading assignments. Scientific articles will be assigned on a weekly basis and posted on Canvas. Any updates to the lecture schedule will be posted on Canvas and you will be notified via email. Please make sure your Canvas preferences are set to receive periodic class updates.