

# Syllabus for FOR451: Fuels Inventory and Management, 3 credits

## Course Overview

This online class is designed to give you an in-depth understanding of fuels inventory and management. You will gain experience with tools, quantitative analysis, and approaches for inventory and management of fuels for wildland fires over large, diverse areas in forests, woodlands, shrubland, and grasslands, including fieldwork and critical review and synthesis of relevant scientific literature. Prereq: FOR 375, REM 244 and FOR 274 or REM 411

## Learning Outcomes

- To understand current and past approaches to fuels inventory and mapping
- To use and compare field techniques of conducting a fuels inventory
- To understand the ecological role of fuels in terrestrial ecosystems
- To use fire models to analyze fuels inventory data
- Practice field sampling design and fuels inventory techniques using collection and analysis software

## Instructor:

### Camille Stevens-Rumann

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## Required Books and Articles

There are no required textbooks for this course. Please see each lesson for the assigned articles.

Assignments	Points
Introduction	50
Fuel Moisture Assignment	100
Surface Fuel Loading Assignment	100
Canopy Fuel Loading Assignment	100

Fire Model Assignment	100
Fuels Field Project	
Site Description	50
Powerpoint on Project	100
Peer Review of 2 presentations	80
Final Paper	150
Discussion Questions (3 x 40pts each)	120
Muddy Moments	50
<b>TOTAL POINTS</b>	<b>1000</b>
Extra Credit	20

### Late Assignments

Assignments turned in late will be **marked off 10% of total points available for every day it is late**, unless the student has previously arranged with the instructor to turn in the assignment late. A previous arrangement must be made more than 24 hours before the due date unless a medical emergency or unexpected work conflict has occurred. No other excuses will be accepted and due dates will be strictly enforced. Any medical emergencies must be accompanied by a doctors note on official letterhead.

Grades will be based on the total number of points received in this class:

**A = 900-1000**

**B = 800-899**

**C = 700-799**

**D = 600-699**

**F < 600**

### Introduction and Discussions

During the first week of the class please complete an introduction about yourself, including your familiarity with the subject area, your current location, and something interesting about yourself.

Also, three times throughout this course I will provide a discussion question for you to answer. You must also respond to your classmates answers. 40 of the 50 points will be your response to the question while the last 10 points will be awarded for your contribution to other students' discussions, you must respond to two of your classmates for each discussion question.

## **Fuels Field Project**

This project is worth **38% of your grade!** This is a field project, which means you are required to go and experience the fuels and ecosystems we will be talking about in this class. This assignment will be broken up into 4 parts:

**PART 1:** Initial visit and sampling design: this requires that you find a location that meets the criteria (full information is provided in assignment details), a stand of your choosing that you can adequately sample. This assignment is in a memo format. You are not required to give a full technical report, but explain in good scientific writing what you are planning to do. You must state your objective for sampling and the methods of how you will do it.

**PART 2:** Sample your site and give us an overview of the data in presentation form. Imagine a disturbance in your ecosystem (i.e. wildfire, prescribed fire, thinning, insect outbreak, etc.) explain how the site has changed and how it will continue to change over time. You will give specific information for 2 time periods in the future.

**PART 3:** Each student will be responsible for looking over 2 fellow students presentations. I will provide a rubric for how to grade the presentations. You will receive the reviews back on your presentation. Your overall grade will be based on both how thorough your peer evaluation was, as well as the grade your classmates gave you.

**PART 4:** The final part to the project is creating a final report on your site. I would like to see the feedback provided from your peer evaluations and my evaluations incorporated into the paper. I am looking for quantitative and qualitative discussions on the current conditions of your site and how it will change following the disturbance you envision.

**Please see "Lesson 8: Final Field Project" for full directions, examples and rubrics.**

## **Assignments**

There will be four assignments throughout the semester to assess your grasp on the subject areas. These assignments will be analytically intensive and require some synopsis of the results. You will be required to use Excel extensively in three of the four assignments.

Specifics regarding each assignment can be found in the Lessons where they are due.

## **Muddy Moments**

This is to encourage you to ask questions. I have provided the space to post your questions so everyone can see and learn from your questions. However, if you are more comfortable emailing them directly to me, that is fine also. This will be graded on participation. You must submit 5 questions throughout the semester. Please contribute throughout the semester; it will be obvious you made up questions if you send 5 to me the last week of the semester!

## **Extra Credit**

You can receive extra credit by answering the questions posed in the “Muddy Moments”. If you accurately and effectively answer a fellow students question you can earn up to 5 points extra credit per answered question. The maximum you can earn is 20 points by answering 4 questions.

## **Academic Dishonesty and Plagiarism**

Academic Dishonesty of any form is unacceptable and will be taken seriously by the instructor, the College of Natural Resources, and the University of Idaho. This includes plagiarism, when you copy materials from other sources without citing the source or copy someone else's work, and cheating, copying material from other students during tests or quizzes. In both cases, you will fail the assignment/exam and the information will be passed on to the Dean of Students. For more information on College and University guidelines see:

- [Policy on Plagiarism](#)
- [Student Code of Conduct](#)

## **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, 208-885-7200, [dss@uidaho.edu](mailto:dss@uidaho.edu).**

## **Example Schedule:**

### **Lesson 1: Fuels Inventory and Sampling Design, Jan 15-25**

#### **Readings**

- Sandberg et al. (2001)
- Scott and Reinhardt (2001)

#### **Assignments**

- [DUE Jan 18 - Introduce Yourself Discussion](#)

### **Lesson 2 – Intrinsic Fuel Properties, Jan 26-Feb 1**

#### **Readings**

- Dibble et al. (2007)
- Rothermel and Philpot (1973)
- Susott (1982)

## Assignments

- [Important Fuels Discussion](#)  
[DUE Feb 01 - Initial discussion post](#)  
[DUE Feb 08 - Responses to fellow students](#)

## Lesson 3: Fuel Moisture, Feb 2-15

### Readings

- Chuvieco et al. (2004)
- NWCG (2002)
- Appendix B

### Assignments

- [DUE Feb 15 - Fuel Moisture Assignment](#)

## Lesson 4, Surface Fuels, Feb 16-Mar 8

### Readings

- Brown (1974)
- Brown (1981)
- Brown et al. (1982)
- Brown et al. (2003)
- Sikkink and Keane (2008)

### Assignments

- [Brown et al. \(2003\) Discussion](#)  
[DUE Feb 22 - Initial discussion post](#)  
[DUE Mar 01 - Responses to fellow students](#)
- [DUE Mar 08 - Surface Fuels Assignment](#)

## Lesson 5: Canopy Fuels, Mar 9-29

### Readings

- Brown et al. (1977)
- Cruz et al. (2003)
- Reinhardt et al. (2006)

### Assignments

- [Salvage Logging Discussion](#)  
DUE Mar 15 - Initial discussion post  
DUE Mar 22 - Responses to fellow students
- [DUE Mar 29- Mid-course feedback](#)
- [DUE Mar 29 - Canopy Fuels Assignment](#)

## **Lesson 6: Fire Models, Mar 30-Apr 12**

### **Readings**

#### *FCCS*

- McKenzie et al. (2007)
- Ottmar et al. (2007)
- Riccardi et al. (2007)
- Riccardi et al. (2007)

#### *BehavePlus*

- Cruz et al. (2005)
- Glitzenstein et al. (2006)
- Scott and Burgan (2005)

#### *FOFEM*

### **Assignments**

- [DUE Apr 12 - Fire Model Assignment](#)

## **Lesson 7: Remote Sensing and Fuels, Apr 13-19**

### **Readings**

- Falkowski et al. (2006)
- Riano et al. (2004)
- Seielstad and Queen (2003)
- Zimble et al. (2003)

### **Assignments**

- [Aha Moment Discussion](#)  
DUE Apr 19 - Initial discussion post  
DUE Apr 26 - Responses to fellow students

## **Lesson 8: Fuels Field Project, Apr 20-May 16**

### **Readings**

- *No Readings*

### **Assignments**

- DUE Apr 05 - Part 1: Proposal
- DUE Apr 24 - Part 2: Presentation
- DUE May 03 - Part 3: Critique
- DUE May 15 - Part 4: Final Report