

SYLLABUS - FORESTRY 324
FIRE MANAGEMENT & ECOLOGY
Spring 2024

General Course Information:

Lecture: 8:00a - 8:50a Tues. – Thur., TNR-120
Lab Section-1: 10:00a - 11:50a Thursday, TNR-360
Lab Section-2: 3:00p - 4:50p Thursday, TNR-255
Instructor: Dr. Michael Tiller
Office: TNR-367
Office Hours: Wed, 12:00-2:00p, or by appointment
Office Telephone: 715-346-2153
Email: mtiller@uwsp.edu

Prerequisites: NRES 250 & 251; Note: this means that it will be assumed you understand the basics of botany and soil science.

Textbook:

Pyne, S. J., P. L. Andrews, and R. D. Laven. 1996. Introduction to Wildland fire 2ND Edition. Wiley & Sons, New York. 769 pp.

Course Objectives:

My overall objective is for you to learn foundational knowledge related to fire ecology and prescribed burning, primarily fire effects on ecosystems.

Learning Outcomes: Students are expected to

- 1) learn the many disciplines related to fire management;
- 2) acquire the background, tools, and understanding to effectively plan basic prescribed burns;
- 3) demonstrate a broad understanding of fire effects on vegetation, soils, invertebrates, and nutrient cycling in forest ecosystems;
- 4) acquire a foundational understanding of the roles that fire plays in terrestrial ecosystems.

To meet learning outcome #2, the student will learn how to 1) inventory fuels, 2) evaluate a community for prescribed burning, 3) write a prescribed burn plan, and 4) assess the advantages and disadvantages of the common ignition patterns.

Course Philosophy and Approach:

My philosophy is that learning is a shared experience; it is not a one-way transfer of information. We must each shoulder our responsibilities for you to be successful.

- A. Lecture: Specific lectures and related material will be provided for each week in Canvas. If you know, understand, and can analyze the content in the lectures, you will do well on the exams.
- B. Lab: For each topic, you will be given a handout that lists the specific objectives for the topic and an outline that lists the major sub-topics.
 - B1. *Assignments.* Lab assignments will be given throughout the semester which will determine 20% of your grade; thus, they should be given an appropriate level of attention and thought. **Each person is expected to write his/her own answers.**

B2. *Burn Plan*. **This is the most important task and outcome of the course.** It will draw on, and integrate, many of the topics we cover in lecture and lab. You need to start as early as you can, stay on top of the associated content [organization is going to be very important] and plan ahead.

The course will be posted on Canvas and organized by week. Each week there will be a module containing the PowerPoint(s), handouts, and outlines used in lecture and lab. The numbering of the modules is based on the week of the semester and corresponds to the week # in the schedule below. **Please note**, that the schedule may be subject to change given we may have the opportunity to observe a prescribed fire. As many of you know, prescribed burns are dictated by weather conditions and opportunities may vary from week to week.

LECTURE/LAB SCHEDULE, TOPICS & READINGS:

FOR 324		Fire Management and Ecology Lecture/Lab Schedule	
Week	Lec/Lab Date	Lecture/Lab Topic	Reading Assignment
1	23-Jan 25-Jan	Scope of fire management Wildfire History	Pyne et al. 1996 (Pyne) - Chap 8: 405-419
	25-Jan	Lab: Elemental: Reimagine Wildfire “Discussion”	
2	30-Jan 1-Feb	Wildfire in WUI/fuels management Wildfire Suppression	Pyne - Chap 8: 405-410 Pyne – Chap 9: 486-512
	1-Feb	Lab: Land in Balance/Cultural Burning “Discussion”	
3	6-Feb 8-Feb	Fuel properties and combustion Fire Behavior	Pyne - Chap 1: 4-29 Pyne - Chap 2: 49-56, 63-79
	8-Feb	Lab: Fuel classification and BEHAVE+	Pyne - Chap 3: 102-106
4	13-Feb 15-Feb	Wildland fire use Fire prescriptions and complexity	Pyne – Chap 10: 539-552
	15-Feb	Lab: Prescribed Fire Plan	See supplemental material in Canvas
5	20-Feb 22-Feb	Wildland fire use – regulations Firing patterns and implements	
	22-Feb	Lab: Burn mapping	
6	27-Feb 29-Feb	Fire weather and smoke management Fire regimes	Pyne - Chap 10: 554-562 Pyne - Chap 5: 171-180
	29-Feb	Lab: Recon. For Burn Plan (field)	
7	5-Mar 7-Mar	Plant adaptations to fire Fire effects on flora	Pyne - Chap 5: 180-187 Brown and Smith 2000: Chap 2: 9-34
	7-Mar	Lab: Fuel load inventory (field)	
8	12-Mar	Rx Burn Planning	

	14-Mar	EXAM-1	
	14-Mar	Lab: Work on Rx Burn Plans	
9	19-Mar	Spring Break	
	21-Mar		
10	26-Mar	Fire effects on soil and water	Neary et al. 2005: Pgs. 21-27, 95-106
	28-Mar	Fire effects fauna, inverts, & microbes	
	28-Mar	Lab: FEIS FOFEM	Neary et al. 2005: Pgs. 80-91
11	2-Apr	Plant disease and fire effects	Dr. Holly Petrillo
	4-Apr	Fire Ecology - Lake States	
	4-Apr	Lab: Rx Fire Case Studies	
12	9-Apr	Fire Ecology – Central Hardwoods	Stambaugh et al. 2021
	11-Apr	Fire Ecology – Southern Forests	
	11-Apr	Lab: Work on Rx burn plan	Glitzenstein et al. 2021
13	16-Apr	Fire Ecology – California	Safford et al. 2021
	18-Apr	Discussion: Fire Regime Change in Western Forests	
	18-Apr	Lab: Fire History Lab	Hagmann et a. 2021
14	23-Apr	Fire Ecology – Eastern Hardwoods	Arthur et al. 2021
	25-Apr	Fire Ecology – Rocky Mountains	
	25-Apr	Lab: Burn evaluation (Field)	Hood et al. 2021
15	30-Apr	Fire Ecology – Pacific Northwest	Reilly et al. 2021
	2-May	Fire and Climate Change	
	2-May	Lab: Work on Rx burn plan	
16	7-May	Role of fire in ecosystems	Vose et al. 2021
	9-May	Fuels Management	
	9-May	Lab: Rx burns gone wild - why?	Pyne - Chap 5: 198-210
17	14-May	Final Exam: 2:45p-4:45p TNR 120	Pyne - Chap 5: 198-210

GRADE DETERMINATION

- Exam #1 = 25%
- Lab assignments = 20%
- Prescribed burn plan = 30% **due 5/9 at 5:00 pm**
- Final exam = 25% Scheduled time = 5/18, Thur., 10:15a – 12:15p

I believe in curving individual assignments and exams, if warranted, but not course grades. Course grades will be rounded to the nearest tenth and assigned as follows:

- 92.6% or higher = A
- 89.6% - 92.5% = A-
- 87.6% - 89.5% = B+
- 77.6% - 79.5% = C+
- 72.6% - 77.5% = C
- 69.6% - 72.5% = C-

82.6% - 87.5% = B	67.6% - 69.5% = D+
79.6% - 82.5% = B-	59.6% - 67.5% = D
	Less than 59.6% = F

Late assignments will be assessed a **late penalty**: **1)** ≤ 1 day late = 5%; **2)** 1-3 days = 10%; **3)** 3-6 days = 20%; **4)** 6-14 days = 30%, and **5)** > 13 days = 40% reduction. You may turn in assignments on the due date (hard copy) or in Canvas.

Attendance Policy:

I. Attendance will not be taken in lecture and no penalty will be imposed for missing a lecture; However, $\leq 60\%$ of the content comes from your book, so it will greatly improve your performance by attending all lectures. Furthermore, sometimes the schedule has to be adjusted due to unforeseen circumstances and announced in lecture. You are responsible for any changes announced, even if you were not present. Such changes will also be posted in Canvas within two days.

II. **Lab attendance is strongly encouraged and is required for the two visits to the prescribed burn site.** For each unexcused absence, 2.5 points will be subtracted from your laboratory assignment average.

Student Responsibility

To keep up with the readings, to get ALL notes if you miss a lecture and to turn in your assignments on time. If you have an emergency or are ill, extensions will be provided, but it is your responsibility to inform me, **in writing or by e-mail**, why you missed class. Also, if any material is not clear, YOU must let me know; I will be happy to sit down with you one-on-one and discuss it as much as you need.

Students with Disabilities

The university has a legal responsibility to provide accommodations and program access as mandated by Section 504 and the Americans with Disabilities Act (ADA). The university's philosophy is to not only provide what is mandated, but also convey its genuine concern for one's total well-being. If accommodations are needed, please contact the instructor as well as the Disability Resources Center, 609 Albertson Hall (ALB)/the Library room 108 in Collins Classroom Center (CCC): phone (715) 346-3365 or email: drc@uwsp.edu.

Professionalism

Students in the College of Natural Resources are pursuing courses of study that prepare them for careers as natural resources professionals. Thus, CNR students and faculty/staff are expected to exhibit conduct and attitudes appropriate to professionals. Conduct and attitudes appropriate for professionals include, but are not restricted to,

1. The UWSP Student Rights and Responsibilities are available via: www.uwsp.edu/centers/rights
2. Attitudes appropriate for resource professionals of the 21st Century:
 - a. Respect for others and for their ideas;
 - b. Appreciation for ethnic and gender diversity in the workplace;
 - c. Sensitivity to environmental quality;

d. Adherence to professional ethics, e.g. the Society of American Foresters or Wildlife Society Code of Ethics.

- SAF Code of Ethics: <https://www.eforester.org/CodeofEthics.aspx>
- Wildlife Society Code of Ethics: <https://wildlife.org › 20190304-Code-of-Ethics>

Academic Integrity

Academic integrity is central to the mission of higher education in general and UWSP in particular. Academic dishonesty (cheating, plagiarism, etc.) is taken very seriously. Don't do it! The minimum penalty for a violation of academic integrity is a failure (zero) for the assignment. For more information, see the "Student Academic Standards and Disciplinary Procedures" section of the Community Rights and Responsibilities document, UWSP Chapter 14. This can be accessed by viewing page 11 of the document at: [UWSP Chapter 14 – Academic Misconduct](#)

Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned under extenuating circumstances. All incomplete course assignments must be completed within deadline given by the instructor.