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FORS 495.01: Wildland Prescribed Fire Practicum

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Prescribed Fire Practicum

FORS495/544
3 credits (credit/no credit)
Georgia- Spring 2021

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Course Overview

The Prescribed Fire Practicum, or Rx Practicum, is a three-credit class designed to provide students with technical training, practical applications, and theoretical foundations in ecological burning in the southeastern United States. It is taught annually in southern Georgia for credit/no credit. Students travel together from Missoula during Spring Break and return during the week following Spring Break. In the class, students review literature documenting longleaf pine ecosystem form and function, evaluate burn plans, and engage in prescribed burning for specific ecological objectives. Fire will be used to meet restoration goals in longleaf pine woodlands. Following burning, students will assess fire effects and evaluate the effectiveness of treatments. In the process, they will be expected to take initiative, make decisions, and be accountable for results. Students will be required to: (1) provide daily photo and text documentation of their actions, (2) monitor fire behavior, weather and effects, (3) map burn units, (4) implement prescribed fire, (5) fill leadership roles, (6) participate actively in field trips with ecologists, fire managers, and landowners, (7) contribute substantially to after-action reviews, and (8) provide a written synthesis of their experiences upon return to the UM campus, with recommendations for improving the class for future students. The latter two 'reflection' requirements are important elements of the service learning model (described below).

The class is co-convened with G FORS544. Students in FORS 544 are expected to provide leadership in directing firefighters and teaching new skills. They will complete two additional assignments: a research paper (8-10) pages addressing a topic related to longleaf pine fire ecology and management and a teaching seminar delivered to the class on a topic related to implementing or monitoring prescribed fire. Additionally, there will be higher performance expectations for graduate students.

The experiential learning opportunities provided by the Prescribed Fire Practicum help develop fire managers who are capable, creative problem-solvers. The class adopts a hybrid professional practice and field education learning model to create an environment where disciplinary skills are applied and practiced under consistent mentoring. Students are required to reflect on what and how they are learning, and their responsibility moves well beyond a course grade. This approach builds knowledge, skills and confidence among students in the relatively forgiving burning conditions typical of the southeastern U.S.

UM Service Learning Definition

Service Learning is a method of teaching and learning in which students, faculty and community partners work together to enhance student learning by applying academic knowledge in a community-based setting. Student work addresses the needs of the community, as identified through collaboration with

community or tribal partners, while meeting instructional objectives through faculty-structured service work and critical reflection meant to prepare students to be civically responsible members of the community. At its best, service learning enhances and deepens students' understanding of an academic discipline by facilitating the integration of theory and practice, while providing them with experience that develops life skills and engages them in critical reflection about individual, institutional, and social ethics.

Course Goals:

- Promote academic and professional development of students and increase their competitiveness.
- Achieve meaningful ecological restoration objectives for land management partners.
- Build relationships with innovative land managers and organizations.
- Support CFC's fire management curriculum and its experiential learning goals.
- Bridge fire training and education.
- Create research opportunities for students, faculty, and collaborators.

Learning Outcomes

Upon completion of this class, students should be able to:

- Describe the fire ecology of longleaf pine ecosystems.
- Explain restoration strategies in longleaf pine habitats.
- Interpret burn plans to meet restoration objectives.
- Know how to staff, organize, and implement a simple prescribed fire.
- Discuss how weather, fuels, and topography interact to control fire behavior.
- Present multiple strategies and tactics for managing prescribed fire and monitoring its effects.
- Adapt to unexpected changes in the fire environment.
- Recognize safety considerations associated with prescribed fire implementation.
- Manage people and resources more effectively. *FORS544*
- Exhibit improved leadership skills. *FORS544*
- Teach other firefighters basic skills in prescribed fire implementation and monitoring. *FORS544*

Readings

The following readings have been selected to provide a broad cross-section of the science, history, culture, and practical considerations of burning in longleaf pine ecosystems. They will be made available through on-line resources by the instructor. There is no required textbook.

Overview of longleaf pine...

Oswalt, C. Cooper, J., Brockway, D., Brooks, H., Walker, J., Conner, K., Oswalt, S., Conner, R. 2012. History and current condition of longleaf pine in the southern United States. USDA Forest Service General Technical Report SRS-166. [READ CHAPTER 1, PAGES 1-8]

Introduction to the ecosystem, the role of quail hunting in conservation, the role of humans in forest burning...

The Fire Forest – Longleaf Pine-Wiregrass Ecosystem. Natural Georgia Series, Volume 8, Number 2, Georgia Wildlife Federation. [READ CHAPTER 1, PAGES 5-18; CHAPTER 2, PAGES 19-30; CHAPTER 4; PAGES 43-54]

The commercial value of longleaf and strategies for management...

Managing the Forest and the Trees. A Private Landowner Guide... A Nature Conservancy, Longleaf Alliance, Southern Group of State Foresters publication. [READ CHAPTER 1 AND 2, PAGES 1-17]

Effects of fire exclusion and consequences of reintroduction of fire...

Varner, J., Gordon, D., Putz, F., Hiers, J. 2005. Restoring fire to long-unburned *Pinus palustris* ecosystems: novel fire effects and consequences for long-unburned ecosystems. *Restoration Ecology* 13(3): 536-544.

Fire seasonality and hardwood control...

Hmielowski, T, Roberston, K., Platt, W. 2014. Influence of season and method of topkill on resprouting characteristics and biomass of *Quercus nigra* saplings from a southeastern U.S. pine-grassland ecosystem. *Plant Ecology* 215: 1221-231.

The value of fire-intolerant hardwoods in longleaf forests...

Hiers, J., Walters, J., Mitchell, R., Varner, M., Conner, L., Blanc, L., Stowe, J. 2014. Ecological value of retaining pyrophytic oaks in longleaf pine ecosystems. *The Journal of Wildlife Management* 78(3): 383-393.

Prescribed burning guidance for the Southeast...

Introduction to Prescribed Fire in Southern Ecosystems. 2012. USDA Forest Service Science Update SRS-054. [READ PAGES 1-39; 43-53]

Course Polices

Professionalism: In this class, students represent the State of Montana and its University System to natural resource professionals. They must do so professionally. This means communicating clearly, directly, and respectfully with classmates, instructors, and land managers. It means maintaining a professional appearance and demeanor. It means being adaptable to changing conditions, long days (up to 16 hours), and unpredictable living conditions. It means carrying your weight. Violation of this policy will result in failure of the class.

Academic Honesty: Students must practice academic honesty. Academic misconduct is subject to an academic penalty and/or a disciplinary sanction by the University. This is a zero tolerance policy that will result in failure and possible expulsion if not followed. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: http://life.umt.edu/vpsa/student_conduct.php

Make-up/Extra Credit: There will be no make-up assignments and no opportunities for extra credit.

Course Pre-requisites

- Students have current red cards
- Students are enrolled in the Spring Semester.
- Students are able and willing to provide food for themselves for the duration of the class (~\$9/day (\$150 total); kitchen facilities are provided).

(Housing, transportation, and necessary fire gear will be provided by The National Center for Landscape Fire Analysis and The Nature Conservancy-Georgia/Alabama).

Participation in this class is by instructor permission only. Selection is based in large part on the need to put together an effective group that will produce meaningful restoration outcomes for natural resource partners. This means that motivation, work ethic, and professionalism are primary considerations. Additionally, I attempt to mix good fire experience with less-experienced, but ambitious firefighters, while providing for geographic diversity and a mix of students by class status. Students interested in participating are required to deliver a document in person to me with the following information .

Name:

Contact Info: e.g., phone and email.

Major:

Class Status: freshman, sophomore, junior, senior, graduate student

Redcard: yes/no; location

Fire experience: list what, where, when

Statement of Interest: (Why do you want to take this class? What do you hope to get out of it? What are your long-term goals in fire, if known? What are you planning on doing next summer?)

Contact info for one reference:

Assignments

Attendance at 3 pre-trip Meetings: The class will meet three times for 2-hours each (before leaving campus) to develop understanding of longleaf pine ecology through lecture and discussion, and to address logistics.

Written Journal: Students will keep a daily log of activities and observations, appended with time and location, including wx and fire behavior observations and maps.

Photo/Video Journal: Students are required to produce comprehensive photo/video documentation of activities, to be shared with the group.

After-Action Review (Group Assignment): Upon returning to Missoula, the class will complete a comprehensive written after-action review for our natural resource partners, reviewing the trip and identifying strengths and weaknesses of the experience. This assignment will be instructor-led. The AAR is a major component of the 'reflection' element of the service learning mission.

Synthesis Paper: Students will produce a 4-5 page paper synthesizing and reflecting upon their experiences with respect to what was learned and how the course advanced academic and professional goals. Strengths and weakness of the experience should be identified, with recommendations for

improvements, where necessary. The synthesis paper will be due at the end of the second week of classes in spring semester.

Exit Interview: Each student will conduct an exit interview with the course instructors.

Research Paper (FORS544): Graduate students are required to write an 8-10 page, well-cited research paper on a topic related to longleaf pine ecology. The purpose of this assignment is to begin to build a knowledge library for future students, instructors, and natural resource partners.

Teaching Seminar (FORS544): Graduate students will prepare and deliver a teaching-field seminar to the class (seminar approved and prepared prior to the class). Example topics include fuels sampling, fire behavior and weather monitoring, field GIS, photo plot documentation, lightning patterns, field ecology).

Grading

The class is offered as credit/no credit. Satisfactory performance in each of the performance areas (journaling, monitoring, mapping, after-action reviews, synthesis paper, etc.) plus *active participation in all activities* is required for credit.

Tips for success

- READ! There are 120 pages of assigned readings that cover the ecology, history, and management of longleaf pine forests. All of the readings apply directly to what you will be doing in the field and need to be completed ahead of time.
- Take good notes and pictures during the activities you are participating in (not after).
- Volunteer for everything, take initiative, and work harder than everyone else.
- Communicate clearly, directly, and respectfully with classmates, the instructor, and management partners.
- Be professional and adaptable.