

# FNR4624C *FIELD OPERATIONS FOR MANAGEMENT OF ECOSYSTEMS*

Fall 2014

Gainesville Section 2269

Milton Section 1F58

**Instructor:** Mr. Scott A. Sager  
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**Class hours:** Gainesville  
- M 4-9 (10:40am – 4:55pm) NZ 222  
- field days may run longer  
Milton  
- taped lectures to be viewed on students' schedule  
- field trips scheduled for:  
o Friday 4 October  
o Saturday 2 November  
o Friday 22 November  
o Wednesday 11/Thursday 12 December (individual presentations)

**Office hours:** As arranged, or via phone/email/Skype

**Overview:** Covers the common operations utilized by natural resource managers to manipulate ecosystems to reach a goal (commodity production, ecological enhancement, aesthetics, recreational opportunities, etc.). Addresses the use of heavy machinery, herbicides, and prescribed fire, and the regulations, contracting markets, and safety concerns governing each.

The course will cover three main areas of operations:

- managing soil and vegetative conditions to prepare for vegetative regeneration (natural or planted)... commonly referred to as “site prep”
- managing canopy conditions to reach desired conditions, including opportunities to generate revenue from timber harvesting
- establishing/planting vegetation to meet a desired condition

In general, each of these areas is addressed using three main types of tools and techniques:

- mechanical manipulation... the use of a variety of equipment (hand-powered; tractors or bulldozers with various implements; etc.)
- chemical manipulation... the use of pesticides (typically herbicides), as well as fertilizer/soil amendments
- thermal manipulation... the use of prescribed fire

Each combination of the area of operation and the tool/technique has a specific set of characteristics. These characteristics will form the bulk of the course content, and include:

- pros and cons relative to specific objectives
- regulations (including Silvicultural Best Management Practices, government permits, licenses/certifications, etc.)
- costs and contracting (including ethics)
- safety

This course intends to provide a broad exposure to the topic. Students seeking more depth on specific aspects should discuss their interest with the instructor, and potentially take courses such as:

- FOR3214/L *Fire Ecology and Management/Lab*
- PLS4613 *Aquatic Weed Control*

- WIS4427C *Wildlife Habitat Management*
- FAS4305C *Intro to Fisheries Science*

**Student Learning Objectives:**

By the end of this course, the student will be able to:

1. Identify and discuss the uses of a variety of tools and techniques to meet specific ecosystem management objectives, including:
  - a. the pros and cons relative to the objective;
  - b. regulations restricting the use;
  - c. costs and contracting (including ethics);
  - d. and safety issues.
2. Choose the appropriate tool/technique(s) to reach a desired condition, given a stated current condition, and justify their choice.
3. Identify the common regulatory restrictions on operational activities, and resources available to check for new or uncommon regulations.
4. Identify conflicts-of-interest in the financial and supervisory relationship between landowners, consultants, and third-party contractors, and identify ways to mitigate conflicts-of-interest.
5. Identify the factors involved in determining prices for contracting of resource management activities, and discuss ways to distribute risk/reward to produce the “best” contract.

**Pre-Requisites:** This course is a senior-level course, intended for students who have already gained a solid understanding of basic ecological principles, as well as an understanding of the measurement and monitoring of specific resources. As such, successful completion of the following coursework is required prior to enrollment:

- FOR3153C *Forest Ecology*, or equivalent (contact instructor to determine sufficiency)
- FNR3410C *Natural Resource Sampling*, WIS4945C *Wildlife Techniques*, FOR3162C *Silviculture* or equivalent (contact instructor to determine sufficiency)

**Evaluation of Student Performance:**

- 15% Exam 1 – take-home exam covering class material presented in the first half of the course
- 15% Exam 2 – take-home exam covering class material presented in the second half of the course
- 40% Assignments and Exercises (8) – provided on-line, and based on lectures and field exercise... may include problem sets (calculations), short answer, or other formats (5% of grade, each)
- 30% Operations Project – for a given site, and given land management objectives, development of written documentation (10%), and an oral review of the documentation (20%), outlining the following activities:
  - overstory manipulation
  - preparation for regeneration
  - planting/regeneration/reforestation

**Grading Scale (percent):**

	<b>A</b>	90.0-100		
<b>B+</b>	86.7-89.9	<b>B</b>	83.7-86.6	<b>B-</b> 80.0-83.6
<b>C+</b>	76.7-79.9	<b>C</b>	73.7-76.6	<b>C-</b> 70.0-73.6
<b>D+</b>	66.7-69.9	<b>D</b>	63.7-66.6	<b>D-</b> 60.0-63.6
		<b>E</b>	< 60.0	

Further information on UF grading policy can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

**Attendance:** For Gainesville students, attendance for all classes (lectures and labs) is required. For Milton students, lectures are expected to be watched prior to any discussion (Skype, email, phone, etc.), as well as prior to the associated field lab. Milton students must also attend all field labs. Exemptions to these requirements may be made at the discretion of the instructor, in accordance with UF policies on attendance found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

**Textbook:** Selected readings will be distributed in class or electronically. Any and all materials (including materials you identify on your own) may be used in on-line exams and exercises/assignments; however, no

reading material will be available for use during the discussion section of the Operations Project. Typical readings may include:

*Silviculture Best Management Practices*. Florida Department of Agriculture and Consumer Services, 2008.

*2012 National Prescribed Fire Use Survey Report*. Coalition of Prescribed Fire Councils, Inc. 2013.

*Rules of the State of Florida, Department of Revenue*. Chapter 12D-51.001 "Classified Use Real Property Guidelines, Standard Assessment Procedures and Standard Measures of Value-Agricultural Guidelines".

*Are Rednecks the Unsung Heroes of Ecosystem Management?*. Jack Putz, Wild Earth. Summer/Fall 2003.

**Field trips:** These will allow students to observe operational activities in the field. In addition to providing practical familiarity with these operations, it will allow for some limited interaction with technical professionals and practitioners. Scheduling will be subject to change due to logistical constraints. While every effort will be made to return students to campus by 5pm on days with field trips, students should recognize that this is **only an estimate**, and schedule their activities accordingly.

**Computers:** Exams 1 and 2 will require email/internet access. All assignments and exercises must be submitted using professional word processing and/or spreadsheet programs (Microsoft Word, Microsoft Excel, or similar).

**Equipment:** Appropriate personal protective equipment is required. Nearly all labs will require field boots and long pants, which are the responsibility of the student to provide. Specific labs may require snake leggings, hard hats, and other equipment; this will be provided. Specific instructions will be given for specific labs, based on expected conditions.

**On-Line Exams:** Both exams will be open note, open book, open Wikipedia, open Google, etc.; however, you may not collaborate with other students, or contact working professionals for guidance. Questions will be short answer, requiring justification of answers and similar. Exam questions will be provided approximately one week before the due date. No credit will be given for exams submitted past the due date/time.

**Assignments:** All assignments will be discussed during lecture. No credit will be given for assignments submitted late (unless the absence is excused in accordance with UF policies). Assignments are to be completed individually. Reference materials may be used, but not other students.

**Operations Project:** The intent of the final project is to provide an opportunity for the student to demonstrate a cumulative knowledge of the course material, as applied to meet a specific objective on a specific site. It is also intended to provide students experience preparing a plan, and justifying the plan, to the landowner. The written prescription/documentation will describe, in clear terms, the proposed activities and tools/techniques to be used, including contracts, maps, etc. (as necessary). This documentation will be "presented" in a one-on-one meeting with the instructor.

**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 <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

**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.

**Campus Helping Resources:** Students experiencing crisis 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/)

Counseling Services  
Groups and Workshops  
Outreach and Consultation  
Self-Help Library  
Training Programs  
Community Provider Database

Career Resource Center, First Floor JWReitz Union, 352.39231601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

**Services for Students with Disabilities:** The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes the registration of disabilities, 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.

001 Reid Hall, 352.392.8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/).



**FNR4624C FIELD OPERATIONS FOR MANAGEMENT OF ECOSYSTEMS**  
**Fall 2013 Schedule**

**Detailed Outline**

<b>Week</b>	<b>Content</b>
<b>1 - 26 August</b>	LECTURE <ul style="list-style-type: none"> <li>- course mechanics overview</li> <li>- basic principles</li> <li>- regulations, contracting/markets, safety</li> <li>- general applications</li> </ul>
<b>2 - 2 September</b>	No Class
<b>3 - 9 September</b>	LECTURE <ul style="list-style-type: none"> <li>- heavy equipment basics</li> <li>- prescribed fire basics</li> <li>- herbicide basics</li> </ul>
<b>4 - 16 September</b>	FIELD TRIP – Bielling Site Prep, Providence; Austin Cary Forest, Fairbanks <ul style="list-style-type: none"> <li>- mechanical site prep</li> <li>- prescribed fire</li> <li>- herbicide use</li> </ul>
<b>5 - 23 September</b>	LECTURE <ul style="list-style-type: none"> <li>- road construction and maintenance</li> <li>- timber products and logging</li> </ul> FIELD TRIP – Loncala, North-Central Florida <ul style="list-style-type: none"> <li>- upland logging</li> <li>- swamp logging</li> </ul>
<b>6 - 30 September</b>	LECTURE <ul style="list-style-type: none"> <li>- wood products</li> <li>- timber markets</li> </ul> FIELD TRIP – Gillman Lumber, Lake Butler <ul style="list-style-type: none"> <li>- chip-n-saw mill</li> <li>- transportation, wood supply, manufacturing by-products</li> </ul>
<b>Milton – Friday 4 October</b>	FIELD TRIP – Neal Land and Timber, <ul style="list-style-type: none"> <li>- site prep</li> <li>- logging</li> <li>- mill</li> </ul>
<b>7 - 7 October</b>	LECTURE <ul style="list-style-type: none"> <li>- guest speakers... timber sale marketing/administration</li> <li>- herbicides</li> </ul>
<b>8 - 14 October</b>	LECTURE <ul style="list-style-type: none"> <li>- prescribed fire</li> </ul>
<b>9 - 21 October</b>	LECTURE <ul style="list-style-type: none"> <li>- the terrestrial/aquatic interface</li> <li>- managing aquatic habitats</li> </ul>
<b>10 - 28 October</b>	FIELD TRIP – Southern Forestry Consulting, Monticello <ul style="list-style-type: none"> <li>- pond/lake management</li> <li>- prescribed fire</li> <li>- herbicide use</li> </ul>
<b>Milton – Saturday 2 November</b>	FIELD TRIP – aquatic habitat management, prescribed fire
<b>11 - 4 November</b>	LECTURE <ul style="list-style-type: none"> <li>- regeneration methods</li> <li>- stock genetics</li> <li>- density and spacing</li> </ul>
<b>12 - 11 November</b>	No class
<b>13 - 18 November</b>	FIELD TRIP – Florida Forest Service Nursery, Chiefland; Central Florida Lands and Timber, Mayo <ul style="list-style-type: none"> <li>- pine seedling production</li> <li>- groundcover plug production</li> <li>- urban/restoration seedlings/saplings</li> </ul>
<b>Milton – Friday 22</b>	FIELD TRIP – nurseries and planting

November	
<b>14 - 25 November</b>	FIELD TRIP – Plum Creek, Lake Butler; Environmental Services, Inc., Jacksonville - industrial timber planting - mitigation planting
<b>15 - 2 December</b>	LECTURE - basic principles - regulations, contracting/markets, safety - general applications - overview of Operations Plan
<b>Campus – 9/10/13 December</b>	Operations Plan – presentations
<b>Milton – 11/12 December</b>	Operations Plan – presentations