



**FOREST AND RANGELAND  
STEWARDSHIP  
COLORADO STATE UNIVERSITY**

**F422/F521 Quantitative Analysis in Forest Resource Management  
Fall 2018 Syllabus**

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	Instructor	GTA
Name:	Instructor Name Yu Wei	Name: Noah Amme
Office:	Office Number F 102	Office Number: F 112
E-Mail:	Instructor Email: Canvas	E-Mail: Canvas
Office Hours:	Date and time M&W 10:30-11:30am Or by appointment	Date and time: Tuesday, 10:00-noon or by appointment

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Term:	Fall 2018
Class Meeting Days:	MW
Class Meeting Hours:	2:00-2:50pm
Class Location:	Education Building Room 11
Lab time:	F: 2:00-3:40
Lab Location:	NR 232 or further notices
Course Credits:	Three

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**Course Overview**

This course introduces quantitative systems analysis methods in forest, wildland fire, watershed, and habitat management, especially at landscape scale. Students will likely find it valuable to maintain a steady pace, finish the lab assignments, get started on homework assignments as they are assigned, and attend all the lectures and lab sessions. Lecture will often build on previous lectures.

**Course Goals and Objectives**

1. Goals: understand the concept of landscape forest planning, and the basic techniques of using quantitative and systems analysis tools to assist landscape forest, fire, watershed, and habitat management decisions and planning efforts.
2. Objectives:
  - a. Understand the objectives, concerns and management alternatives in landscape forest management.
  - b. Understand how management will influence the composition, growth and quality of a forest.
  - c. Explore landscape models in fire management, forest conservation, watershed erosion control, and wildlife habitat conservation.
  - d. Familiar with the commonly adopted landscape forest planning procedures in the U.S.
  - e. Solve forest management models by selecting appropriate tools.
  - f. Analyze the tradeoffs between alternative management strategies when facing multiple forest management objectives.
  - g. For F521: understand the basic concepts and challenge in conducting forest systems analysis under the impact of natural disturbances. A class project is required for student who registers in F521.

### **Course Prerequisites**

1. F321 and F322
2. Basic knowledge of Microsoft Excel.

### **Course Policies**

#### **Late Work Policy:**

There are no make-ups for quizzes or exams. All labs are due the following week after assignment (by the end of the lab on Friday) unless specified by the instructor. Late homework, project report and lab assignments will **be subjected to a 10% per day penalty up to three days; no grade will be assigned to assignment more than three days late.**

#### **Grades of "Incomplete":**

Per university policy, an instructor may assign temporary grade of Incomplete to a student who demonstrates that he or she could not complete the requirements of the course due to circumstances beyond the student's control and not reasonably foreseeable. A student must be passing a course at the time that an Incomplete is requested unless the instructor determines that there are extenuating circumstances to assign an Incomplete to a student who is not passing the course. When an instructor assigns an Incomplete, he or she shall specify in writing using the Department Incomplete Grade Form the requirements the student shall fulfill to complete the course as well as the reasons for granting an Incomplete when the student is not passing the course. The instructor shall retain a copy of this statement in his or her grade records and provide copies to the student and the department head or his or her designee. (Section 1.6 of the *Academic Faculty and Administrative Professional Manual*)

#### **Disability Access:**

Colorado State University is committed to providing reasonable accommodations for all persons with disabilities. Students with disabilities who need accommodations must first contact Resources for Disabled Students before requesting accommodations from the professor. Resources for Disabled Students (RDS; <http://rds.colostate.edu/home>) is located in room 100 of the General Services Building. Their phone is (970) 491-6385 (V/TDD). Students who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations.

#### **Attendance Policy:**

Attending classes, labs and discussion sessions are required for this class. **A student may fail this class if more than 25% of the scheduled class time is missed.** Participation in official University activities, e.g., an out-of-town athletic event, or special religious observances may provide a legitimate reason for an excused absence. Student is responsible of discussing these activities with the instructor at the beginning of the semester.

#### **Professionalism Policy:**

Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

When emailing the instructor, please include your full name, CSU ID, and the course number in your email.

#### **Academic Integrity (enforced strictly):**

The Department of Forest and Rangeland Stewardship takes academic integrity seriously. At minimum, academic integrity means that no one will use another's work as their own. The CSU writing center defines plagiarism this way:

Plagiarism is the unauthorized or unacknowledged use of another person's academic or scholarly work. Done on purpose, it is cheating. Done accidentally, it is no less serious. Regardless of how it occurs, plagiarism is a theft of intellectual property and a violation of an ironclad rule demanding "credit be given where credit is due."

Source: (Writing Guides: Understanding Plagiarism.

<http://writing.colostate.edu/guides/researchsources/understandingplagiarism/plagiarismoverview.cfm>.

Accessed, May 25, 2012)

If you plagiarize in your work you will fail the assignment (for the first time), or fail the course (for the second time or above). Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed according to the principles published in the CSU General Catalog (see page seven, column two: <http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf>).

Of course, academic integrity means more than just avoiding plagiarism. It also involves doing your own reading and studying. It includes regular class attendance, careful consideration of all class materials, and engagement with the class and your fellow students. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, we will ask to you sign the CSU Honor Pledge as part of completing all of our major assignments. While you will not be required to sign the honor pledge, we will ask each of you to write and sign the following statement on your papers and exams:

***"I have not given, received, or used any unauthorized assistance."***

### **Basis for Final Grade**

<b>Assessment</b>	<b>Percent of Final Grade</b>
Labs (nine, 5% each)	45%
Homework (five, 5% each)	25%
Exams (three midterms 5% each, one final 15%)	30%
Total	100%

<b>Grading Scale (%)</b>	
90-100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

## Course Schedule

<b>Week</b>	<b>Topic</b>	<b>Reading Assignment /homework/Exam</b>	<b>Lab Assignment</b>
1	Introduction to landscape forest management	Read chapter 1	Excel exercise: no grade will be assigned
2	Principles of linear programming.	Read chapter 2, 3.1 to 3.3, and 3.5 HW1 (due)	Lab 1: The Ponderosa Pine forest problem
3	Even-aged forest management	Read chapter 4	Lab 2: Even-aged management – single rotation
4	Regulated forest, area control and volume control	Read chapter 5 Exam I	Lab 3: LP in area control and volume control
5	Dynamic model (Erin Belval)	Read chapter 6 HW2 (due)	No lab
6	Uneven aged management	Read chapter 8 HW3 (due)	Lab 4: The dynamic model and long-term forest planning
7	Forest planning based on Model I	Read handout	Lab 5: Model I formulation
8	Forest planning with multiple economic and ecological objectives	Read chapter 10 Exam II	Lab 6: Forest planning process
9	Use integer program in landscape forest management	Read chapter 11	Lab 6: Introduction to Integer Programming
10	Select reserve sites for better landscape forest conservation	Read handout HW4 (due)	Recitation
11	Intro to Systems Dynamic Model	Read handout	Lab 7: Reserve site selection
12	Demo of systems dynamic models (Alex Masarie on Monday)	Read handout Exam III	Lab 8: Simulation of a forest succession under influences of disturbance
13	Fuel treatment and erosion control	Read handout	Lab 9: Fuel treatment for erosion control
14	Introduction to stochastic programming	HW5 (due)	Review
15	Course conclusion		Study for final exam
16		Comprehensive final exam	