



# DECISION METHODS FOR NATURAL RESOURCE MANAGERS

DEPARTMENT OF FOREST AND WILDLIFE ECOLOGY (FWE 652)

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

**Spring 2017; 4 credits**

Lecture: Tuesday & Thursday 1:00 – 2:15pm (Russell Labs A120)

Labs: Thursday 2:25 – 4:25pm (Russell Labs A120)

## INSTRUCTOR

**Prof. Craig Johnston**

Department of Forest and Wildlife Ecology

University of Wisconsin-Madison

A147 Russell Labs

Madison, WI 53706

<http://labs.russell.wisc.edu/johnston>

## OFFICE HOURS

Wednesdays 3-4pm in my office, or by appointment.

## COURSE DESCRIPTION

This course is an introduction to applied economic tools and concepts for resource management, with an emphasis on forestry. The course challenges students to think critically about how to manage the multiple benefits provided by the forested ecosystem. We begin by investigating techniques for placing value on the forest and the forested ecosystem, and how these values influence management decisions. Then we define the optimal rotation age of even-aged forests, and examine the economic factors that affect this harvest age. Finally, students are exposed to mathematical programming techniques to investigate methods of achieving economic and ecological objectives, subject to the many constraints faced by a natural resource manager.

## LEARNING GOALS

Students who successfully complete this course will be able to:

1. Solve current approaches for decision making by forest managers.
2. Explain how optimal rotation ages are determined, and what factors affect this calculation.
3. Use harvest scheduling models, and apply them to diverse economic and ecological objectives.

## ASSESSMENT AND GRADING POLICY

Student grades will be based on the following:

<i>ITEM</i>	<i>%</i>	<i>DUE DATE</i>
Labs	40%	See <i>Preliminary Course Outline</i>
Midterm # 1	20%	Thursday March 2 in lab
Midterm # 2	20%	Thursday April 13 in lab
Final Project	20%	May 10, 12:00pm

Final grades will be assessed in the following manner:

A: 94-100    B: 84-89    C: 72-79  
AB: 89-94    BC: 79-84    D: 65-72    F: under 65

## INSTRUCTOR'S EXPECTATIONS

You are expected to attend scheduled class and laboratory periods, arrive on time, and complete labs on time. If you are unable to attend a scheduled class or laboratory period, inform me prior to your absence. If you are unable to attend a lecture, it is your responsibility to catch up on material. You must provide me with credible notice of any absence from labs one-week prior to the lab, otherwise a score of zero will be awarded. What is considered credible notice is up to the discretion of the professor, and any questions should be raised prior to the one-week notice period.

### *\*Labs*

The weekly lab will meet Thursday afternoons from 2:25pm to 4:25pm in the computer room, A120 Russell Laboratories. Students must attend all labs. Students may discuss labs together during lab time, but each student must turn in their own lab report. Lab reports, or sections of reports, that are copied will be considered an issue of academic honesty and may be subject to a grade of zero for all parties involved.

## TEXT

There is no assigned textbook for this course.

## COURSE CONTENT

Throughout the semester, I will host all important information (syllabus, supplemental lecture material, lab materials, exam reviews, updates, news items, etc.) through *Learn@UW*. In most cases, the information posted online will not be distributed in class. It is your responsibility to check the site before attending lecture and labs.

## PRELIMINARY COURSE OUTLINE\*

*\*Specific dates for topics are subject to change*

<b>WEEK</b>	<b>TOPIC</b>	<b>THURSDAY LAB</b>
<b>Week 1</b> Tuesday Jan. 17 Thursday Jan. 19	Introduction + Overview of Forest Economics	Introduction to Labs
<b>Week 2</b> Tuesday Jan. 24 Thursday Jan. 26	Valuing Stumpage	Lab 1
<b>Week 3</b> Tuesday Jan. 31 Thursday Feb. 2	Interest Rates and Discounting	Lab 2
<b>Week 4</b> Tuesday Feb. 7 Thursday Feb. 9	Financial Decision Criteria	Lab 3
<b>Week 5</b> Tuesday Feb. 14 Thursday Feb. 16	Financial Decision Criteria	Lab 4
<b>Week 6</b> Tuesday Feb. 21 Thursday Feb. 23	Financial Decision Criteria	Lab 5
<b>Week 7</b> Tuesday Feb. 28 Thursday Mar. 2	Ecosystem Services	<b>Midterm # 1</b>
<b>Week 8</b> Tuesday Mar. 7 Thursday Mar. 9	Optimal Rotation Age	Lab 6
<b>Week 9</b> Tuesday Mar. 14 Thursday Mar. 16	Optimal Rotation Age	Lab 7
<b>SPRING BREAK</b>	<b>MARCH 18 TO 26</b>	<b>MARCH 18 TO 26</b>
<b>Week 10</b> Tuesday Mar. 28 Thursday Mar. 30	Mathematical Programming	Lab 8
<b>Week 11</b> Tuesday Apr. 4 Thursday Apr. 6	Mathematical Programming	Lab 9
<b>Week 12</b> Tuesday Apr. 11 Thursday Apr. 13	Mathematical Programming	<b>Midterm # 2</b>
<b>Week 13</b> Tuesday Apr. 18 Thursday Apr. 20	Mathematical Programming	Lab 10
<b>Week 14</b> Tuesday Apr. 25 Thursday Apr. 27	Mathematical Programming	Lab 11
<b>Week 15</b> Tuesday May 2 Thursday May 4	Mathematical Programming	Work on Final Project

## UNIVERSITY OF WISCONSIN POLICIES AND EXPECTATIONS

### *Academic Honesty*

In fairness to students who put in an honest effort, cheaters will be treated very strictly. Any evidence of cheating will result in a score of zero on the assignment. Incidences of cheating or plagiarism will be reported to the campus, which may administer additional punishment. Plagiarism includes appropriation of whole passages with or without credit, appropriation of words and phrases without credit, appropriation of both main and supporting ideas without credit, and paraphrasing without credit. Plagiarism also includes submitting a paper written by someone else. Ethical research requires that you properly document the sources you use. Even when you do not quote directly from another work, if reading that source contributed to the ideas presented in your paper, you must give the authors proper credit. If you are unsure of how to properly cite sources, ask me for guidance, or visit the Writing Center webpage:

<http://writing.wisc.edu/Handbook/QuotingSources.html>

For more information on academic misconduct, please visit:

<http://www.students.wisc.edu/doso/academic-integrity/>

### *Disability Access*

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I, will work either directly with the you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. For more information on academic misconduct, please visit:

<http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>