



Forest Resources Management 2016

Capstone course for B.S. degree program in Forest Ecology & Conservation
Core course for M.S. degree program in Forest Resources
Four credits: lecture/discussion + lab/project

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Prerequisites: Forests & People, Plant Identification, Forest Measurements, Harvesting, Silviculture, Resource Economics, Wildlife Conservation, or their equivalents

Lecture MWF, 10:10 – 11:00 am
Location: 306 Holdsworth Hall
Field lab: Wednesday, 1:30 – 5:30 pm (see pages 3 and 4)

Office Hours: please schedule via email or in class (...when we can compare our calendars)

Required Textbook

Davis, L.S., K.N. Johnson, P.S. Bettinger, and T.E. Howard. 2001. *Forest Management: To Sustain Ecological, Economic, and Social Values*. 4th Edition, Waveland Press, 804 pp. (available through Amazon at UMass)

Some slides and other class materials will be distributed in class. Please use a 3-ring binder to collect and organize these materials. Course fees cover the cost of photocopying.

Course Description

Forest resources management is a capstone course for seniors in forest conservation and a core course for graduate students in forest resources. Lectures and discussions using a roundtable format, field labs, and a term project focus on the balanced use of forests to meet multiple management objectives. Water, wood fiber, wildlife, fisheries, biological diversity, recreation, carbon sequestration, aesthetics, spiritual values, and non-timber products (e.g., maple syrup, medicinal plants, etc.) are examples of the renewable resources and ecological services of interest. The lecture/discussion sequence begins with a brief summary of forest history and contemporary issues (building on NRC 225: Forests & People) and an overview of regional differences in forests and forestry. This is followed by a comprehensive discussion of traditional and contemporary forest management principles and practices. Examples are presented from a wide range of ownership types: farms, small private forests, state and watershed forests, and industrial forest land—all where timber harvesting is an essential management tool. The field lab includes site visits and interaction with resource managers and landowners and one-on-one term project work with mentoring from Professor Barten. Our goal is to develop a valuable professional work product to help you land your first professional job.

1. FORESTS AND FORESTRY (Reading: Chapter 1)
 - Chronology ...commentary and discussion of land and resource use in the U.S.
 - Changes in professional practice and societal mandate
 - Overview of US forest policies and laws ...1891 to present
 - Regional differences in US forests and forestry (New England, Ohio Valley, Lake States, Rocky Mountains, Intermountain Region, Pacific Northwest, Southwest, South, mid-Atlantic) ...why they matter and how they influence forests, people, and management
 - Assessment of the Forest Resources of Massachusetts ...case study
2. FOUNDATIONS OF FOREST RESOURCES MANAGEMENT (Reading: Chapters 2 and 3)
 - Ecological, Economic, and Social Perspectives
 - Sustainability
 - Classification, mapping, resource assessment
 - Forest inventory, monitoring, adaptive management
 - Establishing management goals and objectives
3. ASSESSING AND PREDICTING FOREST CONDITIONS AND CHANGES (Reading: Chapters 4 and 5)
 - Growth, yield, and stand structure (even-aged and uneven-aged stands)
 - Site productivity, stocking, and stand density
 - Predicting growth and yield ...assessing management options ...Biomass Case Study
 - Modeling other resources and forest attributes (especially wildlife habitat values)
4. DECISION SUPPORT TOOLS (Reading: Chapters 6-9)
 - Linear programming, Project scheduling, Gantt Charts, project scheduling
 - Valuation and appraisal
(interest, discounting, financial aspects of decision making, budgets)
Other models ...strategic use of GIS and other decision support systems
(Terrain analysis, management planning, road design, unique areas and resources)
 - Project budgets and timelines ...for planning and operations ...for proposals and management
5. FOREST-LEVEL PLANNING (Reading: Chapters 10-14)
 - Classical concepts of area and volume regulation
 - Annual Allowable Cut → Sustained Yield? ...UMass CHP Case Study
 - Contemporary approaches for multiple resources and mixed ownerships
 - From woodlots ...to neighboring parcels ...to forests ...to regions
6. PRACTICING FORESTRY (Readings and other materials on class website)
 - Taxation (property, income, and estate) ...opportunities and constraints
 - Public outreach, education, and review
 - Media relations
 - Personnel management, safety, ethics, professionalism
 - Contracts, bonds and escrow accounts, insurance ...as management tools
7. TERM PROJECTS
 - An individual project to: develop in-depth knowledge about any topic from (or reasonably related to) sections 2-6, continue to develop professional writing and presentation skills in a supportive environment, and enrich the class content

Lecture/Group Discussion and Field Lab Schedule

Date	Day	Section, lecture and discussion topic	Lab Session
20 Jan	W	Introduction and Overview	No lab, Prof. Barten available for meetings
22 Jan	F	1: Forestry Paradigms	
25 Jan	M	1	
27 Jan	W	1	Quabbin CFI and forest management planning
29 Jan	F	1	
1 Feb	M	1	
3 Feb	W	2: Core Knowledge	Individual meetings to discuss project proposals
5 Feb	F	2	
8 Feb	M	2	
10 Feb	W	2	Harvard Forest/Fisher Museum
12 Feb	F	3: Growth & Yield	
15 Feb	M	Presidents' Day	
16 Feb	Tues	3	
17 Feb	W	3	Individual meetings to review progress reports
19 Feb	F	3	
22 Feb	M	4: Decision Support Tools	
24 Feb	W	4	Map Lab: Misitk FM Opns. and Barkhamsted WFMS
26 Feb	F	4	
29 Feb	M	4	
2 Mar	W	4	Davenport Maple Farm
4 Mar	F	4	
7 Mar	M	4	
9 Mar	W	5: FRM & SFM Planning	NO LAB, Prof. Barten to Vermont with NRC 579
11 Mar	F	NO CLASS, Prof. Barten in Quebec with NRC 579	
Spring Recess, 12-20 March			
21 Mar	M	5	
23 Mar	W	5	Lab TBA
25 Mar	F	5	
28 Mar	M	5	
30 Mar	W	5	Lab TBA
1 Apr	F	6: Professional Practice	
4 Apr	M	Public Involvement	
6 Apr	W	Public Involvement	Wildlife Habitat Management (Dr. Dave King, USFS)
8 Apr	F	Interacting with the Media	
11 Apr	M	Personnel Mgt.	
13 Apr	W	Personnel Mgt.	Forest Roads, Quabbin Gate 8
15 Apr	F	Personnel Mgt.	
18 Apr	M	Patriot's Day	
20 Apr	W	Safety (Room 312 A)	No lab, Monday Schedule
22 Apr	F	Contracts and Admin	
25 Apr	M	Ethics	
27 Apr	W	Future Directions for SFM	Individual Project work/consultation
3 May	Tues	Last day to submit term project (electronically, pdf file, not later than 5:00 pm)	

NRC 540 Field Lab Information and Guidelines

1. We will leave from the parking lot behind Holdsworth Hall at 1:30 pm.
2. **All students must travel in a UMass van for all field trips.** NO private vehicles are allowed under any circumstances. If you get car-sick please sit in the front seat of the van.
3. **All students must wear a seat belt,** properly adjusted, at all times in the UMass van.
4. Because of the distance, driving time, and road conditions in rural Massachusetts, some field labs may end after 5:30 pm. Please do not schedule other activities or commitments before 6:30 pm. Please advise Prof. Barten of other schedule constraints (e.g., an evening exam in another course) so that he can accommodate them to the extent possible.
5. Unless the university is closed or driving conditions are unsafe, field labs will proceed regardless of the weather. Most sites will be cold, wet, and muddy. WEAR APPROPRIATE BOOTS AND FIELD CLOTHES. Bring a backpack with water, a rain suit, hat, gloves, wool shirt or sweater, some food, etc. ...whatever you need to stay comfortable and attentive. Snowshoes will be provided if needed (...but bring your own if you have a pair).

Performance Evaluation

Term Project	75 points (Options in Table 1)
Attendance* and Participation	25 points (active, professional learning in class and in lab)
	*see UMass policy below; there are no unexcused absences

Table 1: Term project ideas and options

1	Term project leading to a ~30-minute PowerPoint presentation and written script
2	Forest Stewardship Plan on a private forest parcel
3	Forest Management Plan on a private forest parcel
4	Term project leading to a research paper (written in the style of the <i>Journal of Forestry</i>)
5	Alternative term project proposed by you and approved in consultation with Prof. Barten.

Letter grades by total points (term project + attendance and participation)

A	>92.5
A-	90.0 – 92.4
B+	87.5 – 89.9
B	82.5 – 87.4
B-	80.0 – 82.4
C+	77.5 – 79.9
C	72.5 – 77.4
C-	70.0 – 72.4
D	60.0 – 69.9

"An instructor who finds that a student has violated the University's Academic Honesty Policy may lower the student's grade, or fail the student for the course. Students have the right to appeal such grade penalties by instructors. The University Academic Honesty Board, composed of faculty members and undergraduate and graduate students, reviews all student appeals. Students who have been found to have committed acts of academic dishonesty may also face suspension or expulsion from the University."

UNIVERSITY POLICY ON CLASS ABSENCE

http://www.umass.edu/registrar/gen_info/class_absence.htm ...and all related links

Please read and abide by these reasonable and comprehensive policies. I can only encourage you to make every effort to attend class. I will meet my responsibilities as a faculty member to help students with excused absences (illness, family emergency, religious observance, or UMass team sport) from class. The UMass website clearly explains what constitutes an excused absence and how it should be documented (through the Health Clinic, Athletic Department, and/or Dean of Students). I teach three courses and have many other responsibilities and demands on my time. I am willing to excuse you—in advance—from class and/or lab if the specific reason (e.g., SAF conference, job interview, etc.) is related to your professional development but not covered by the UMass attendance policy. Beyond that, the Dean of Students Office provides me and other faculty members with advice and guidance about how or whether to accommodate unspecified “personal issues” in relation to class attendance and requirements. I will refer you to this office when the discussion enters this realm.

College of Natural Sciences Policy – The Respectful Learning Environment

We are all responsible for maintaining a classroom environment that is conducive to learning and discussion. In order to assure that we all have the opportunity to gain from time spent in class, I propose these standards for creating a respectful learning environment.

- The instructor, teaching assistants, and students notice and respect each other.
- Respect includes appropriate humor, enjoyment, or other indications of a comfortable and pleasant classroom community.
- We are on time for class: no late arrivals and no packing up early.
- We avoid disruptions during class such as private conversations, reading newspapers, speaking on cell phones, using a laptop for something other than current classroom work, and, of course, sleeping.
- We avoid negative language that is considered racist, sexist, or homophobic or in other ways may exclude members of our campus and classroom community.