FORESTRY 349 PRACTICE OF SILVICULTURE
Fall 2017

Instructor Information

Instructor:	John Goodburn
Office:	Rm. 201A Forestry Building Telephone: 243-4295
Email:	john.goodburn@cfc.umt.edu
Office hours:	Tues. 4:00 am - 5:00 pm, Thur 9:00-11:00am *(or by advance appointment)*
Teaching Assistant:	Jarred Saralecos; email: jarred.saralecos@umconnect.umt.edu
Lecture and Discussion	Mon. & Wed. 10:00 -10:50 a.m. Rm. 204 JRH
Lab/Field Work	Thursday 2:00 - 5:50 p.m. Typically in Field (or in assigned room FOR 206)

(Field labs will meet to load vans outside the campus security office across street (east) from Griz Stadium)

Course Description

The FORS 349 - Practice of Silviculture course will examine the major ecological and conceptual foundations behind various silvicultural systems and vegetative management practices, and introduce students to their practical application in forest ecosystems of the Northern Rocky Mountains and elsewhere to meet multiple resource objectives. Silviculture can be defined as the theory and practice of influencing forest regeneration, species composition, and growth to accomplish a specified set of resource objectives. Silviculture can be thought of as applied forest ecology directed toward vegetation management objectives.

The course will consider forest dynamics at multiple scales, ecological site classification schemes, stand-level assessments of structure and composition, alternative silvicultural systems (single and multi-cohort), thinning/stand density concepts, various regeneration practices, and specific vegetative management strategies for diverse objectives. Students will evaluate opportunities and constraints for actual forest stands, develop management prescriptions, and employ modeling and quantitative assessment of alternative prescriptions. We'll discuss ecologically-based forest mgmt strategies aimed at sustainable wood production, wildlife habitat enhancement, watershed protection, and the maintenance of biological diversity, site productivity, & aesthetic quality.

Learning Objectives

Learning objectives for students completing the course will include the following:

Understanding of Ecological/Silvicultural Concepts.
Students should be able to:

- develop a clear understanding of key ecological concepts related to forest stand development and the response of forest vegetation to silvicultural practices;
- consider how different silvicultural practices might affect soil resources, forest health, wildlife habitat, biological diversity, wood production, water quality and yield, recreation, and aesthetics;
- and gain an appreciation for the social dimensions of silvicultural planning and need to adapt silvicultural practices to meet landowner objectives and landscape scale issues.

Technical expertise.
Students should be able to:

- diagnose and quantify current conditions in a stand given inventory information,
- utilize classification systems, quantitative guides, and economic analyses, other,
- correctly characterize key constraints and opportunities for silvicultural alternatives,
- model forest dynamics into future to evaluate alternative silvicultural options,
- to describe desired conditions given landowner objectives,
- prescribe silvicultural treatments to will move current stand towards desired conditions.

Effective communication of alternative silvicultural strategies.
Students should be able to:

- demonstrate a familiarity with silvicultural terminology,
- discuss practical application of regeneration techniques, intermediate treatments, and alternative silvicultural systems
- develop a silvicultural prescription to accomplish identified ownership objectives,
- propose alternative silvicultural treatment alternatives that might lead to desired conditions at the stand- and landscape-level.

Readings

Primary text

Silviculture and Ecology of Western U.S. Forests, 2nd edition. Tappeiner, Maguire, Harrington, and Bailey 2015. Discussion Readings will be available via Moodle online.

Additional Background texts and articles

Additional background reading for this semester will draw other silvituture texts, along with additional journal articles or other materials. The objective is to provide readings electronically from selected chapters of these texts, journal articles, and other sources. These other Readings will be made available through Moodle *(or via email in first week, until Moodle set up).*

Silviculture: Concepts and Applications, 3nd edition. Nyland. 2016.
The Practice of Silviculture: Applied Forest Ecology, 9th edition. Smith, Larson, Kelty, and Ashton. 1997.

Labs

Thursday field labs will generally meet outside the Campus Security office (east of Griz Stadium) where we will board vehicles. Any indoor lab periods will meet at the assigned room, FOR Rm 206. Attendance at scheduled lab sessions is expected, and unexcused absences could negatively affect your grade. **Please notify me as soon as possible if you will be unable to attend for some reason**, and we can try to make alternative arrangement.

Labs are scheduled for a four hour block for efficiency in travel and field work logistics.
** Unless lab is scheduled to be indoors, always **wear appropriate field clothes** and closed-toe shoes to labs. If rain is forecast, bring rain gear and do not expect lab to be canceled on account of bad weather.
*** **Please be on time for lab**. We will often have a bit of travel to get to field sites (e.g., Lubrecht Experimental Forest) and the vehicles may not be able to wait for you. ***

FIELD LAB SCHEDULE (THURS 2-6pm)

Wk 1 Sept 1	NO LAB
Wk 2 Sept 7	Field Lab – Lubrecht Inventory
Wk 3 Sept 14	Field Lab – Point Six Habitat Type Gradient
Wk 4 Sept 21	Field Lab – Elk Meadows Road – Regen Harvests
Wk 5 Sept 28	Field Lab – Missoula County Tree Farm 1
Wk 6 Oct 5	Field Lab – Missoula County Tree Farm 1
Wk 7 Oct 12	TBA
Wk 8 Oct 19	Midterm Exam I in Lab - FOR 206
Wk 9 Oct 26	Field Lab – Missoula County
Wk 10 Nov 2	Field Lab – Missoula County
Wk 11 Nov 9	Field Lab – Missoula County
Wk 12 Nov 16	NO LAB – SAF Convention
Wk 13 Nov 23	NO LAB – Thanksgiving Holiday
Wk 14 Nov 30	Indoor Lab – FOR 206
Wk 15 Dec 7	Optional Lab – Review FOR 206

FINAL – 8-10am Friday Dec 15

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General Course Lecture Outline and Reading Assignments

Lecture/Lab Schedule

Week/Date and Topic

Week 1 Introduction, Silviculture in relation to forest management
Aug 29 – 9/1 Readings: **Smith Chap. 1; Nyland Chap 1**
No Lab

Week 2 Stand Types, Silvicultural Objectives, and Silvicultural Systems
Sept 5-8 No Class Monday - Labor Day Holiday (No Class)
Readings: **Tappeiner et al. Chap 2 & 3**
Field Lab **Intro to Forest Stands & SilvSystems** – *Elk Meadows Road*

Week 3 Ecological Basis for Silviculture and its Role in Forest Management
Sept 12-15 Readings **Tappeiner et al. Chap 4**
Field Lab **Ecological Classification** – *Point Six Transect*

Week 4 Regeneration of Forests: Natural vs. Artificial Regen, Site Prep and other
Sept 19-22 Readings **Tappeiner Chap 5;**
Field Lab **Regen and Planting plans –** *Ninemile Valley Tree Farm*

Week 5 Regeneration of Forests: Natural vs. Artificial Regen, Site Prep and other
Sept 26-29 Readings **Smith Chap 7; Nyland Chap 4;**
Field Lab *Tentative Location – Ninemile Valley Tree Farm*

Week 6 Stand density concepts; Natural self-thinning;
Oct 3-6 Readings **Tappeiner Chap 5; Smith Chap 6 pp147-156;**
Field Lab *Tentative Location – Lubrecht Experimental Forest*

Week 7 Stand density concepts; PCT; Commercial Thinning Methods
Oct 10-13 Weds Midterm Review (Covering material through 10/12)
Field Lab ***Tentative Location – TBA***

Week 8 Application of thinning; Commercial thinning methods; Quantitative Assessment
Oct 17-20 Readings TBA
Midterm Performance during LAB

Week 9 Developing Silvicultural Prescriptions to meet Multiple Objectives
Seed-Tree & SW Systems, Regen under partial retention harvests
Oct 24-27 Readings TBA **Field Lab** ***Tentative Location – TBA***

Week 10 Developing Silvicultural Prescriptions to meet Multiple Objectives
Quantitative methods of managing Uneven-aged stands
Oct 31-11/3 Readings TBA **Field Lab** ***Tentative Location – TBA***

Week 11 Developing Silvicultural Prescriptions & Quantifying Effects – Wildlife and Fuels Reduction
Nov 7-10 Readings TBA **Field Lab** ***Tentative Location – TBA***

Week 12-14 Developing Silvicultural Prescriptions and Quantifying Effects (cont)
Week 15 Review and Synthesis
Finals Week **Final Exam Performance 8:00am – 10:00 am Tues Dec 20th.**

Grading System

Written assignments, Lab exercises Field Lab Write-ups, Silvicultural Prescriptions, Discussion Questions/Problem sets, Quizzes	45%
Midterm Performances (2 midterms 15% each)	30%
Final exam	20%
Class participation	5%

Final Grade will be based on a standard +/- grading scale (e.g., 80-82.5= B-; 82.5-87.5=B; and 87.5-89.99 = B+)
Further information on assignments, due dates, etc. forthcoming.

Class Participation

Class participation is encouraged and will be incorporated into your grade. Your preparation and willingness to ask questions and discuss various topics will benefit not only your own learning experience, but also that of your colleagues in the class. Please feel free to ask questions and initiate discussions both in and out of class.

I will be available during office hours or at other times if you wish to schedule an alternative time. Also feel free to contact me or clarify questions you have via email. No need to wait until *after* an exam to ask questions!

Special Accommodations

Students with disabilities who need accommodations should see me privately after class or during my office hours to make arrangements.

Learning Disabilities: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154. I will work with you and DSS to provide an appropriate accommodation. For more information, please consult Disability Services for Students.

UM Course Policies:
Students at the University of Montana have the responsibility to conduct themselves in a way that positively impacts the safety, welfare, or educational opportunities of others in the University community. Students are expected to act as responsible members of the community, respect the rights, privileges, and dignity of others, and refrain from actions that infringe upon the rights of others or interfere with normal University activities.

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.

Important UM deadlines for changing course options:

Date	Description	Deadline
To 15th instructional day	Students can drop classes on Cyberbear with refund	September 19 = last day
16th to 45th instructional day	Drop requires form with instructor and advisor signature, a $10 fee from registrar's office, student will receive a 'W' on transcript, no refund.	September 20 through November 2
Beginning 46th instructional day	Students are only allowed to drop a class under very limited and unusual circumstances. Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, and similar reasons are not among those limited and unusual circumstances. If you want to drop the class for these sorts of reasons, make sure you do so by the end of the 45th instructional day of the semester. Requests to drop must be signed by the instructor, advisor, and Associate Dean and a $10 fee applies.	November 1 – December 9

Good Luck and best wishes for an interesting, productive, and fulfilling semester in all your courses. JG