
Managing Forest Ecosystems: Silviculture – FNRM 3411/5411

Fall 2022

Silviculture is the *art* and *science* of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis (Dictionary of Forestry, 2008).

Throughout this course, you will learn about individual tree growth and stand development and use this information to develop silvicultural prescriptions. We will explore how silvicultural treatments can influence stand structure and composition and how these changes influence timber quantity and quality, forest health, biodiversity, soil, and wildlife habitat. We will also focus on how silviculture is influenced by broader social, economic, and ecological issues.

Course Meeting Location:	Green Hall 110
Days and Meeting Times:	Tues. & Thurs. 11:45 – 1:00 p.m.
Credit Hours:	3 credits
Course Instructor:	Dr. Marcella Windmuller-Campione Office: Green Hall 330 G Cell Telephone: 847-772-5458 Email: mwind@umn.edu Office Hours: Wednesday 10 -11 a.m.
Teaching Assistant:	Holly Francart Office: Green Hall 330 A Email: franc715@umn.edu Office Hours: Monday 11 a.m. – 12 p.m.
Text Book:	Required: Nyland, R.D. 2016. Silviculture: Concepts and Applications, 3rd edition . Long Grove, IL: Waveland Press, Inc. Supplementary: Oliver, C.D. & Larson, B.C. 1996. Forest Stand Dynamics, Updated Edition . New York, NY: John Wiley and Sons.

Copies of both texts have been placed on reserve in the Natural Resource Library. Additional readings will include journals articles or other chapters from books (as well as any readings from Oliver and Larson) and will be provided.

Course Learning Objectives

- To understand individual tree growth and stand development processes
- To develop and build a silvicultural toolbox of important definitions, processes, and methods.
- To clearly define goals and objectives and to use those to write silvicultural prescriptions
- To understand how silvicultural treatments can influence stand structure and composition and how these changes influence timber quantity and quality, forest health, biodiversity, soil, and wildlife habitat.
- To understand how silviculture is influenced by broader social, economic, and ecological issues.
- To think critically and use your knowledge to make informed decisions

Course Expectations

- Class preparation: listening to lectures and reviewing materials
 - o Readings from the Nyland text are there to support the material and learning
- Actively engaging in class exercises
- Be respectful of each other
- Timely completion of assignments
- Mathematical computations

Required Material

- A scientific calculator.

Web enhanced learning

This course uses Canvas as a course management tool. To access canvas see below:

<https://canvas.umn.edu/>

This site will contain information regarding reading assignments, class videos, class power points, and supplemental information. **You are expected to read and/or watch any lecture before coming to class. Without this information, you will not be prepared to participate in the day's activity.**

Grading

The course will be graded from A through F (with plusses and minuses). All exams, written assignments, participation, and presentations will be given a numerical grade and multiplied by their respective contribution as a percent of the calculated final grade.

A	A-	B+	B	B-	C+	C	C-	D+	D	F
≥ 93	90	87	83	80	77	73	70	67	60	<60

A = *Outstanding achievement that demonstrates superior mastery* of the material and exemplary performance. The distinction between A and B will depend on the student's ability to understand and articulate explicit and implicit concepts.

B = Achievement that *significantly exceeds the level necessary* to meet the course requirements.

C = Achievement that *meets all course requirements* at an average level.

D = Achievement *worthy of credit*, but which does not fully meet the course requirements.

F = Failure to complete the course requirements, *not worthy of credit* without pre-arranged agreement between the student and the instructor regarding a grade of incomplete.

Grade Break Down

FR 3411	
Component	% of grade
Quizzes, daily in-class and take home assignments ⁺	35%
Midterm exams	2 @ 15% each = 30%
Presentations ¹	10%
Final Paper	5%
Final Video	15%
Professionalism	5%
Total	100%

⁺ Graduate students will have additional writing assignments on scientific papers

¹ Presentations may be formal or informal. These are designed for you to practice conveying information to your peers.

Additional details on the quizzes, in-class assignments, and take-home assignments in attached as a separate excel file. Please note – there are due dates on assignments but if you are sick or need additional time – adjustments can be made.

Course Attendance Policy

Five percent of your grade will come from professionalism. Professionalisms comes in many forms and the goal of this part of your grade is to think about your transition from student to natural resource professional where you will be expected to be prepared for each workday. This is going to continue to look different this year. Professionally is still going to be part of the class but the world has changed what working looks like during COVID-19. Just like in the work situation, I expect you to keep me updated. *I won't assume to know how the current local, national, and global issues have and are*

impacting your ability to work, learn, and have experiences this semester. However, if something is impacting your ability to learn (I don't need to know the exact what or why if you are uncomfortable sharing), I do need to know something is happening to be able to work with you. This is the same thing you may have to do with a future boss. I will also check-in with each of you throughout the semester and it will look different. If there are ways I can support you, please let me know. I can also assist through connecting you to resources.

MODULE 1:

Introduction to Silviculture & Review of Forest Ecology

Dates	Topic
Sept. 6	Introduction – What is Silviculture
Sept. 8	The Silvicultural System
Sept. 13	Ecological Classification Systems
Sept. 15	What does Silvics have to do with Silviculture?
Sept. 20	Tribal Natural Resource Management (virtual)
Sept. 22	Silvics Videos
Sept. 27	Tree Measurements, Math & Silviculture
Sept. 29	Disturbances
Oct. 4	Regeneration

MODULE 2:

Stand Development & Silvicultural Systems

Oct. 6	Journal Reading Discussion
Oct. 11	Exam 1
Oct. 13	Stages of Stand Development & Prescriptions
Oct. 18	Even-aged Management
Oct. 20	Stocking Guides & Other Density Management Tools
Oct. 25	Case study on even-aged management
Oct. 27	Shelterwood Case Study
Nov. 1	Uneven-aged management tools
Nov. 3	Case Study on Northern Hardwoods

MODULE 3:

Managing Forest Multiple Objectives

Nov. 8	Managing for Complex Forest Systems
Nov. 10	Exam 2

Nov. 15	Management in MN - presentations
Nov. 17	Management in MN - presentations
Nov. 22	No class – time to work on final videos
Nov. 24	University Holiday (Thanksgiving)
Nov. 29	Climate Change & Future Uncertainty
Dec. 1	Climate Change & Future Uncertainty (continued)

FINAL VIDEOS

Watching and Discussion

Dec. 6	Recent Research in Silviculture
Dec. 8	No class
Dec. 13	Final Videos & Wrap-up

*Schedule is subject to change and will be updated in class through an announcement and though the Canvas website. Additional information for each day can be found on Canvas.

Important Class and University Policies

UMN COVID Policies (Updated 08/21/2022)

Please see additional information on COVID at

<https://safe-campus.umn.edu/return-campus/covid-19-updates>

Policies regarding Zoom Recordings

If this class shifts to an online class during the Fall 2021 semester - this course may (not all classes will be recorded) include video and audio recordings of class lectures and classroom activities. These recordings will be used for educational purposes and the instructor will make these available to students currently enrolled in this FNMR 3411/5411 in Fall 2020. Students must seek instructor permission in order to share either course recordings or course content/materials. Similarly, instructors who wish to share zoom recordings with other sections or classes must seek and document permission from students whose image or voice are in these recordings.

Senate student academic workload policy

For undergraduate courses, one credit is defined as equivalent to an average of three hours of learning effort per week (over a full semester) necessary for an average student to achieve an average grade in the course. For example, this is a 3-cr course that meets for three hours a week. You should expect to spend an additional six hours a week on coursework outside the classroom.

Classroom conduct

This course is highly interactive. You are expected to treat each other and the instructors with respect. You are expected to listen to each other and address each other by name. The instructors will follow the same code of classroom conduct – respect, listen, and treat each person as an individual.

Please see the link for online learning environment standards outlined by the U of MN - <https://communitystandards.umn.edu/know-code/online-learning-expectations>

Cell Phones and Smart Phones

Out of courtesy and respect for me and your fellow classmates, please make sure your cell phones and smart phones are turned off during class. If you need to be reachable during class time, turn your phone's ringer tone off and take any calls outside the classroom.

Student academic integrity and scholastic dishonesty

Academic integrity is essential to a positive teaching and learning environment. All students enrolled in University courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own, can result in disciplinary action. The University Student Conduct Code defines scholastic dishonesty as follows:

“Scholastic Dishonesty: submission of false records of academic achievement; cheating on assignments or examinations; plagiarizing; altering, forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty permission; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement.”

Within this course, a student responsible for scholastic dishonesty can be assigned a penalty up to and including an "F" or "N" for the course. If you have any questions regarding the expectations for a specific assignment or exam, ask.

Accommodations for students with disabilities

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Resource Center (DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DRC at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.
- If you are registered with DRC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

Additional information is available on the DRC website: <https://diversity.umn.edu/disability/>

Sexual harassment

Sexual harassment by or toward a member of the University community is prohibited. "Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature when: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic advancement in any University activity or program; (2) submission to or rejection of such conduct by an individual is used as the basis of employment or academic decisions affecting this individual in any University activity or program; or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program.

Mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce your ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via <http://www.mentalhealth.umn.edu>

Resources for student writers:

Student Writing Support (SWS): Center for Writing, 306b Lind Hall and satellite locations (612.625.1893) <http://writing.umn.edu/sws/>. SWS offers personal writing consultations to all UMN undergraduate and graduate students by appointment (Lind Hall) or walk-ins (satellites). Hours and locations can be found on the above listed website.

Online Writing Center: <http://writing.umn.edu/home/mission.htm>. Writing consultations via email and online resources for undergraduate and graduate student writers.

Non-Native Speakers: 337 Nolte Center (612.624.4524) http://composition.cla.umn.edu/student_web/

University of Minnesota Counseling Program: 109 Eddy Hall (612.624.3323) <http://www.ucs.umn.edu/>

Additional policies and Forms

■ Scholastic Dishonesty (see Board of Regents Policy: [Student Conduct Code](#) and Administrative Policy: *Teaching and Learning: Instructor and Unit Responsibilities: Twin Cities, Morris, Rochester*).

■ Administrative Policy: [Makeup Work for Legitimate Absences: Twin Cities, Crookston, Morris, Rochester](#)

■ Board of Regents Policy: *Student Conduct Code*; Administrative Policy: [Teaching and Learning: Student Responsibilities \(Twin Cities, Crookston, Morris, Rochester\)](#)

- Board of Regents Policy: [*Sexual Harassment, Sexual Assault, Stalking and Relationship Violence*](#)
- Board of Regents Policy: [*Equity, Diversity, Equal Employment Opportunity, and Affirmative Action*](#)
- Board of Regents Policy: [*Disability Services*](#)
- Statement about the availability of mental health and stress management services.
- Board of Regents Policy: [*Academic Freedom and Responsibility*](#)