



NEW MEXICO
HIGHLANDS
UNIVERSITY
Department of Forestry

Silviculture

FORS 4020 with Dr. Michael Remke

Spring 2024



Image: Leave trees marked in a mixed conifer project associated with Adaptive Silviculture For Climate Change.

Welcome to FORS 4020 – Silviculture. Silviculture is a dynamic discipline that is an art and a science rooted in resource management.

This course will cover basic silviculture concepts and applications and consider critiques of silviculture as well as adaptations of silviculture to the modern era.

The art and science of growing trees

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Figure 1: Western redcedar, a culturally important tree, has been used to make canoes for thousands of years.

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Course Information:

Course Number:		Instructor:
FORS 4020		Dr. Michael Remke
Term:	Credits:	Office:
Spring 2024	3	Ivan Hilton Science Building (IHS) 135
Lecture Meeting Time:	Lecture Meeting Place:	Email:
		mremke@nmhu.edu
Tuesday, Thursday 11:30am-12:45pm	IHS 321	Phone:
		(505)454-3320
Zoom information:		
Zoom Room ; Password: Trees		
Website: www.mycoremke.com/silviculture		

Student Hours:

~ Student hours are when my office door is open for any drop-in conversation.

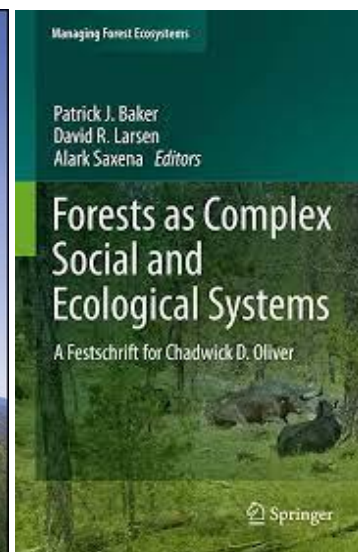
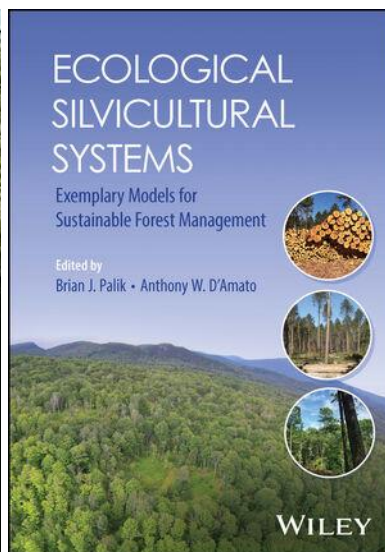
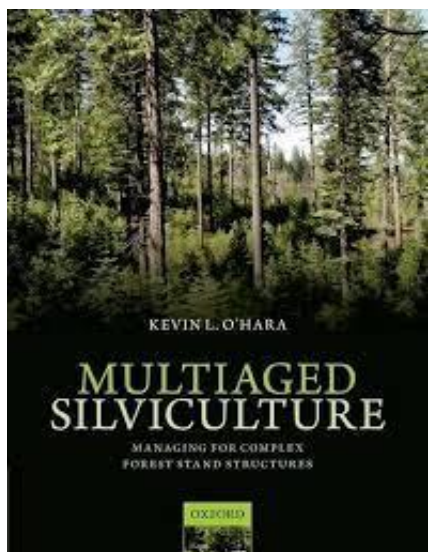
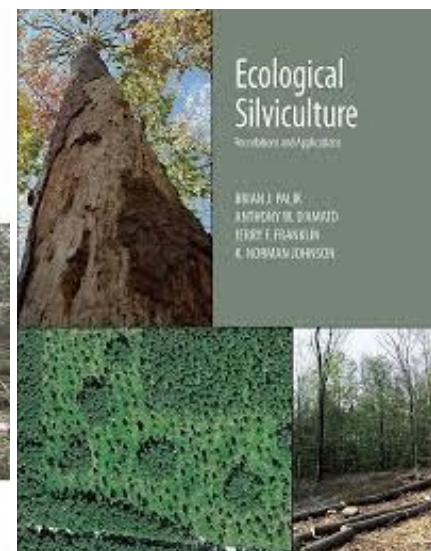
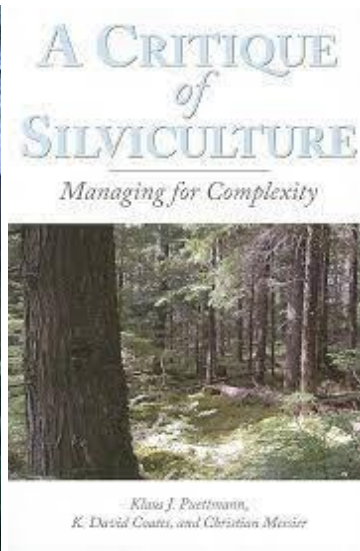
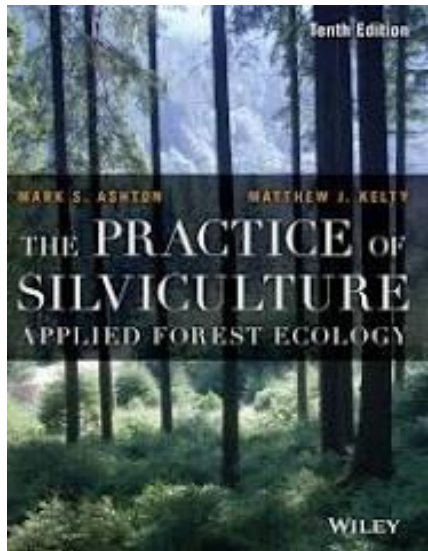
Please use this time to discuss course material, career ideas, or anything else you really want to nerd out on.

Student Hours: Spring 2024		None of these times work?	
Day	Time		
Monday	10:00am-12:00pm coffee hour	If none of these times work scan this QR Code to schedule an alternative time to meet	
Tuesday	2:00pm-4:00pm seltzer hour		
Wednesday	11:00am-1:00pm lunch hour		
*Please bring your own beverage to enjoy with our conversation, if you want			

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Textbook and readings: **Readings for this class will be uploaded to BrightSpace, and no textbook is required.**

The books below are what many lecture materials will be based on and are highly recommended for your personal forestry library for supplemental readings and future reference, but I will not require readings from these books.



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Learning Goals:

NMHU Learning Goals:

1. Mastery of content knowledge.
2. Critical and reflective thinking skills.
3. Ability to communicate effectively.
4. Ability to use technology.

Society of American Foresters Learning Goals:

1. Understand the interdisciplinarity of forestry.
2. Critically think about how to sustain ecosystems for multiple objectives.
3. Students will understand the values offered by participants, landowners, communities, society, and the ecosphere.
4. Students will demonstrate an understanding of both scientific and traditional ecological knowledge systems.
5. Students will demonstrate professional and ethical behaviors and be able to critically think regarding ethics from diverse viewpoints.
6. Students will understand the value of diverse people, perspectives, and practices.

Course Learning Objectives (CLOs): This course is focused on understanding the tools, approaches, and concepts of silviculture within the context of social-ecological systems and a changing world.

Knowledge	Skills
1. Knowledge of forest ecology and its implications for stand dynamics	5. Ability to identify trees in adult and seedling form
2. Awareness of stages of silviculture and where silviculture fits into knowledge of forestry	6. Understanding of applying concepts in stand dynamics to achieve a management goal
3. Conscious of harvesting and regeneration techniques	7. Able to select and use the right techniques to sustain forests
4. Knowledge of harvesting equipment	8. Able to apply best management practices to harvesting

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Course Structure:

Classroom Format: This course will be a mix of lectures, interactive activities, and hands-on learning. We will likely do a chainsaw-related activity towards the end of the semester to implement a silvicultural prescription.

Course Attribute	Description
Lecture	<p>The lecture will emphasize material content from readings and focus on concepts, theory, and principals of silviculture.</p> <p>In person attendance during lecture is required if you are in Las Vegas.</p> <p>Attendance via Zoom is acceptable if: you provide advance communication of a need to attend remotely OR you live somewhere besides Las Vegas</p>
Reading Discussion	<p>Every class with an assigned reading due will have a 20–30-minute reading discussion. Participating in reading discussions is a mandatory part of your participation grade.</p>

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Assessments and Grading:

This class will be graded based on the following categories: **participation, examination, lab, and final project**. These categories are outlined in terms of their total points towards your final grade below.

Category	Points	Percent of total	Description
Participation	350	33%	10 points / lecture = 320 points + 30 points overall grade and professionalism
Examination	400	38%	4 x exams @ 100 points each
Ponderosa Project	100	10%	In class project with homework
Final Project	200	19%	Final paper and self-assessment
Total:	1,050	100%	

Grades are reported to the university using the standard grading scale outlined below based on the percentage of your total grade. Please consider the rubric categories as opportunities for growth rather than focusing on your grade alone. Since your participation grade is a daily grade, you always have the opportunity to improve in the next class.

Grade	Percent Range	Rubric Category
A	>90%	Excelling (4)
B	80-89.0%	Sufficient (3)
C	70-79.9%	Developing (2)
D	60-69.9%	Needs Improvement (1)
F	<60%	Absent

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<u>Policy</u>	<u>Description</u>	<u>Resources</u>
<p>Late assignments</p>	<p>Assignments will be posted to BrightSpace and will always be due at the beginning of the class period for which their due date is listed.</p> <p>Late assignments will result in a 10% grade deduction for every day they are late. Professional settings mandate proactive communication for missing deadlines, so this late assignment penalty can be waived with reasonable proactive communication.</p>	<p>How to communicate with your professor</p> <p>How to email your professor</p>
<p>Attendance</p>	<p>Attendance is mandatory. If you live in Las Vegas and are not ill, then I expect you to attend in person. If you live outside of the Las Vegas area, are ill, or have an extraneous circumstance, attending via Zoom is acceptable. Discussions will be much more meaningful in person, and I will do my best to make Zoom and equally inclusive learning experience.</p> <p>Should you miss class – Well shoot. Every day is special. The biggest consequence in my opinion is FOMO (Fear of Missing Out). In professional settings, missing an obligation is acceptable with proactive communication and a dedication to making up missed material independently. Interpret this for how you wish in your self-assessment.</p>	<p>How to catch up</p> <p>What to do when you miss class</p>

In addition to the above policies, we will collaboratively develop the [Rules Of Engagement](#) as a class. This space is our community, so let us prioritize making our community a place that is inclusive and enjoyable for everyone.

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Rules of Engagement:

We develop these rules as a group on the first day of class. The point is to ensure we have a respectful classroom setting everyone can agree with and feel comfortable with. If someone is violating these rules, we can politely point out the situation and remedy the problem as a group or as individuals within the group. The point is to ensure we are all empowered and supported rather than me, the professor, holding disproportionate rule-making and enforcing authority.

Example Rules:

1. Be present
2. Assume positive intent
3. Critique ideas, not people
4. If you identify a problem, present a solution as well
5. Make mistakes
6. If you take space, make space

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Tentative Schedule:

Page 1/4	<u>Day</u>	<u>Date</u>	<u>Class Type</u>	<u>Topic</u>	<u>Readings and Assignments Due</u>
Week 1	Tuesday	1/16	Lecture	Course overview	No Reading
	Thursday	1/18	Lecture	Defining Silviculture	Reading: What does it mean to be a Silviculturist?
Week 2	Tuesday	1/23	Lecture	Stand Dynamics and Ecology	Ashton & Kelty Ch 4
	Thursday	1/25	Lecture	Stand Dynamics and Ecology	Mixed wood Silviculture in North America - Kenefics et al. 2023
Week 3	Tuesday	1/30	Lecture	Natural Regeneration – Clearcuts, Seed- Tree, Shelterwood, Coppice, Selection	Ashton & Kelty Ch 7
	Thursday	2/1	Lecture	Natural Regeneration – Unforeseen challenges	Snuffing out regeneration – Rodman et al. 2020
Week 4	Tuesday	2/6	Lecture	Artificial Regeneration – Target Plant, Genetics, And Nurseries	
	Thursday	2/8	Lecture	Exam 1	Exam 1

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Page 2/4	<u>Day</u>	<u>Date</u>	<u>Class Type</u>	<u>Topic</u>	<u>Readings and Assignments Due</u>
Week 5	Tuesday	2/13	Lecture	Southern Rockies Reforestation Tool	Southern Rockies Reforestation Tool
	Thursday	2/15	Lecture	Tree and stand growth and yield modeling	Growth and Yield Models Ashton and Kelty Ch 17
Week 6	Tuesday	2/20	Lecture	Tree and stand growth and yield modeling	Linking individual tree to stand models - Cao 2014
	Thursday	2/22	Lecture	Site and Species Productivity	Ecological Stoichiometry and conifers - Kranabetter et al 2020
Week 7	Tuesday	2/27	Lecture	Intermediate Treatments - herbicide, pruning, release, and thinning	Growth modeling homework due No Reading
	Thursday	2/29	Lecture	Intermediate Treatments - Exploiting Mutualisms	Early successional vegetation buffers microclimate - Crockett and Hurteau 2022
Week 8	Tuesday	3/5	Lecture	Harvest day: Equipment and more	No Reading
	Thursday	3/7	Lecture	Exam 2	Exam 2
Week 9	3/11-3/15			SPRING	BREAK

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Page 3/4	<u>Day</u>	<u>Date</u>	<u>Class Type</u>	<u>Topic</u>	<u>Readings and Assignments Due</u>
Week 10	Tuesday	3/19	Lecture	Historical Context of Silviculture	Deforestation and Civilization: A Buddhist perspective
	Thursday	3/21	Lecture	A challenge to tradition	Puettmann, Coates, Messier Ch 2
Week 11	Tuesday	3/26	Lecture	In Class Project: Complexity in SW Ponderosa Pine	Homework: Finding sources to guide your silvicultural prescriptions and outlines.
	Thursday	3/28	Lecture	In Class Project: Complexity in SW Ponderosa Pine	Turn in Ponderosa pine project
Week 12	Tuesday	4/2	Lecture	Ecological Silviculture	Origins of Ecological Forestry in North America - D'Amato et al. 2017
	Thursday	4/4	Lecture	Adaptive Silviculture for Climate Change	Adaptive Silviculture for Climate Change – Nagel et al. 2017
Week 13	Tuesday	4/9	Lecture	Social Systems in Forests	Oliver Ch. 13
	Thursday	4/11	Lecture	Assign Silviculture Project Exam 3	Exam 3

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Page 4/4	<u>Day</u>	<u>Date</u>	<u>Class Type</u>	<u>Topic</u>	<u>Readings and Assignments Due</u>
Week 14	Tuesday	4/16	Lecture	Prescription development and Implementation	No Reading
	Thursday	4/18	Lecture	Monitoring	Unknown Trajectory of Forest Restoration – DeLuca et al. 2010.
Week 15	Tuesday	4/23	Lecture	Urban Forestry	Climate Adaptive Silviculture for the City – Piana et al. 2021
	Thursday	4/25	Lecture	BMPs and gaps in Silviculture	Soil compaction in Redwood CTL – Hwang et al. 2020
Week 16	Tuesday	4/30	Lecture	Presentations	No Reading
	Thursday	5/2	Lecture	Presentations Final Paper Due	No Reading
FINALS Tuesday 5/7 – 2:30-5:30					FINAL EXAM

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Course Policies:

<u>Policy</u>	<u>Description</u>	<u>Resources</u>
Academic Integrity Policy:	<p>New Mexico Highlands University students and faculty are expected to maintain integrity through honesty and responsibility in all their academic work.</p> <p>Academic dishonesty includes plagiarism, Cheating, Collusion, Facilitation, Fabrication, Multiple Submissions, and Falsification of Records.</p> <p>ChatGPT and other Artificial Intelligence (AI) tools help look up questions or ideas; however, copying and pasting AI-generated answers is still academically dishonest.</p>	<p>This course follows the Highlands Academic Integrity Policy as described in the catalog: Academic Integrity Policy</p>
Cell Phone and Electronics Policy	<p>Cell phones can both distract and enhance the learning environment.</p> <p>We will develop rules regarding cell phone use together as a class, please reference the Rules of Engagement for more details.</p>	<p>Smart Phones in Classrooms</p> <p>10 Ways A Smartphone can help you Learn</p>
Preparedness and Etiquette Policy	<p>Having the proper etiquette for the day means having a good attitude and being part of the team that is our class.</p> <p>Specific Rules of Engagement will be made on the first day of class and added to this syllabus.</p>	<p>Packing checklist</p> <p>Field Biology Checklist</p>

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Health and Mental Health Services:

<u>Service</u>	<u>Description</u>	<u>Benefits</u>	<u>Contact Information</u>
<u>Health Center Main Campus</u>	<p>The health Center offers basic student medical and wellness services included primary care, illness diagnosis and wound treatment.</p> <p>The health center also provides students with counseling services for mental health and wellness.</p>	<p>The health Center offers basic student medical and wellness services included primary care, illness diagnosis and wound treatment.</p> <p>The health center also provides students with counseling services for mental health and wellness.</p>	<p>505-454-3218</p> <p>901 Baca Street Las Vegas, NM,87701</p>
<u>NM Crisis & Access Line</u>	<p>The NM Crisis and Access line is a 24/7 phone service for counseling and mental health emergency support line. They also offer warm peer calls and text messaging for non-crisis but need-to-talk-to-someone moments.</p>	<p>Any mental health challenge or emergency can be met with professional counseling and confidentiality by calling this number.</p>	<p>Crisis and Access Line <i>Call only:</i> 1-855-662-7474 Peer-to-Peer Warm Line <i>Call or text:</i> 1-855-466-7100</p>
<u>Food Resources</u>	<p>A general store and food pantry</p>	<p>Eating a healthy diet helps us focus and thrive</p>	<p>505-454-3529 SUB Room 110</p>
<u>Emergency Funding</u>	<p>The student extreme hardship fund can support students with challenging financial circumstances</p>	<p>This can help students pay for rent or groceries when facing hardship. There also the Dean Farmer Fund</p>	<p>505-454-3020 deanofstudents@nmhu.edu 505-454-3198 tlaw@nmhu.edu</p>
<u>Outdoor Recreation Center</u>	<p>The outdoor recreation center offers gear, including jackets, for outdoor recreation.</p>	<p>Students can rent camping gear, jackets, rafting gear, bikes, and many other items to enjoy outside. <i>Hint: could be useful for class ;)</i></p>	<p>Adrian Gallegos 505-454-3495 or 505-454-3050</p>

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Academic and Professional Development Services:

Service	Description	Benefits	Contact Information
<u>Achievement in Research, Math and Science (ARMAS)</u>	The ARMAS center is a place for studying and peer support in the sciences.	Having a study community and place to work on campus can enhance productivity and sense of belonging in the academic community	505-426-2010 armassocialmedia@nmhu.edu
<u>NMHU Dean of students</u>	The dean of students is a resource for all student affair related questions and concerns.	The Dean is an administrative role at the University and the Dean of Student Administrations.	Kimberly Blea 505-454-3020 kjvaldez@nmhu.edu
<u>Human Resources</u>	Human Resources is the office that ensures fair hiring and payroll.	The human resources office can help with any and all issues related to payroll and hiring.	505-454-3308 hr@nmhu.edu Mass Communications Building, East, Room 138
<u>Center for Professional Development and Career Readiness</u>	Professional development can connect you with on and off campus jobs	This center offers interview practice, resume building and more services	505-454-3048 careerservices@nmhu.edu Felix Martinez Building, Room230
<u>NMHU Library</u>	Academic databases, books, digital media and more	The library can help you with research support and finding academic resources. The library also loans computers to students!	Computer loan program 505-454-3401 libinfo_nmhu.edu
<u>Professional Job Boards</u>	Job boards are where professionals list employment opportunities	Connects you to opportunities nationwide and internationally where you can build experience and your professional network.	Forestry Jobs Natural Resource Jobs Research Experience

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Harassment and Crisis Services:

<u>Service</u>	<u>Description</u>	<u>Benefits</u>	<u>Contact Information</u>
<p><u>HU-CARES Information</u></p>	<p>Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc.</p> <p>If you or someone you know has been harassed or assaulted, you are encouraged to contact the Center for Advocacy, Resources, Education, & Support (HU-CARES)</p>	<p>HU-CARES is a confidential and professional service with individuals who are trained in helping students with these unfortunate circumstances.</p> <p>HU-CARES will facilitate making a student's campus and off-campus experience safe and can help connect students with housing opportunities if they are displaced because of violence or harassment.</p> <p>See the website for scheduling an appointment. HU-CARES also offers counseling and confidential crisis support services.</p>	<p>Leon Bustos 505-454-3445</p> <p>leonbustos@nmhu.edu</p> <p>24/7 Crisis Call/Text: 505-795-3665</p>
<p><u>Title IX Officer</u></p>	<p>Title IX is a law that prevents discrimination based on sex.</p>	<p>Title IX has online reporting forms (see website) and offers professional and confidential ways to report incidents.</p>	<p>Ruth Mariampolski 505-454-3363</p> <p>ruthm@nmhu.edu or TIX@nmhu.edu</p>
<p><u>Campus Police</u></p>	<p>Campus police can be called for any non-emergency situation. Locked out of a room? Locked out of your dorm? Call campus police.</p>	<p>Campus police are friendly and helpful members of our community. They help us all when we need help and help make our campus a safe and vibrant place.</p>	<p>Immediate emergency: 911 On-campus emergency: (campus phones) 5555, cell phones 505-454-3278 Non-emergency: 505-454-3278</p>

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Support and Services:

<u>Service</u>	<u>Description</u>	<u>Benefits</u>	<u>Contact Information</u>
<p>Personal Needs</p>	<p>Field-based coursework and college in general can be challenging and bring us out of our comfort zones.</p> <p>Finding peers in the classroom our outside of class to talk through our challenges can help us grow as foresters.</p>	<p>Communicating with friends and peers in the class builds community and connections.</p> <p>Other people probably feel similar challenges and validate our experience and can help offer solutions we had not considered.</p>	<p>Call your friends, talk with someone in class, or contact Dr. Remke</p> <p>mremke@nmhu.edu</p>
<p><u>Accessibility Services Information</u></p>	<p>In accordance with federal law, it is university policy to comply with the Americans with Disabilities Act (ADA). If you believe you have a physical, learning, or psychological circumstance that creates extra challenges in your learning, we have services to help overcome those challenges.</p> <p>These can include physical injuries, dyslexia, mental health circumstances and many others.</p>	<p>Seeking services from the school can help by increasing the time allotted for you to take examinations, giving you quiet study rooms to take exams, offering alternative assignment and exam formats and/or finding additional mentors to help you learn how to live with exactly who you are.</p> <p>These services are confidential and respect student privacy.</p>	<p>Natalie 505-454-3250 natalie@nmhu.edu Lora Shields Building, 2nd floor, room 250.</p>

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