

Theory of (Ecology) Science

FORS 6200 with Dr. Michael Remke

Spring 2024



Image: Sampling soil microbes post wildfire; sampling design impacts the framework of the extent to which we can test a theory.

Welcome to FORS 6200 – Theory of (Ecology) Science.

This course will use a theory-based approach to help us contextualize and frame the **theories** from which our **hypotheses tests** are framed.

You could be a human health scientist, wildlife biologist, plant ecologist, or something else, and this class will be a thrilling adventure in the philosophy of science!

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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 6200		Dr. Michael Remke
Term:	Credits:	Office:
Spring 2024	2	Ivan Hilton Science Building (IHS) 135
Lecture Meeting Time:	Lecture Meeting Place:	Email:
		mremke@nmhu.edu
Tuesday 8:00am-9:50am	IA 220	Phone:
		(505)454-3320
Zoom Information		
Zoom Room ~ Password: Theory		
Website: www.mycoremke.com/theory		

Student Hours:

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

For a graduate level class, I expect to meet with you at least a couple of times throughout the semester. See below in the Syllabus for more details on this expectation.

Student Hours: Fall 2023		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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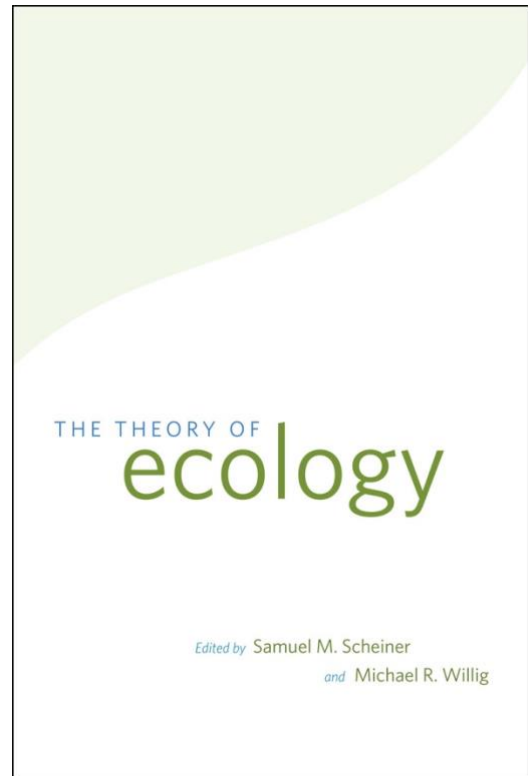
Textbook and Readings: **Theory of Ecology** (Scheiner). (ISBN: 9780226736853). Additional readings to be provided. We will only read chapters 1-3 of the above book and I will provide pdfs of these readings, but I highly recommend this book for your personal academic library.

This course will feature many peer-reviewed papers that the enrolled students will determine. Much of our learning will be in peer-peer learning format, and group discussions are a critical part of this course.

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.



Course Learning Objectives (CLOs):

This course focuses on contextualizing our studies within the broader framework from which we are working as researchers. We will learn to understand philosophical strengths (and limitations) of the hypothesis test concept in the scientific method. We will also work to learn the hierarchical structure of scientific theory and where our specific hypotheses tests fit into the domain of our field(s) of study.

Knowledge	Skills
1. Scientific theory	5. Critical thinking
2. The domain of ecology	6. Sampling design within the hypothesis test framework
3. Ecological stoichiometry and the law of the minimum	7. Interpretation of results within the hypothesis test framework
4. Content from your peers interests and background	8. Discussion skills, professional ethics, and discussion facilitation

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In addition to the above CLOs this course also aims to teach us practical life and professional skills that have practical application in the working world.

This class hopes to be structured as a co-working space that mimics some aspects of the real world.

This course is to be built by all of us, including you. Thus, there are a lot of uncertainties that are still to be determined. This includes what we will read, what we will talk about, and where our conversations will take us.

Given this reality and given that we are all students of the sciences, lets spend a moment to reflect on the individual goals we may have for this course.

Figure 2: A team of people discusses next steps during a prescribed fire on BLM land near the Dolores River, SW Colorado

Individual Learning Goals
1. Increase our awareness of the theoretical framework of science
2. Increase confidence in research, inquiry and independent learning
3. Develop active listening skills
4.
5.
6.
7.
8.
9.
10.

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Course Structure:

Classroom Format: This course is intended to be an interactive discussion. Given that we meet for 1:50 minutes once a week, we will structure our class as two parts.

Course Attribute	Description	Implication
<p>Part I: Lecture 8:00- 8:45(ish)</p>	<p>This part of the class will be a brief lecture-style class that explores concepts outlined in the reading for the day. This will be a discussion facilitated by me (Remke).</p>	<p>We will be active listeners when others are speaking, and we will contribute to classroom activities and functions as appropriate. We will honor our community Rules of Engagement.</p>
<p>Part II Discussion 8:45(ish)- 9:50</p>	<p>After a short break we will reconvene for a student-led discussion. Each student will pick a paper they consider to be seminal for their graduate studies and lead the class in an interactive discussion regarding the paper with a particular focus on 1) hypothesis testing, theory, and limitations.</p> <p>Where do you even begin in selecting a paper? Well maybe you already have an idea. Maybe your adviser has a good suggestion or someone on your committee?</p> <p>If you are still stumped or want help thinking about your discussion, then come talk to me!</p> <p style="text-align: center;">😊</p>	<p>Because the class needs the opportunity to read the paper – papers should emailed to Remke no less than one week prior to your discussion date.</p>

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Assessments and Grading:

This class is going to utilize ungrading practices. Instead of evaluating your progress and activity based on traditional assessments and quizzes, I will utilize a self-grading approach where you evaluate your own performance and justify your grade to me. It is not guaranteed that I will agree with your rhetoric, particularly if logic flaws exist or your assertions need to be supported with evidence.

Ultimately, I will have to issue you a standard letter grade, so please see the remarks below about grades for additional consideration on this topic.

A self-assessment assignment will provide additional details on the self-grading process.

Grades are reported to the university using the standard grading scale outlined below based on the percentage of your total grade. Since this class does not have a traditional assessment, consider the percentage ranges as the amount of effort you put into this course; the point of grades is to help you learn, so I encourage you to focus on the Rubric Category and Rubrics instead of the grade.

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>Since there are no assignments in the traditional sense, instead consider your biggest priority being reading material before class and sharing your chosen article in a timely manor. Failure to do so will be demonstrated with lack of familiarity of the material in class discussions and everyone being upset with you for the shortened time frame to read your article. Ruh oh.</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 1/1	<u>Day</u>	<u>Date</u>	<u>Topic</u>	<u>Readings and Assignments Due</u>
Week 1	Tuesday	01/16	Overview	
Week 2	Tuesday	01/23	Theory in Ecology	Scheiner & Willig ch. 1
Week 3	Tuesday	01/30	Theory causes change	Sheiner & Wilig ch. 2
Week 4	Tuesday	02/06	Unifying Theory?	Scheiner & Wilig ch. 3
Week 5	Tuesday	02/13	What theory are you testing?	Eco Stoich - Remke et al. 2020
Week 6	Tuesday	02/20		
Week 7	Tuesday	02/27		
Week 8	Tuesday	03/05		
Week 9	Tuesday	03/12	SPRING	BREAK
Week 10	Tuesday	03/19		
Week 11	Tuesday	03/26		
Week 12	Tuesday	04/02		
Week 13	Tuesday	04/09		
Week 14	Tuesday	04/16		
Week 15	Tuesday	04/23		
Week 16	Tuesday	04/30		
FINALS				

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Course Policies:

<u>Policy</u>	<u>Description</u>	<u>Resources</u>
<p>Academic Integrity Policy:</p>	<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>
<p>Cell Phone and Electronics Policy</p>	<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>
<p>Preparedness and Etiquette Policy</p>	<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:

Service	Description	Benefits	Contact Information
<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 campus health center offers an affordable and local option for students to seek health and wellness options including STD testing and family planning</p> <p>Proactive maintenance of our physical and mental health can keep us happy and focused on our lives</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>
Personal Needs	<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>
<u>Accessibility Services Information</u>	<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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