

# RESEARCH IN COMMUNITY ECOLOGY (BIOL-494-01/ENVI-494-02)

Macalester College -- Fall Semester 2020, Module 1

**Time:** Monday, Wednesday and Friday, 11:00-1:30

**Room:** All class meetings will take place via Zoom

(<https://macalester.zoom.us/j/94569108582?pwd=cCtMKzMrUDRpenFweloyQ2tZc1hKOT09>)

**Instructors:** Mike Anderson, Ph.D. ([andersonm@macalester.edu](mailto:andersonm@macalester.edu); 651.696.6230; office is Olin-Rice 221A) and Jerald Dosch, Ph.D. ([dosch@macalester.edu](mailto:dosch@macalester.edu); 651.696.6187; office is Olin-Rice 210)

**Office hours:** MWF 10:00-11:00 and by appointment; all via Zoom (Mike: [click here](#); Jerald: <https://tinyurl.com/y3l3bme6>)

This course offers an opportunity to work with faculty and staff of the Ordway Field Station to perform research into several open questions in community ecology. The class will include a primary-literature-based component that will examine current knowledge of community processes such as species invasions, community assembly, and niche theory. It will also include a practical component to build student skills in ecological measurement, experimental design, data analysis, and scientific communication. Three 2.5 hour blocks per week.

Prerequisite(s): Ecology and the Environment (BIOL/ENVI-170) and Biodiversity and Evolution (BIOL/ENVI-180), or permission of instructors.

## Course Goals

The overarching goal of this course is for students to build research skills by doing actual ecological research. Some aspects of ecology research (e.g., field skills) will, unfortunately, be unavailable to us due to the COVID-19 pandemic. However, this also provides an opportunity to focus on other skills that are central to how nearly all research, including ecology, gets done in modern times. These skills include:

1. Data management, analysis, and interpretation, especially using automatable tools like R.
2. Collaborative research, especially remote via electronic media.
3. Finding, reading, and critiquing primary scientific literature.
4. Scientific communication through writing and presenting, especially collaboratively. Grant writing and presenting will be a focus.
5. Long-term, site-based research.

**Course Moodle page:** <https://moodle.macalester.edu/course/view.php?id=656>. Please note that the course Moodle page will be updated on a regular basis during the semester. Be sure to check back periodically for updates and new information.

## TENTATIVE SCHEDULE (subject to change)

<b>Week</b>	<b>Lecture Topic</b>	<b>Comments and Reading Assignments *</b>
31 Aug	Introduction; overviews, projects	Shea & Chesson 2002; Anderson <i>et al.</i> 2019
7 Sept	Invasion theory focus on causes	Rodgers <i>et al.</i> 2008; MacDougall <i>et al.</i> 2009
14 Sept	Invasion theory focus on consequences	Bauer 2012; MacDougall & Turkington 2005
21 Sept	Management implications and options	TBD; annotated bibliographies due on the 25th
28 Sept	Focus on projects	1st draft proposals due on the 2nd
5 Oct	Focus on projects	
12 Oct	Virtual poster session, presentation	2nd draft proposals due on the 12th
19 Oct	Reflection, synthesis and evaluation	final proposals due on the 20th
<b>F 23 Oct</b>	<b>Final "exam" day</b>	

\* Note: The above may be supplemented with additional materials. We will announce all supplemental readings in class and post them on Moodle. You will be responsible for all extra readings.

<https://moodle.macalester.edu/course/view.php?id=656>

**Research Proposal Project:** Everyone will be required to write a proposal for a community ecology research project. See Moodle for detailed instructions and assigned readings. There will be individual and group components of this project.

- You will produce a multi-draft paper that synthesizes information from the primary literature and adheres to author guidelines for grant proposals for National Science Foundation (NSF) funding.
- You should select a topic of interest to you and conduct a thorough literature review in order to write your proposal. Final proposals will be due by the end of the module. You will receive a handout clearly describing what is expected and additional information will be posted on Moodle. Proposals will be worth 100 points.
- Presentations: You will also be expected to make an oral/poster presentation based on your research proposal during class the week of 12 October. Presentations will be worth 40 points and a rubric will be posted on Moodle in advance.

~~**Biology Seminar:** Biology Seminar is scheduled for Thursdays at noon. You are **required** to attend **two seminars** during the module and write a brief (~250 word) summary of what you learned/thought/were inspired by during each of your chosen seminars within 1 week of attendance—see the instructions on Moodle. This is a department-wide requirement in Biology, and an opportunity for the faculty and students in the department to come together once a week. Failure to complete this requirement will lower your final course grade by a half-grade (e.g., B+ to B). [This requirement was removed during the term.]~~

**Academic Support:** The Macalester Academic Excellence (MAX) Center (<https://www.macalester.edu/max/#/0>) provides academic support (help with writing, study habits, time management, etc.) to all students and also provides services to accommodate students with documented disabilities.

**Academic Integrity:** All students will be required to abide by the Macalester College academic integrity guidelines found at <http://www.macalester.edu/academicprograms/academicpolicies/academicintegrity/>. Instances of suspected academic dishonesty (cheating, plagiarism, using the same paper in more than one course, etc.) will be handled as outlined in the College guidelines found at the above website. Plagiarism is one of the most common breaches of academic integrity. Please note that information about ways to avoid plagiarism and other issues of academic integrity can be found at <http://www.macalester.edu/library/instruction/academicintegrity/>.

**Class recording:** In order to accommodate students who will not be able to attend synchronous class meetings during this module, we plan to record our synchronous class sessions in a manner consistent with [Macalester's classroom recording policy](#). We will share these recordings in a password-protected (and not public) place. If you download any class recordings, you must store them in a password-protected file or on a password-protected site. Please note that the recording policy clearly states that *you may not share, replicate, or publish any class recording, in whole or in part, or use any of the recordings for any purpose besides knowing what happened during the class period, without my written approval*. If we use any recorded content from any of our classes for purposes beyond our class, we will – in accordance with the policy – obtain your written permission to do so.

**Health and Well-Being:** Here at Macalester, you are encouraged to make your well-being a priority throughout this semester and your career here. Investing time into taking care of yourself will help you engage more fully in your academic experience. This is particularly important in this time of COVID-19 pandemic. Remember that beyond being a student, you are a human being carrying your own experiences, thoughts, emotions, and identities with you. It is important to acknowledge any stressors you may be facing, which can be mental,

emotional, physical, financial, etc., and how they can have an academic impact. We encourage you to remember that sleeping, moving your body, and connecting with others can be strategies to help you be resilient at Macalester. If you are having difficulties maintaining your well-being, please don't hesitate to contact us and/or find support from other [resources on this page](#).

**Attendance and Participation:** Attendance plays an essential role in learning; you are expected to attend all synchronous class/lab meetings (whether in-person or virtual). Attendance will be important not only for your learning, but also for our ability to build a community together and maintain a sense of connection and commitment to one another during this time of imposed physical distance. Your presence in class matters. We recognize that there are unavoidable circumstances that sometimes make it impossible for you to attend class. Although we hope it isn't the case, those unavoidable circumstances may be more common during this module given that we are in the midst of a pandemic. If you will not be in class for any reason, it is your responsibility to inform us in advance by email. It is also your responsibility to make up work you missed in your absence. Students with disabilities should discuss their accommodations with us early in the course to work out a plan that aligns with maintaining course expectations and learning goals. Participation is distinct from attendance and is also an essential part of this course. In-class discussions (in-person or via Zoom), on-line discussion forums, responses to brief ungraded writing assignments, etc. will be factored into your participation grade. Engaging with the (real and virtual, synchronous and asynchronous) classroom space — including by helping to create an environment where all of us can learn and think well about one another — will also be factored into participation. Students with any concerns, questions, or need for consideration for flexibility should connect with us as soon as possible to determine an appropriate plan. **Please note:** It may be that illness or other unexpected situations will require you to be away for class for more than half of a module, necessitating that we consider the possibility of withdrawal or an incomplete. We will stay in contact, and will seek support from colleagues in Student Affairs and in Academic Advising, should that situation arise.

**Accommodations and Disabilities:** We are committed to helping all students be successful in this course. Reasonable accommodations are available for students with documented disabilities. Contact the Disability Services office by emailing [disabilityservices@macalester.edu](mailto:disabilityservices@macalester.edu), or calling 651-696-6874 to schedule an appointment to discuss your individual needs. It is important to meet as early in the semester as possible; this will ensure that your accommodations can be implemented early on.

**Grading:** Your final grade for this course will be determined by the number of points you accumulate throughout the semester.

Participation	15
Annotated bibliography	25
R markdown document	25
Research proposal	100
Group research project presentation	40
Reflection and synthesis essay	10
<b>TOTAL POINTS</b>	<b>215</b>