



SCHOOL OF ARTS & SCIENCES  
DEPARTMENT OF SCIENCE AND MATHEMATICS

## General Ecology and General Ecology Lab

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Lilly Center for Lakes & Streams, Room 274 - Dr. Dane A. Miller Science Complex

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Office hours: 3:45-5:15 PM on Fridays or by appointment

Session A, Fall Semester, 2020

Class - 11:30-12:50 MTRF (ENV2110C), Auditorium – McClain Hall

Lab - 13:10-15:45 Tues and Thurs (ENV 2120L) or Weds and Fri (ENV 2120L2), Rm 114 – Miller Science Complex

### I. Introduction

General Ecology is an introductory ecology course intended to give students a broad overview of ecological theory and research. Students will be expected to understand and apply ecological concepts presented as well as utilize field skills learned and practiced as part of the course. The classroom portion of the course will focus on the material in the course textbook with some additional case studies and discussions from recent research. The lab portion of the course will be mostly in the field and centered around investigating the ecology of local natural areas. The course engages the mission of Grace College by providing competence through course material, fostering character through course discussion, and equipping for service through skills practiced. Faith, learning, and scholarship are integrated seamlessly in this course.

Course Goals	Learning Outcomes
1) Students understand and apply ecological concepts	a) Students describe population and community structure in relation to the physical environments of terrestrial, freshwater, and marine ecosystems
	b) Students discuss applications of those concepts
2) Students acquire ecological field research skills	a) Students demonstrate field sampling, environmental observation, study design, data analysis, and data synthesis skills
	b) Students apply skills in research context
3) Students demonstrate scientific writing and speaking	a) Students prepare and present oral presentation
	b) Students write sections of a scientific manuscript

### II. General course expectations and policies

Participation and conduct: Students are expected to attend all classroom and lab sessions, avoid disruptive behavior, refrain from using all electronic devices during class sessions, engage in classroom discussion, complete course evaluations, follow health and safety protocols, and participate in all lab activities as instructed. Violation of these expectations may result in a lower grade for the course or potentially dismissal from the course altogether with an F for a course grade in extreme cases. Absences need to be cleared by instructor to avoid these consequences.

Coursework expectations: Late assignments will not be accepted except in extreme situations. Students are expected to avoid even the appearance of academic dishonesty in all assignments, exams, quizzes, and presentations. More guidance on academic dishonesty can be found in the Academic Integrity policy summarized below and more completely in the Academic Policies Manual. Violation of these expectations will be reported to the Student Affairs Office. If it is determined that the violation was the first related offense on campus, the assignment, exam, quiz, or presentation in question will receive a score of zero points. If one or more violations have already been reported on campus, the additional violation will result in dismissal from the course with an F for a course grade.

Statement on Disabilities: Your experience in this class is important. If you have already established accommodations with Student Disabilities Services (SDS) please communicate your approved accommodations to me as soon as possible so we can discuss your needs in this course. If you have not yet established services through SDS, but have a temporary health condition or permanent disability that requires accommodations (conditions including but not limited to, attention, health, hearing, learning, mobility, physical, psychiatric, or vision), please contact Connie Burkholder, Coordinator of Student Disabilities Services at x6423, via email at [burkhoc@grace.edu](mailto:burkhoc@grace.edu) or stop by the Morgan Library room 203. SDS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and SDS. Grace College and Seminary value diverse types of learners and is committed to ensuring inclusive and accessible learning environments consistent with federal and state law.

Nondiscrimination and Equal Opportunity Policy: The Office of Civil Rights makes it clear that sexual violence and harassment are civil rights offenses subject to the same kind of accountability and support applied to offenses against other protected categories such as race, disability, and national origin. Because we care about the health and safety of our students, if you or someone you know at Grace has been harassed or assaulted, please contact the Title IX Coordinator, Carrie Yocum (574-372-5100 x6491, [yocumca@grace.edu](mailto:yocumca@grace.edu), McClain 102), You can find additional resources about Grace's counseling center [here](#) and Grace's *Nondiscrimination and Equal Opportunity Policy* [here](#).

Writing Lab: Free writing assistance is available on the first floor of the Morgan Library-Learning Center. The writing tutors are there to help you succeed! They can assist you in the organization of papers, sentence and paragraph structure, grammar, punctuation, spelling, documentation of research, and building your knowledge and confidence in writing. Writing tutors are available for appointments ([writinglab@grace.edu](mailto:writinglab@grace.edu)) or during walk-in hours. For hours and more information, see <http://libguides.grace.edu/writinglab>.

Academic Integrity: Academic dishonesty—in all forms—is a serious violation of academic integrity, Grace's community standards for scholarship and behavior, and Christian morality. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, falsifying or fabricating data, stealing or interfering with another student's work, and submitting substantial portions of the same work for more than one course without prior consent from the instructor. Violations of the Academic Integrity Policy will result in proportional consequences, which include but are not limited to, failure of the assignment, course grade reduction, and failure of the course, as stated in the course syllabus. See the complete Academic Integrity Policy found in the Academic Policies Manual for more details.

Turnitin software tool: Many courses, including this one, take advantage of electronic submissions of written assignments through Turnitin. This software is intended to help students and faculty review and analyze written submissions for originality by comparing the submission to other sources in the Turnitin database and the Internet. Should you have any concerns on using Turnitin, please contact your instructor.

Classroom Health and Safety Protocols: In this class, as elsewhere on campus, students must comply with all Grace College health and safety protocols and uphold the Grace Campus Commitment. Together, and for each other, we commit to the following actions of Grace during COVID-19:

- Wearing Face Masks

Faculty and students will wear face coverings that cover the mouth and nose, such as cloth or surgical masks, in classrooms and hallways. Wearing face masks during class is especially important because class periods require extended time together; face masks are one way to mitigate risk and keep each other safe. Students with health or medical needs preventing them from wearing a face mask should contact Connie Burkholder, Coordinator of Student Disabilities Services at x6432, or via email at [burkhoc@grace.edu](mailto:burkhoc@grace.edu).

- Practicing Physical Distancing

Social distancing will be maintained in all instructional spaces. The CDC guidance includes keeping about 6 feet between yourself and others. Face coverings are not a substitute for social distancing. All classroom furniture should remain in the established locations to ensure appropriate social distancing. Please be especially mindful of social distancing when entering and exiting the classroom and during breaks.

- Consuming Food and Drinks Safely

Foods in closed containers may be brought into the classroom but must remain closed while class is in session unless arrangements are made with the professor. Beverages in closed containers (cups with lids, water bottles, etc.) may be consumed during class; please limit your consumption so as to wear your mask as much as possible. Students with health or medical needs requiring them to eat during class should contact Connie Burkholder, Coordinator of Student Disabilities Services at x6432, or via email at [burkhoc@grace.edu](mailto:burkhoc@grace.edu).

- Cleaning Classroom Space

Cleaning supplies are provided in each classroom, and students and faculty are expected to clean their own desks, chairs, and high-touch surfaces and equipment at the start of each class period. Hand sanitizing stations are located throughout academic buildings. Please make sure to practice hand washing/sanitizing if sharing materials with others in the class.

- Enforcing Classroom Safety Protocols:

A student who does not wear a mask when required to or who otherwise does not adhere to the health and safety protocols may be asked to leave the classroom. He/she will receive an unexcused absence for that period; unexcused absences have academic consequences.

NOTE: These protocols are based on CDC guidelines and state and local mandates and recommendations. In the event that these change (either by becoming more lenient or more restrictive), the protocols may change as well. Such changes will be communicated via Grace e-mail from the Academic Affairs Office.

### III. Classroom component of course

Required textbook: Cain, M.L, Bowman, W.D., & S.D. Hacker. *Ecology*. Sinauer Associates, Inc. Sunderland, MA. (ISBN: 978-0-87893-908-4)

Reading assignments: The classroom schedule shows assigned reading which is to be completed by students before coming to class on the day for which the reading is listed on the schedule. In-class reading quizzes will be used to hold students accountable for reading assignments.

Exams: There will be 3 unit exams covering the course material since the previous exam as well as a final exam covering all course material. Unless specifically deleted, the student is responsible for all material assigned in the textbook as well as classroom and lab material not covered in the textbook. All exams will be held in the regular classroom. Review sessions are scheduled before each exam. No formal review material will be prepared by the instructor, but rather it is a time for students to bring specific questions they may run across as they are studying for the exam. See Classroom Schedule below for specific exam dates. Make-up exams will be offered in extreme circumstances on a case-by-case basis.

#### Classroom Schedule:

Date	Classroom content plan	Reading Assignment
20-Aug	Intro to course; Chapter 1: The web of life	
21-Aug	Chapter 2: The physical environment	Read pages 2-18; 22-47 in text
24-Aug	Chapter 3: The biosphere	Read pages 50-81 in text
25-Aug	Chapter 4: Temp and Water; Chapter 5: Energy	Read pages 84-106; 109-131 in text
27-Aug	Chapter 6: Evolution and Ecology; Exam review	Read pages 136-156 in text
28-Aug	Exam 1: Chapters 1-6	
31-Aug	Chapter 7: Life history; Chapter 8: Behavioral	Read pages 160-175 in text; skim pages 176-200
1-Sep	Chapter 9: Population distribution and abundance	Read pages 204-223 in text, Voituron paper
3-Sep	Chapter 10: Population growth; Chapter 11: Population dyn.	Read pages 226-245 and 249-267 in text
4-Sep	Chapter 12: Competition; Build-a-plant activity	Read pages 272-289 in text
7-Sep	Chapter 13: Predation and herbivory; Chapter 14: Parasitism	Read pages 292-335 in text, Ohlson paper
8-Sep	Chapter 15: Mutualism and commensalism; Exam review	Read pages 338-354 in text
10-Sep	Exam 2 - Chapter 7-15	
11-Sep	Chapter 16: The nature of communities	Read pages 358-376 in text
14-Sep	Chapter 17: Change in communities	Read pages 379-398 in text
15-Sep	Ps 104; Chapter 18: Biogeography	Read pages 401-424 in text
17-Sep	Chapter 19: Diversity in communities; Chapter 20: Production	Read pages 426-468 in text
18-Sep	Chapter 21: Energy flow and food webs	Read pages 472-492 in text, Edenius paper
21-Sep	Chapter 22: Nutrient supply and cycling; Exam review	Read pages 495-515 in text
22-Sep	Exam 3 - Chapter 16-22	
24-Sep	Extra Lab Time - Ecological Restoration Project	
25-Sep	Extra Lab Time - Ecological Restoration Project	
28-Sep	Chapter 23: Cons. Biology; Chapter 24: Landscape Ecology	Read pages 520-566 in text
29-Sep	Chapter 25: Global Ecology; Final Exam review	Read pages 570-594 in text
1-Oct	Creation Quiet Time	
2-Oct	Final Exam - Chapters 1-25	

#### IV. Laboratory component of course

Lab assignments: As a follow-up to lab sessions, lab assignments will regularly be assigned to encourage further analysis and thought and will be due within one week of completing the lab field work. They will be submitted through a combination of Google Drive and the course Moodle site. Components of these assignments include data posting, data analysis, and text reports. Specific details on lab assignments are given in individual lab instructions and during the lab introduction at the beginning of the course.

Each student will choose or be assigned a lab partner at the beginning of the semester and work with that person as a field team throughout the course lab sessions. This will allow students to divide up some of the workload. The student and his/her partner will take turns posting the field data to Google Docs and submitting the data analysis to Moodle. The data analysis will include organizing and compiling the data from the whole class in Microsoft Excel and making any charts or graphs that are assigned. Students will then each be responsible for their own text report using Microsoft Word. The data posts will be worth 25 points, the data analysis will be worth 50 points and the text report will be worth 40 points. Students will only earn points for the parts of the assignment they do personally.

Approved absences such as travel for athletics require notification of instructor ahead of time and an email to instructor requesting make-up lab assignment in order to submit lab assignment on time.

- Data posts must be posted in the provided Google Drive spreadsheet within 24 hours of lab session start.
- Data analyses must be posted to Moodle within 72 hours (three days) of the data post deadline. Please format your Microsoft Excel file name as follows: lastname\_labname\_analysis (eg: smith\_prairie\_analysis). If it is your turn to do the analysis, please make sure to email a copy to your lab partner! If it is not your turn to do the analysis you do not have to post it on moodle, but you will need it in order to write your text report.
- Text reports are due one week after the lab. Please format your Microsoft Word file name as follows: lastname\_labname\_text (eg: smith\_prairie\_text).

Research Presentation: Students will present on one of the 4 course research labs as assigned by the instructor. The field work for the presentation will be done during regular lab sessions, but preparation of the presentation will be done outside of class. Each student will be responsible for an individual presentation.

#### Lab Schedule:

Date	Field work plan	Lab assignments/Special instructions
8/19	No lab session	
8/20-8/21	Lab intro (Excel overview) - on campus	Bring personal laptop if possible
8/25-8/26	Forest ecology - on campus	
8/27-8/28	Forest ecology - on campus	Data posting, Data analysis, Text report (Results)
9/1-9/2	Prairie ecology - on campus	Bring personal laptop if possible
9/3-9/4	Prairie ecology - on campus	Data posting or Data analysis, Text report (Methods)
9/8-9/9	Stream ecology - local stream site	Bring personal laptop if possible
9/10-9/11	Stream ecology - local stream site	Data posting or Data analysis, Text report (Results, Discussion)
9/15-9/16	Wetland ecology - on campus	Bring personal laptop if possible
9/17-9/18	Wetland ecology - on campus	Data posting or Data analysis, Text report (Introduction)
9/22-9/23	Soils and Agriculture - local tour	
9/24-9/25	Ecological Restoration Project - on campus	Extra lab time (11:30 AM -3:45 PM)
9/29-9/30	Student research presentations - on campus	
10/1-10/2	Movie viewing - instructor's house	

## V. Course grading

Course grading is meant to assess student learning according to goals of course. Grades will be assigned jointly for both portions of the course.

A total of 1,000 points are possible to be earned by students:

- 300 points – Unit exams (3)
- 150 points – Final exam
- 40 points – Reading quizzes (8)
- 100 points – Course participation
- 160 points – Lab text reports (4)
- 50 points – Lab data posts (2)
- 100 points – Lab data analyses (2)
- 100 points – Lab research presentation

### Grading scale

Letter	Points
A	930-1000
A-	900-929
B+	870-899
B	830-869
B-	800-829
C+	770-799
C	730-769
C-	700-729
D+	670-699
D	630-669
D-	600-629
F	0-599

- A – exceeds expectations and is superior work
- B – meets all expectations and is good or very good work
- C – meets most expectations and is average in nature
- D – meets some expectations and is subpar in nature
- F – does not meet most or any expectations