



# ECOLOGY

BIOL 260 Spring 2025  
The University of North Carolina at Chapel Hill



## COURSE INFORMATION

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**Credit Hours:** 3 credit hours

**Pre or Co-Requisites:** BIOL 104 or permission of the instructor for students lacking the prerequisite.

**Meeting Pattern:** MWF 11:15 am-12:05 pm

**Instructional Format:** in-person

**Classroom or Location:** Wilson Hall 107

## INSTRUCTOR INFORMATION

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**Instructor:** Dr. Sophie McCoy

**Email Address:** [sophie.mccoy@unc.edu](mailto:sophie.mccoy@unc.edu)

**Office Location:** Wilson Hall 334

**Office Hours:** M 1:15 pm - 2:45 pm

**Teaching Assistant:** Ian Sapp

**Email Address:** [sappit@live.unc.edu](mailto:sappit@live.unc.edu)

**Office Location:** Wilson Hall 337

**Office Hours:** Th 12:00 pm – 1:00 pm



## COURSE CONTENT

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### Course Description

Biology 260 is a survey of the field of ecology intended for undergraduates who are early in their studies of biology. The course will provide a broader and detailed understanding of the field of ecology, including major concepts, broad empirical patterns, important contemporary directions, and ecological applications. Students will read and discuss primary literature, analyze ecological theories and data and consider effective science communication strategies.

### Course Texts & Materials

There is no required textbook for this class. Ecology textbooks will be placed on course reserve at the library for those who seek additional background reading. All required readings will be posted on our course Canvas site.

**This syllabus is a living document and is subject to change.** Teaching and learning are dynamic processes. So that the course can adjust to the real-time needs of our class, *changes may be made during the semester in the assignments and content of the course*. These changes will be announced as early as possible. Changes made after the first day of class will be announced on Canvas and highlighted in green on the updated document.



## Class Expectations

I expect students to attend lectures, which is all the more important without a course textbook. Many assignments will require you to plan throughout the semester, as they will be impossible to complete the day before they are due. Unexpected needs, emergencies, and unique situations come up for many students every semester. You can expect that I will treat you like human and do my best to accommodate your situation – it is far easier for me to do this if you communicate with me as soon as possible.

## Course Goals & Student Learning Outcomes (SLOs)

### *General Competencies:*

#### 1. **Apply the process of science:**

- Distinguish different ways ecologists investigate the natural world (e.g. observation, experiment, modeling, simulation);
- Apply processes of ecological inquiry by making observations, generating testable hypotheses, develop conceptual models, use logic and creativity to design studies to test hypotheses, collect and/or interpret data, detect errors and biases, explain and interpret results, use quantitative reasoning, incorporate feedback to make revisions, explain to broad audience, and contextualize findings within broader knowledge of the field (or course);
- Evaluate science-related claims and information from peer-reviewed sources by examining the relationship between the evidence, arguments, and conclusions presented and by assessing consistency with existing knowledge from valid and reliable scientific sources.

**We will practice these skills through:** Case studies, problem sets, and guided inquiry.

#### 2. **Understand the interdisciplinary and collaborative nature of science:**

- Understand how general ecological principles inform understanding of both basic science (e.g., other fields of natural science and ecological subfields) and applied science (e.g., conservation, restoration, human health, agriculture etc.);
- Practice communication and collaboration with other students and observe communication and collaboration between scientists and non-specialist audiences.

**We will practice these skills through:** In class assignments, case studies, and seminar assignments.

#### 3. **Appreciate the relationship between science and society:**

- Identify, assess, and make informed decisions about ethical and contemporary issues at the intersections of science and society.
- Develop the tools and framework to apply ecological reasoning to issues of policy and practice to applied science questions.

**Examples:** In class worksheets, case studies, seminar assignments, and science in the news assignments.

### *Content-specific Competencies*

By engaging in this course, you will be empowered to:

- Become familiar with the scope of ecological processes that link organisms to their environments;
- Understand the primary ecological processes that structure global communities;
- Describe methods for the study of populations, communities, and functions;
- Develop written skills in presenting scientific arguments in the style of scientific and layman reports.



## COURSE ASSIGNMENTS & ASSESSMENTS

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### Assignment Descriptions

#### *In Class Assignments (10% course grade)*

In class assignments will be graded for completion not correctness and will be due on Canvas by the end of class time. We will typically have one longer in class worksheet each week, and smaller in class problems throughout the semester. Your two lowest grades will be dropped at the end of the semester.

#### *Problem Sets I-VI (20% course grade)*

Six problem sets will be assigned throughout the semester to take a deeper dive on concepts from lecture. Problem sets are practice for important concepts that are likely to show up on the exam, so I urge you to try working through problems on your own first as a tool to check and deepen your mastery of the material. You may collaborate with other students, but your answer must be written individually. If you use AI, you must specify which provider and what it was used for. Always proofread AI answers for content correctness.

#### *Seminar Assignments I & II (15% course grade)*

The University of North Carolina at Chapel Hill is an internationally renowned research institution that hosts top scientists for research seminars across our many Schools and Departments. You will attend two ecology themed research seminars, one of which must be attended in person and the second may be attended in person or online. Please see the assignment description on Canvas for details about required components of the seminar write up. Seminars must be pre-approved by Dr. McCoy or your TA. A link to a list of approved seminars will be posted on Canvas by the first Friday of the semester.

#### *Science in the News Assignments I & II (10% course grade)*

Ecology is everywhere in the news. By the end of the semester, select two written news articles of your choice to read and summarize. These articles can be from any credible news source (i.e., not your grandmother's blog) and should be 'popular press' articles (i.e., *New York Times*, *Wall Street Journal*, *Raleigh News & Observer*, *Vox* and not a primary literature scientific journal). The point is to choose something that many non-specialists are going to read, and to translate what you are learning in class to real-world events. For each article, write a ~500 word response, including a brief summary of key points, outlining the topic as it relates to class material, and providing some general commentary. Include a link to the article at the end of the document. The writing style should be somewhat formal and accessible to readers not in our class. For example, don't say "This related to class material from last week because...".

*Please note that you may not submit more than once Science in the News per week – this requires you to plan ahead. The reason for this is so that your instructors have time to grade and give real feedback before you write your second one. You may submit up to 4 total write-ups and only your 2 highest grades will count towards your overall grade. If you wait until the last 2 weeks of the semester to turn in your first write-up, you may not receive instructor feedback before your final write-up is due.*

#### *Exams I & II (30% course grade)*

There will be two midterm exams held during regular class time (each 15% of your grade). The midterm exams are not specifically cumulative, but some of the material later in the course will build on material covered early on.

#### *Final Exam (15% course grade)*

The final exam will be twice the length of the midterm exams. The exam will be cumulative but with emphasis on material from the final unit of the class.



## Grading Scale & Schema

### Late Work

All non-exam assignments will be penalized 10% for each day late without a Dean of Students approved absence. Assignment submission times will be rounded up, meaning that an assignment turned in 1 hour late will be counted as 1 day late. To obtain an approved absence by the Dean of Students office: <https://uaao.unc.edu>.

**You must obtain advance approval from Dr. McCoy for any exam to be taken early or late**, including exams scheduled at ARS with a start date and time before the start or after the end of the exam taken during the regular class period (e.g., if the regular exam ends at 12:05pm, you need approval to schedule an exam that begins at 12:06pm). Please schedule all ARS exams well ahead of time to their availability. For a day-of-emergency, please email Dr. McCoy or your TA as soon as possible!

**A rescheduled final exam will need permission from the Dean of Students:** <https://dos.unc.edu/student-support/class-absences-final-exam-rescheduling/>. This includes day-of-emergency situations prior to our ability to schedule a make-up exam.

### Grading Scale

This course will follow the standard UNC grading scale. No assignments will be dropped other than those specified in the assignment descriptions above (In Class Assignments and Science in the News).

Numeric Grade (%)	Letter Grade
93.5 and above	A
89.5 – 93.4	A-
86.5 – 89.4	B+
82.5 – 86.4	B
79.5 – 82.4	B-
76.5 – 79.4	C+
72.5 – 76.4	C
69.5 – 72.4	C-
66.5 – 69.4	D+
59.5 – 66.4	D
59.4 and below	F

Table a: Grading Scale Table

### Grade Appeal Process

Scores and final course grades will be changed only in the event that an exam question was mis-graded or if exam points were totaled incorrectly. Requests for exam re-grading must be in the form of a **written** appeal submitted via Gradescope (the online exam grading platform we use in this course) justifying why your answer should be accepted. For every regrade request, we reserve the right to re-grade your entire exam, therefore a regrade request could lead to an increase, decrease, or no change in your exam score. All appeals for changes must be made within 3 calendar days after the exam is returned. We will not re-grade any question or exam after the 3 days have elapsed but will still work to correct exam point totals if you find an error.



## COURSE SCHEDULE

Week	Date	Topic	In Class	Assignments Due
1	W Jan 7	Introduction	Lecture	
	F Jan 9	Populations	Lecture	
2	M Jan 12	Population Growth I	Lecture with worksheet	
	W Jan 14	Population Growth II	Lecture with worksheet	
	F Jan 16	Population Growth III	Lecture with worksheet	Population Growth Worksheet
3	M Jan 19	<b>No Class – MLK Day</b>		
	W Jan 21	Life Histories	Lecture	
	F Jan 23	Demography	Lecture with worksheet	Problem Set I
4	M Jan 26	Life Tables	Lecture with worksheet	
	W Jan 28	Sensitivity	Lecture with worksheet	Life Tables Worksheet
	F Jan 30	Exam I Review	Review	Problem Set II
5	M Feb 2	<b>Exam I</b>		Exam I
	W Feb 4	Metapopulations	Lecture	
	F Feb 6	Community Ecology	Lecture	
6	M Feb 9	<b>No Class – Wellbeing Day</b>		
	W Feb 11	Communities in Space and Time	Lecture	
	F Feb 13	Competition I	Lecture with worksheet	
7	M Feb 16	Competition II	<b>Asynchronous</b> Worksheet	
	W Feb 18	Competition III	Lecture with worksheet	Competition Worksheet
	F Feb 20	Predation I	Lecture	Problem Set III
8	M Feb 23	Predation II	Lecture with worksheet	Predation Worksheet
	W Feb 25	Mutualism	Lecture	
	F Feb 27	Biodiversity	Lecture with worksheet	Biodiversity Worksheet
9	M Mar 2	Foodwebs I	Lecture	Seminar Assignment I
	W Mar 4	Foodwebs II	Lecture	
	F Mar 6	Ecophysiology	Lecture	SITN 1 Deadline
10	M Mar 9	Metabolic Theory I	<b>Asynchronous</b> Lecture with worksheet	Problem Set IV
	W Mar 11	Metabolic Theory II	Lecture	
	F Mar 13	Nutritional Ecology	Lecture	Ecophysiology and Metabolism Worksheet
	M Mar 16 – F Mar 20	<b>Spring Break</b>		
11	M Mar 23	Infectious Disease I	Lecture with worksheet	
	W Mar 25	Infectious Disease II	Lecture with worksheet	
	F Mar 27	Infectious Disease III	Lecture with worksheet	Infectious Disease Worksheet
12	M Mar 30	Exam II Review	Review	
	W Apr 1	<b>Exam II</b>		Exam II
	F Apr 3	<b>No Class – University Holiday</b>		
13	M Apr 6	Biogeography	<b>Asynchronous</b> Worksheet	Problem Set V
	W Apr 8	Microbial Ecology		
	F Apr 10	Ecosystem Ecology	Lecture	SITN 2 Deadline
14	M Apr 13	Anthropocene	Lecture	Ecosystems Worksheet
	W Apr 15	Conservation Ecology	Lecture	
	F Apr 17	Tropical Ecology	Lecture	SITN 3 Deadline
15	M Apr 20	Desert Ecology	Lecture	Problem Set VI
	W Apr 22	Marine Ecology	Lecture	
	F Apr 24	Polar Ecology	<b>Asynchronous</b> Lecture	Seminar Assignment II SITN 4 Deadline
16	M Apr 27	Exam Review	Review	
	W Apr 29 4-7pm	<b>Final Exam</b>		Final Exam





# POLICY STATEMENTS

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## Academic Policies

### *University Class Attendance Policy*

**University Policy:** As stated in the University's [Class Attendance Policy](#), no right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

1. Authorized University activities: [University Approved Absence Office \(UAAO\)](#) website provides information and [FAQs for students](#) and [FAQs for faculty](#) related to University Approved Absences
2. Disability/religious observance/pregnancy, as required by law and approved by the [Equal Opportunity and Compliance Office](#) (EOC)
3. Significant health condition and/or personal/family emergency as approved by the [Office of the Dean of Students](#), [Gender Violence Service Coordinators](#), and/or the [Equal Opportunity and Compliance Office](#) (EOC).

### *Code of Conduct*

All students are expected to adhere to University policy and follow the guidelines of the UNC Code of Conduct. Additional information can be found at <https://studentconduct.unc.edu/>.

### *Artificial Intelligence (AI) Use Policy*

In this course, we will follow the recommendations of UNC's AI Committee for the responsible and ethical use of generative AI tools such as ChatGPT. The committee recommendations are described in full under the Syllabus Guidelines for Generative AI section at this link: <https://provost.unc.edu/student-generative-ai-usage-guidance/>

Here we provide only excerpts that are most relevant to this course:

#### **Generative AI is extremely useful; however, it has the following limitations:**

- How output is arrived at is not clear as the internal processes used to produce a particular output within the generative AI cannot be determined.
- The output is based on existing data (often scraped from online sources) and may reflect biases that should be acknowledged; it may also be inaccurate or entirely fabricated, even if it appears reliable or factual.
- AI evokes a range of intellectual property concerns; sourcing and ownership of information is unclear, and the status of AI output raises numerous questions—e.g., is output equivalent to a published resource? What citational responsibilities are in place for various AI interactions?

#### **Usage Philosophy**

Use of generative AI in your coursework is based on the following principles:

1. **AI should help you think.** Not think for you.  
Use these tools to help generate ideas, perform research (in compliance with point 2 below), and analyze problems. Do not use them to do your work for you, e.g., do not enter an assignment question into ChatGPT and copy & paste the response as your answer.
2. **Engage with AI Responsibly and Ethically:** Engage with AI technologies responsibly, critically evaluating AI-generated outputs and considering potential biases, limitations, and ethical implications in your analysis and discussions. Utilize AI technologies ethically, respecting privacy, confidentiality, and intellectual property rights. Ensure that the data used for AI applications is obtained and shared responsibly and in compliance with relevant regulations.
3. **You are 100% responsible for your final product.**  
You are the user. If the AI makes a mistake, and you use it, it's your mistake. If you don't know whether a statement about any item in the output is true, then your responsibility is to research it. If you cannot verify it as factual, you should delete it. You hold full responsibility for AI-generated content as if you had produced the materials yourself. This means ideas must be attributed, facts are true, and sources must be verified.
4. **The use of AI must be open and documented.**  
The use of any AI in the creation of your work must be declared in your submission and explained. Details on how to source your AI usage are explained below.

#### **Specific Guidelines**



**Not following these guidelines may be a reportable violation to the UNC Honor Court.**

We anticipate that many of you will use generative AI as you work toward answering Group Discussion Problems.

- **Research:** If you use AI to support your research, you must account for and document your use. Possibilities include topic brainstorming, search assistance, source evaluation, and summaries and source documentation. Track your use of AI throughout these stages, and then document this assistance as you submit the project. Any material generated through AI in your projects should also be documented in your citations.
- **Writing & Presentation:** In principle, you may submit material that contains AI-generated content, or is based on or derived from it, if this use is properly documented. This may include drafting an outline, preparing individual sections, combining elements, removing redundant parts, and compiling and annotating references. Your documentation must make the process transparent – the submission itself must meet the relevant standards of attribution and validation.
- **Group Work:** Group work guidelines are based on the type of assignment above (e.g., a group written assignment will use the guidelines for written assignments).

**Sourcing Use of AI**

- **Accuracy:** Generative AI may invent both facts and sources for those facts. Verification is your responsibility, whether the source of the error is you or the AI makes no difference. You need to check the facts, the quotes, the arguments, and the logic, and document what you did to validate your material.
- **Attribution:** All ideas that are not originally your own have a source and that source must be attributed. Please be aware that generative AI tends to invent sources. You have a two-fold obligation with respect to attribution:

(1) If a source is identified, find and attribute the original source of the idea, identify the location of the text within the source, and provide a working link to the location (if the source is available online). If you are not able to locate the source, delete that content.

(2) Document the process by explaining how you used generative AI in a work statement that will accompany your submission of major projects in the class. As you submit a project, develop, and include an appropriate version of the below statements:

- “I attest that this project made use of AI in the following ways:”  
You must then use the following form to document your usage. \*

\*Note that such attribution is not a valid source for facts, only for the output itself.

[1] ChatGPT was used in the development of these guidelines – more specifically, it was employed to generate suggestions for student use policies and to rephrase and consolidate certain sections of the text. Also, [Sentient Syllabus](#) was a resource for a number of the ideas within this document.

*Syllabus Changes*

The instructor reserves the right to make changes to the syllabus including project due dates and test dates. These changes will be announced as early as possible.

*Acceptable Use Policy*

By attending the University of North Carolina at Chapel Hill, you agree to abide by the University of North Carolina at Chapel Hill policies related to the acceptable use of IT systems and services. The Acceptable Use Policy (AUP) sets the expectation that you will use the University's technology resources responsibly, consistent with the University's mission. In the context of a class, it's quite likely you will participate in online activities that could include personal information about you or your peers, and the AUP addresses your obligations to protect the privacy of class participants. In addition, the AUP addresses matters of others' intellectual property, including copyright. These are only a couple of typical examples, so you should consult the full [Information Technology Acceptable Use Policy](#), which covers topics related to using digital resources, such as privacy, confidentiality and intellectual property. Additionally, consult the [Safe Computing at UNC](#) website for information about data security policies, updates, and tips on keeping your identity, information, and devices safe.





### *Data Security & Privacy*

UNC-Chapel Hill is committed to fulfilling its responsibilities of transparency as a state-sponsored institution of higher learning, protecting certain types of information, and using information Carolina collects only for appropriate purposes. Consult the [UNC-Chapel Hill Privacy Statement](#) for additional information.

## **Services & Student Support Policies**

### *Equal Opportunity and Compliance - Accommodations*

[Equal Opportunity and Compliance Accommodations Team](#) ([Accommodations - UNC Equal Opportunity and Compliance](#)) receives requests for accommodations for disability, pregnancy and related conditions, and sincerely held religious beliefs and practices through the University's Policy on Accommodations. EOC Accommodations team determines eligibility and reasonable accommodations consistent with state and federal laws.

### *Counseling & Psychological Services (CAPS)*

UNC-Chapel Hill is strongly committed to addressing the mental health needs of a diverse student body. The [Heels Care Network](#) website is a place to access the many mental health resources at Carolina. CAPS is the primary mental health provider for students, offering timely access to consultation and connection to clinically appropriate services. Go to the [CAPS website](#) or visit their facilities on the third floor of the Campus Health building for an initial evaluation to learn more. Students can also call CAPS 24/7 at 919-966-3658 for immediate assistance.

### *Title IX Resources*

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made [online to the EOC](#) or by contacting the [University's Title IX Coordinator](#), Elizabeth Hall, or the [Report and Response Coordinators](#) in the Equal Opportunity and Compliance Office. Please note that I am designated as a Responsible Employee, which means I must report to the EOC any information I receive about the forms of misconduct listed in this paragraph. If you'd like to speak with a confidential resource, those include Counseling and Psychological Services and the [Gender Violence Services Coordinators](#). Additional resources are available at [safe.unc.edu](#).

### *Policy on Non-Discrimination*

The University is committed to providing an inclusive and welcoming environment for all members of our community and to ensuring that educational and employment decisions are based on individuals' abilities and qualifications. Consistent with this principle and applicable laws, the University's [Policy Statement on Non-Discrimination](#) offers access to its educational programs and activities as well as employment terms and conditions without respect to race, color, gender, national origin, age, religion, genetic information, disability, veteran's status, sexual orientation, gender identity or gender expression. Such a policy ensures that only relevant factors are considered, and that equitable and consistent standards of conduct and performance are applied.

If you are experiencing harassment or discrimination, you can seek assistance and file a report through the Report and Response Coordinators (email [reportandresponse@unc.edu](mailto:reportandresponse@unc.edu) or see additional contact info at [safe.unc.edu](#)) or the [Equal Opportunity and Compliance Office](#). Please note that I am designated as a Responsible Employee, which means that I must report to the EOC any information I receive about harassment or discrimination. If you'd like to speak with a confidential resource, those include Counseling and Psychological Services and the University's Ombuds Office.

### *Diversity Statement*

I expect all students to respect the perspectives, ideas, questions, and opinions of others in this course and to for instructors and students to treat each other with respect and kindness.

### *Undergraduate Testing Center*

The College of Arts and Sciences provides a secure, proctored environment in which exams can be taken. The [Undergraduate Testing Center](#) works with instructors to proctor exams for their undergraduate students who are not registered with ARS and who do not need testing accommodations as provided by ARS. In other words, the Center provides a proctored testing environment for students who are unable to take an exam at the normally scheduled time (with pre-arrangement by your instructor).





### *Learning Center*

Want to get the most out of this course or others this semester? Visit UNC's [Learning Center](#) to make an appointment or register for an event. Their free, popular programs will help you optimize your academic performance. Try academic coaching, peer tutoring, STEM support, ADHD/LD services, workshops and study camps, or review tips and tools available on the website.

### *Writing Center*

For free feedback on any course writing projects, check out UNC's [Writing Center](#). Writing Center coaches can assist with any writing project, including multimedia projects and application essays, at any stage of the writing process. You don't even need a draft to come visit. To schedule a 45-minute appointment, review quick tips, or request written feedback online, visit the [Writing Center's website](#).