BIOL 104 Biodiversity
Fall 2023 – Evans
Course Syllabus

Edit

Table of Contents

The instructors reserve the right to make changes to any part of this syllabus, including the scheduled dates for midterm exams or lesson topics and the addition of new assignments. Changes made after the first day of class will be highlighted in green, and students will be notified via the course website (see below). ***Use the Modules to keep up with the class!***

Download a PDF of the full syllabus here.

A letter from your instructor: How to succeed in BIOL 104!

Hello and welcome! I am very glad that you are part of this course and that we get to work together this semester.

IMPORTANT: There are many vital details in this syllabus, so please read all the way through to the end; this is a good place to start -- keep going!

Why will taking this class be worth your while? We should probably sit down and have a cup of coffee and a cookie to answer this question together! **Short answer:** This class will introduce you to fundamental themes and concepts that underpin all of biology, and, as an introductory course, this class will help you develop and practice skills you'll need to major or minor in biology and future career. I hope that the questions we will investigate

together will spark your curiosity and help you see the world, and your important place on this planet, with more clarity. It is very likely that this course, especially as an introductory college biology class, will be asked to push your comfort zone, try new things, and make new connections (these are valuable experiences!). By taking this class early in your college career you give yourself a chance to clarify your interests before moving on to more specific upper level courses. It's an honor to be on this journey with you!

Below you will learn about what this course is about: the goals, learning outcomes and skills you will conquer. I am carving out this section of this syllabus just to level with you, so you know how to succeed in this class. I look forward to meeting you on the first day of class! If you'd like to learn more about me, and our amazing teaching team, click the BIOL 104 Teaching Team link on the home page of our course site.

Stay informed and keep me informed. How well this semester goes really depends on all of us! Everything you need to prepare for the class, stay organized, and know the deadlines and due dates are in this document (see the lesson schedule at the end) and shared on the course website. We will do our best to make sure that the expectations (daily, weekly, and for the whole term) are clear and accessible to you.

It's your responsibility to keep up with the course, however, usually on Fridays I will post an announcement to remind you of what's due for the upcoming week. These announcements will be housed on the course Canvas site for your reference. Make sure you receive email alerts. Please follow along closely! We ask that you provide us with feedback periodically throughout the semester using this online feedback form. We will make needed adjustments whenever possible.

Establish a daily and weekly schedule: Here are three words for success in BIOL 104: **prepare**, **participate**, **practice**. Routinely check that you are doing all this regularly (not at the last minute!). Here's a suggestion for how to get organized:

Read through this syllabus and establish a daily schedule for yourself.

Use a digital calendar (I recommend Google calendar, but iCal also works!) Teaching and learning will require an immense amount of self-motivation and self-awareness for both instructors and students. I will do my best to lay out a path for you to successfully complete the course, but I need you to commit to showing up and trying your best! You might have other classes, work, or family obligations to contend with. Reliable internet access may be an issue if you are living off campus. Do your best to set a healthy schedule for yourself and start your routine today.

Seek help as soon as you need it: If, and when, things do not go according to plan, or things are confusing, that's when you need to ask for help. Always try and answer your own question first by doing the following:

- re-read the syllabus,
- read old Canvas announcements

• search and read old discussion posts.

Then, when you're sure you still have a question, ask away! General questions on the online discussion forum, personal issues via email. I will strive to answer your emails in a few days during the week, but it may take a little longer over the weekend (I am human, after all!). If you are facing any kind of personal emergency let me know by email as soon as possible so I can try to be of assistance. But don't wait for a response from me – at the end of this email is a list of campus resource providers. All of them are ready to help you if you ask them. The sooner you let us know you need help, the more help we can offer.

Here is our tentative lesson plan for BIOL 104: The big picture is detailed in the lesson schedule. Use the Modules on our Canvas page to stay organized for each week. Each module is for a different unit, with lesson pages, quizzes and assignments associated for the unit. Each lesson page will tell you what to do/watch/turn in for that class period day. Some lesson pages will be built only a few days in advance so please be patient with us! The lesson schedule section of this syllabus will help.

Class meets on Tuesday and Thursday for 75 minutes. We expect to hold classes face-to-face in the lecture hall (Carroll 111), unless indicated otherwise on the Lesson Schedule.

• **Class time**: To prepare you will read and answer Guided Reading Questions (GRQs) before class. In class, you will participate by applying your knowledge individually and with a group to practice questions. We will use Learning Catalytics. We will work with you to clarify any misconceptions you might have. These classes will be recorded and posted within 24 hours. Lesson outlines for note taking will be provided before class. Come prepared to participate!

• **Regular Quizzes**: We learn by making mistakes. I want you to make lots of mistakes in a way that feels challenging but safe. You will have several quizzes through the semester, and each will be timed (30 minutes to complete) they are due by 11:00pm the night before class with a grace period of 11am the day of class (see lesson schedule). The quizzes have a time limit because your exams have a time limit. For additional important details see "grades" below.

• **Class Activities**: Biologists prepare and then they practice doing science! We will do this too. You might be asked to read, watch a video or listen to a podcast before class, but in class you and your classmates you will complete a 75 minute activity or discussion. These classes will also be recorded but if you have a reason to miss class, you can complete the activity on your own before the unit's exam. If we do have to shift to remote instruction, you will still be responsible for completing the before-class work and quizzes, but we will substitute a blend of pre-recorded videos and live/recorded Zoom sessions for face-to-face instruction.

Overall, the best way to prepare, participate and practice is the following:

• **prepare**: read before our class meeting time and submit Guided Reading Questions;

• **practice**: engage in regular review and complete the quizzes on time,

• **participate**: attend and participate in our class periods, and meet regularly with a peer instructor.

Student Hours: I will hold regular student hours (aka office hours) throughout the semester, and they will alternate days/times and be held in person or via Zoom to increase accessibility and ensure health and safety. Your peer instructors will also hold Supplemental Instruction session (group work) or peer mentoring (one-on-one tutoring). You can earn Learning Community Credit (participation!) for attending and working in these sessions. We encourage you to make use of student hours at least once during the semester, but you'll see the best results if you go regularly. These sessions will offer the best chance to get to know you better.

Please take care of yourself: If at any point during the term things get difficult for you, please let us know immediately via email. I might ask to meet via Zoom for efficiency's sake, but email is fine, too. I am generally able to make accommodation if you communicate with us quickly. I will be less able to help when, at the end of the term, you have done some or all of the work, the class is over, and then you let me know things were tough. I know that it can be difficult or embarrassing to ask for help, but timing is everything, so please do everything you can to alert me as soon as you find yourself facing (any) difficulty that prevents you from keeping up with class.

And please don't forget: You belong as a student here at UNC, and all our students need help at some point! To need help is a totally normal and an expected part of being a college student especially because you've never done this – getting a degree at UNC – before!

What's it like to learn about biodiversity during a global climate and environmental crisis? We know that human actions are changing the physical and biological world more quickly than the world has experienced change in the past. We are loosing biodiversity at an alarming rate. However, it is also true that we have many reasons to remain hopeful and optimistic, and to work to preserve, protect, and restore the planet's ecosystems. **When we know better, we can make a choice to do better!** In this class we will balance understanding how the world works (basic science) and how knowledge can be used to solve problems (applied science) and reflect on the opportunities we have as unique individuals to contribute to keeping the world habitable for as many different organisms as possible. When you feel unhappy, take a moment to acknowledge it, maybe even tell us about it on the discussion board (there will be others who share your sentiments), and do what you can to restart your day. I hope that by showing up, taking this class and thinking like a scientist about issues with real world relevance, you can feel good about the positive contribution you are making and will continue to make. **Our goal is not perfection; our goal is to practice and make progress.**

I look forward to what this term holds for us.

Onward,

Dr. Evans

Table of Contents

Class Details

Class Time and Place: Tuesday and Thursday; 11:00am-12:15pm; Carroll 111.

Instructor: Dr. Mara Evans (she/her)

Office: Wilson 110 and Zoom

Email: mara1@email.unc.edu

Student hours and appointments: Use maraevans.youcanbook.me to find a spot + but email for special appointment

Course Description *3 credits*

The biological diversity we see on Earth today encompasses a variety of genetic, species and ecosystem level variation. This course will focus on the biological principles that push biologists to understand what produces and sustains the biodiversity of life on Earth. This class will address key questions about how we identify and measure biological diversity, how it changes over time, and why biological diversity matters as our planet continues to change.

Prerequisites: BIOL 101 or the equivalent. We assume that each of you has had the equivalent of a semester course in biology wherein you learned Mendelian genetics and enough basic biology to know the major groups of organisms and the terms used for describing them. We also assume a solid background in high school algebra.

Table of Contents

Course Goals and Learning Outcomes

The overarching goal of the course is to explore the following questions focused on global biodiversity:

- What is biodiversity and how do we measure it?
- Why does biodiversity matter?
- What limits biodiversity?
- How does biodiversity change?

We want to make sure that as a participant in this class you build your knowledge and skills as a biologist. We will track our progress using the following set of learning outcomes. Think of them as guideposts for quick reference as the course moves along!

1. Understand the different ways in which biodiversity is described and measured
2. Describe historic and present patterns in the distribution and variety of life
3. Understand how the scientific process is used to create knowledge about historic, complex, and dynamic systems that exist at various spatial and temporal scales
4. Compare evolutionary theory with non-scientific ideas about the origins of biodiversity
5. Apply frameworks to organize the understanding of the natural world (e.g., phylogenetics)
6. Describe and explain how organismal features-- like physiology, anatomy, and behavior-- are shaped by evolutionary and ecological forces through historical processes, including interactions within and between species and the environment.
7. Explain how the properties of Earth contribute to patterns of biodiversity
8. Explain the abiotic factors such energy and nutrients and biotic forces such as competition, predation/disease, and symbiosis that limit population size, genetic diversity and species diversity in space and time
9. Identify how disturbance (both natural and human caused) affects biodiversity over different spatial and temporal scales.
10. Apply knowledge of ecological and evolutionary principles to challenges in maintaining the health of human and natural systems and understand the impacts of human derived climate change.

We also want you to practice and master a set of skills biologists use to engage in the scientific process. Through the semester we will accomplish the following (note that by reading through this list you'll get a sense of some of the activities and projects we'll be working on this semester!):

1. **Apply the process of science by**

• Using different strategies to investigate the natural world

For example: observation, experiment, modeling, simulation

• Practicing scientific inquiry by:

For example: making observations, generating testable hypotheses, using logic and creativity to design studies to test hypotheses, collect and 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).

• Examining the relationship between the evidence, arguments, and conclusions presented using popular and/or peer-reviewed sources

• Assessing consistency with existing knowledge from valid and reliable scientific sources by using case studies and guided inquiry.

2. Experience the interdisciplinary and collaborative nature of science by:

• Understanding how other science fields have contributed to knowledge of evolution and ecology, such as genetics and molecular biology, geology, climatology, oceanography and anthropology.

• Practicing communication and collaborating with others through group work in class, projects that communicate work out of the classroom, citizen science projects, and engaging in peer-to-peer instruction.

3. Demonstrating the relationship between science and society by:

• Identifying, assessing, and offering informed decisions about ethical issues at the intersections of science and society.

• Developing the tools and framework to apply ecological and evolutionary reasoning to issues of policy and practice in environmental management and human health.

For example: issues related to conservation and medicine

Table of Contents

Course Format

This syllabus, the lecture outlines, guided reading questions, and other useful materials will be posted on the course website (Canvas) throughout the semester. If you get lost, go to Modules and click through the lesson pages in order. It is your responsibility to check the class website and your UNC email account daily to stay up-to-date on any changes to the course.

Class will be conducted in-person and in-person attendance is the expectation. However, classes will recorded, but this is not a hybrid class. Class recordings will be posted within 24 hours of each lesson. Class will be supplemented with readings, in-class activities, quizzes, and a group project. Exams will be offered during class time, and the expectation is you will take the exam in-person (on paper). If UNC shifts to a remote teaching setting, even briefly, instruction will be delivered via Zoom (both synchronous and asynchronous). The syllabus will be updated to reflect changes in expectations as necessary

Table of Contents

BIOL 104 Teaching Team

Learn more about the teaching team by visiting this page!

Instructor

Dr. Mara Evans

Office: Wilson 110 and Zoom

Email: mara1@email.unc.edu (see below for guidance on emailing!)

Student hours and appointments: maraevans.youcanbook.me + by appointment request (email)

Teaching Assistant

This course will have one teaching assistant who will attend class periodically to help with class activities. They may choose to hold office hours periodically, and they will be responsible for the bulk of providing feedback on your work in this course. You will also see them during exams, as they will be available to help proctor. They are a graduate student here at UNC and thus very prepared to offer assistance.

Peer Instructors

Peer Instructors are current students who are volunteering their time to assist you virtually via Zoom and/or in person (at their discretion). You are welcome to meet with any peer instructor you want (or as your schedule allows); our goal is to help make a big class feel smaller.

Peer Instructors serve in two different roles:

Supplemental Instructors will hold at least one (1) hour of supplemental instruction outside of class each week (time and locations will be posted to the Canvas Calendar). These sessions will be active review sessions, where you can ask and answer questions and "go over" material from the previous week. Plan to attend and participate (not just lurk).

Peer Mentors will host small group or one-on-one tutoring sessions, via Zoom or in-person.

Check the Canvas Calendar for days/times/links. Please make use of these wonderful people.

Table of Contents

Communication and Student/Office Hours

If you have a question, please re-read the syllabus and search the discussion board posts first to see if your question has already been addressed.

Student Hour with Your Instructor: Also known as "office hours". This is an opportunity to meet with your instructor, ask questions, get to know each other, and meet folks from class in a more informal setting.

- **Bring a friend**: You do not have to attend office hours alone
- **Personal Meeting**: If you are having a personal or academic crisis or emergency that needs attention you are welcome to schedule a 15 minute meeting with your instructor using the Youcanbook.me link available on Canvas. Personal appointments must be reserved ahead of time, and may take 2 weeks to book.

-->Non-emergency, non-confidential communications should occur in class and on the Canvas discussion board, our online class discussion forum.

The sooner you begin asking questions on our class site, the sooner you will benefit from the collective knowledge of your classmates and instructors. We encourage you to ask questions when you are struggling to understand a concept.

We, the teaching team, view the discussion pages largely as a forum where students help each other. The teaching team will weigh in occasionally, but only after we see solid effort to tackle a question. Rather than ask, "What is the answer to question 2?", please tell us what you think the answer is, and why you think it's correct (or not), or tell your colleagues where you are stuck! This approach sparks conversation, which leads to learning.

Table of Contents

How to send an email to your instructor

Do not hesitate to contact your instructor by email if you need to, but please reserve email for emergency and confidential communications. If you ask a general question via email, we will redirect you to the class site and answer publicly in the online venue.

IMPORTANT: Whenever you send an email to one of your instructors, regardless of class, be sure to include the following:

Item	Should include	Reason
Subject Line	Course number +Topic	Your instructor likely receives 1 responses. The subject line catc likelihood of a timely response.

	Example: BIOL 104: Student Question	
Greeting	**If they have a PhD use:** "Dear Dr. [Last Name]" **Also safe:** "Dear Professor [Last Name]"	A formal greeting lets the instru Avoid using: Mr./Miss/Ms./Mrs granted)
Length	Short as possible	Keep the email as brief as possi personal information in detail. Make sure your question or requ where you have tried to find the
Signature	Your full name and Personal ID number (PID)	Make yourself easily identifiabl your name and pronouns.

Table of Contents

Required textbook and materials

SimUText from Simbio + PDFs posted to the Canvas site.

We recommend purchasing SimUText directly from Simbio. If you are purchasing through the UNC bookstore, you will need a voucher and then you can access SimUtext. Please read and follow the instructions below regardless!

It is important that you review the information below before you subscribe to the SimUText for **[BIOL 104] Biodiversity at University of North Carolina at Chapel Hill**. To avoid possible problems, do not wait until the last minute.

1. CHECK YOUR TECH!

Visit https://simutext.zendesk.com/hc/en-us/categories/200170134-Check-Your-Tech- to confirm that the SimUText application will work on your computer, and/or to explore your options if there is a problem.

2. SimUText Voucher Code (optional -- from UNC Bookstore)

If you purchased a SimUText Voucher from your bookstore, be sure to have it with you when subscribing, as you will need to enter your voucher code.

3. Registration Link

When you are ready to subscribe and download installers, follow this link to initiate the process:

https://simutext2.com/student/register.html#/key/UeWh-zXBv-XTyN-GRTZ-etR5

4. SimUText Application Installers

After you have completed the subscription process, if you need to download the SimUText application installers again, you will be able to access them by logging into the SimUText Student Portal.

Save this information ! Should you encounter problems, you may need your course-specific Access Key. It is: **UeWh-zXBv-XTyN-GRTZ-etR5**

Problems or questions? Visit SimUText Support.

Reading Assignments

Reading (or video) assignments that are required to be completed before class are listed at the in the lesson schedule below and individually at the top of each lesson page (see Canvas modules). Each reading (or pre-class assignment) is paired with a set of Guided Reading Questions (GRQs) or reflection questions. These will be turned in to Gradescope. Completing these assignments prior to the lesson will prepare you for the activities we will conduct in class.

Guided Reading Questions (GRQs)

Guided reading questions are provided for all readings to help focus your attention on the material that is most relevant for our class. GRQs are graded for effort (did you turn them in with thoughtful answers?). You can find a link to that GRQ document for each week.

IMPORTANT -- How to read SimUText:

SimUtext is an ebook. It's been selected because it's the best available resource for this course (it covers the material we need, it's the most affordable, and it's the best interactive tool available). You should do/answer the questions in the assigned reading by the deadline listed (although late work will be accepted for each Unit). Please read the lesson schedule carefully to see what's graded/not graded for each assignment.

Table of Contents

Assignments and Grading

Preparation (10%): It is important to make sure you are prepared for class so that time spent in class is an opportunity to verify your knowledge.

Pre-class assignments (5%) . Before class you will be asked to read or list or watch videos, listen to a podcast, etc. It may vary by lesson. These pre-class preparation activities will be part of your grade and will be graded for effort. Please see the lesson schedule for what to do before class and where to turn in your assignments (for example, Gradescope or SimUText).

Completion of Learning Guide Activities (5%) This class includes a Guide to Student Success (see modules). Within that guide are many self-relfective activities. Periodically through the term you will be asked to complete these activities for credit. They will be posted as Assignments in Gradescope. They will be graded for effort and completion.

Flexibility: Assignments are due at 11pm the night before class. You have a grace period of 11am the day of class to turn in work at no penalty. Beyond that you will need documentatio of an excused absence for making up work. Sometimes we forget deadlines and this doesn't have to be the end of the world. Your two (2) lowest GRQs will be dropped (this means, for example, you could skip two pre-class assignments and be fine). For the best learning results, please make an effort to complete all work!

Participation -- Learning Community Credit (6%): There are many ways to engage with class, and the objective here is keep you engage with the learning and your community. There are a total of 30 learning community credits available. To receive full credit for this part of your grade, you must earn 24 of the 30 points. That means that you should complete as many of the in-class effort points as possible and you should attend at least 2 peer instruction and student hour sessions over the course of the semester. Remember: all of these activities will help you learn biology, so doing more than the minimum is highly encouraged.

In-class effort: Learning Catalytics will be used in class to give you chances to practice using your knowledge. Questions will be graded 50% for correct answers and 50% for effort. If you earn 80% of the available points at the end of the semester you will earn 100% towards your LC grade. This alone will earn you 100% participation points. However, if you miss more than a few days of class, or aren't finding the correct answers...(essentially you fall below that 80% threshold) you can make up the difference (or buy yourself some buffer) by doing the following:

Attend peer instruction: Attend peer instruction up to twice during the semester **and** submit a brief experience reflection after each attendance instance. **Attending an exam review does not count!** These assignment will not be accepted after November 15th, so plan accordingly! **Please note that attending peer instruction, regardless of whether you receive credit or not, is shown to dramatically improve overall learning in the course -- invest time in your education!**

TL;DR: Learning Catalytics questions are graded for correctness and effort, 20% of LC questions will be dropped; going to peer instruction and submitting a reflection will guarantee 100% participation score at the end of the semester. We stop accepting peer instruction reflections on Nov 15, and we don't count exam review sessions.

Practice (12%)

Quizzes: There will be seven (7) total quizzes this term. The one lowest scores will be dropped. The due dates are listed on the lesson schedule. These quizzes will take place online (Grades) and will be graded for accuracy. The quizzes are timed (30 minutes, or you ARS accommodation). You may only take a quiz once before the listed deadline. If you are unable to complete a quiz by the deadline (11pm night before class) you may either allow that quiz to be one of your dropped scores OR you have until 11am the day of class to complete the quiz. If keeping up with listed deadlines is a problem for you, please communicate with your instructor for an alternative plan because it's important to me that you have a chance to practice!

Performance (70%)

Midterms (40%): You will have three exams, which will be closed book, in-person, paper exams delivered during a class period (see the lesson schedule). You will be allowed one single sheet (one sided) of notes. Your lowest midterm exam score will be dropped (but note that your final exam is cumulative).

Permission to miss a midterm exam: If you have a personal emergency that prevents you from completing an exam, please let your instructor know as quickly as possible before the exam takes place. Alternatives including a make-up exam may be available for personal emergencies that meet the UNC standard for excused absences. Alternatives will not be available for discretionary/leisure/optional travel or attendance of sporting events unless you are a UNC athlete, musician or employed for the event. Students who miss two exams or fail to take the final exam, will fail the course.

iNaturalist Activity -- (12%): This project is divided into three parts. For each, you will complete a quiz and submit a brief reflection and evidence of the data you collected. Details are in the iNaturdalist Module -- check it out!

Final Exam (20%): To receive a grade in the class all students must complete the final exam. The exam day/time will be listed on the lesson schedule as soon as it becomes available. The final exam will be cumulative. You must earn a score of at least 40% on the final to pass the class. Final exams will be given in person unless public health initiatives dictate otherwise.

Grade Calculation

Your letter grade will be based on your learning, your preparation, your participation and the practice you put in. We will use the following scale. This class is not curved, which means that you are not competing with your classmates for your grade.

A: 93-100%	C+: 76-79.9%
A-: 90-92.9%	C: 73-75.9%
B+: 86-89.9%	C-: 70-72.9%
B: 83-85.9%	D: 50-69.9%
B-: 80-82.9%	F: Below 50%

To achieve a fair grade distribution, at the end of the semester, the instructors may adjust grade thresholds class-wide to improve your letter grades; the thresholds will under no circumstances be adjusted to lower your grades. There will be absolutely NO appeals regarding the final grading scale (e.g. We will not round a score of 89.9 to a 90.0).

Grading Disputes

Scores and final course grades will be changed **only** if 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 to the professor teaching that material justifying why your answer should be accepted. This appeal should be submitted via Gradescope (the online exam grading platform we use). 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.

Table of Contents

In Class Groups

Students learn more when they work in small groups of peers to discuss issues and solve problems. We will not require you to join a group, or a partnership, but every time we are in class, you'll be asked to interact with people around you. Establishing a more formal working agreement makes this easier! After the second week of class, we will ask you to self-form an optional group of 4 students. The tables will hold 4 people! We will provide instructions in class for submitting your group request. We will make only the adjustments needed to include every student in the group. We will ask you to continue sitting with your partner or group and encourage you to get to know your group members because you will work with them throughout the semester. Collaborating with others is an important skill in all professions, and we are available to help you to solve interpersonal problems that may arise within your group.

If you are experiencing conflict with your group members, you may decide to invoke the "Terminator Clause." When you work in a group, it is possible that some team members

will contribute more than others. Over time, this can be a critical problem if one person demonstrates a lack of commitment to the team (e.g., failing to contribute to group assignments). In such an instance, we reserve the right to "fire" that member. Firing involves a two-step process: First, the team (in consultation with your instructor) gives the wayward member a warning that includes the wayward teammate negotiating with the entire team about how they are going to be a better teammate. Second, if the member continues to behave inappropriately, they will be terminated from the group. Assignments from the point of termination to the end of the semester will be completed as an individual. Difficult teammates usually show their tendencies early, so let a problematic group member know their behavior is not acceptable early on.

Table of Contents

Classroom Policies and Student Resources

College can be challenging in unexpected ways. It is possible that at some point this semester your multiple competing personal responsibilities and interests may get in the way of your academic success. It is also possible that you may get sick or have other personal emergencies. The bottom line is this: asking for help is a sign of strength and self-care! Please ask for help early and often! Small problems are easier to cope with than escalated issues, or waiting until the end of the semester. While we sincerely hope that you will let us know when things are not going well, here are other campus resources you can turn to, as well:

- **Dean of Students:** If at any time during the semester you experience a personal or family illness, loss, financial stress, academic access, living issues, interpersonal violence response, alcohol or similar substance related issues, and other forces that may interfere with your well-being and success and/or academic retention please contact the Dean of Students immediately (or contact your professor and we will do so for you).
  Website: deanofstudents.unc.edu
- **Academic Advising**: Your academic advisers are familiar with all of the campus policies, procedures and requirements. Website: advising.unc.edu
- **Counseling and Psychological Services (CAPS)**: If you are experiencing any distress please speak with a medical professional in a confidential setting. The CAPS office has daily drop in hours or you may call them for an appointment (919-966-2281) or schedule online (healthyheels.unc.edu). CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: https://caps.unc.edu/ or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

- **LGBT Center**: Provides educational services, resources and advocacy. Website: lgbtq.unc.edu
- **Carolina Women's Center:** Aims to provide an equitable working and educational environment regardless of gender. The center helps all individuals regardless of gender orientation. Website: womenscenter.unc.edu
- International Student and Scholar Services: offers services to help international students adjust to life in North Carolina and UNC. Website: isss.unc.edu
- **Accessibility Resources and Service (ARS)** : The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: https://ars.unc.eduor email ars@unc.edu.
- **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. Please contact the Director of Title IX Compliance, Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

Honor Code

Academic honesty means that we respect each other and the work that we do; this means we behave with integrity in and out of the classroom, and do not lie, cheat or steal (e.g. plagiarism is a form of stealing). This means that when you take exams and quizzes, you submit work that is your own, not conducted in collaboration or with assistance from another person unless instructed to do so. **Make good choices, even when you think no one is looking.**

The University of North Carolina at Chapel Hill has had a student-led honor system for over 100 years. It is our responsibility to report any instances of academic dishonesty and violations of the Honor Code. The student-led Honor System is responsible for adjudicating any suspected violations of the Honor Code. All suspected instances of academic dishonesty will be reported to the Honor System and students will receive a zero on the assignment or exam in question. Your full participation and observance of the Honor Code is expected. Please report any violations that you observe. Information, including your responsibilities as a student is outlined in the Instrument of Student Judicial Governance (here).

Covid Caution and Face Masks

If you are feeling sick don't come to class! There are ways for you to access information and participate later when you are well enough. Please only email about missed class if it interferes with an exam day or you have missed more than two consecutive classes and are falling behind. We strongly recommend that everyone be up to date on their vaccinations (not just for Covid-19, but all their vaccinations), but consult with your doctor first. We will adhere to campus guidelines regarding masking, but everyone is invited to take care of their own physical health. Wearing a mask protects our educational community — your classmates and me – as we learn together. Students who have authorized accommodation from Accessibility Resources and Service are an exception, however, this is NOT a remote or hybrid course. In person attendance is expected. For additional information, see Carolina Together.

Class Attendance Policy

I expect you to attend class in person unless you have extenuating personal circumstances. You are responsible for all your course work, including assessments, tests, and written work, and for all class meetings. No right or privilege exists that permits a student to be absent from any class meetings, except for these University Approved Absences:

Excused and Unexcused Absences

Disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service and/or the Equal Opportunity and Compliance Office (EOC)

Significant health condition and/or personal/family emergency as approved by the Dean of Students, Gender Violence Service Coordinators, and/or the Equal Opportunity and Compliance Office (EOC).

I may work with students to meet attendance needs that do not fall within University approved absences if you communicate early and often about your extenuating circumstances. Please note that non-University approved absences (e.g., a job interview or club activity or attending an out-of-state sporting event as a spectator) **do not** constitute an emergency or an excused absence. You are welcome to miss class under those circumstances, but accommodation is not guaranteed. Therefore, I ask that you do everything possible to adjust your schedule before seeking assistance. I have an ethical obligation to treat all students as fairly and equally as possible; this means that I will not adjust the academic calendar to favor one UNC sporting event or social event over another. If these activities are important to you, please plan your schedule accordingly and accept that your academic priorities may conflict with your social calendar.

Guidelines and Expectation for using Artificial Intelligence (AI)

AI is extremely useful. It's worth learning how to use it (best practices!). However, the product does have its limitations, including

- 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?

The following sections provide the philosophy and specific guidelines for using these tools and features in this class (increasingly, generative AI capabilities will be integrated with everyday applications). **Unless I provide other guidelines for an assignment or exam, you should follow these guidelines.**

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 give you 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.
5. **These guidelines are in effect unless I give you specific guidelines for an assignment or exam.** It is your responsibility to ensure you are following the correct guidelines.
6. **Data that are confidential or personal should not be entered into generative AI tools.**
   Putting confidential or personal data (e.g., your One Card details) into these tools exposes you and others to the loss of important information. Therefore, do not do so.

The following sections provide the philosophy and specific guidelines for using these tools and features (increasingly, generative AI capabilities will be integrated with everyday applications). **Unless I provide other guidelines for an assignment or exam, you should follow these guidelines.**

Guideline Specifics

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

Assignments

- **Writing and 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.
- **Multimedia Assignments:** 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 the generation of images, audio, music, video, etc. Your documentation must make the process transparent – the submission itself must meet the relevant standards of attribution and validation.
- M**athematical and Statistical Analysis, Data Analysis, Data Interpretation, Coding of Data**, generalizing data to a problem set or any other forms of quantification of language or concepts, etc.: Generative AI can be used for these purposes; however, the output must be verified via your own mathematical calculations and proof of work provided in your assignment.
- **Readings and Discussions**: Generative AI can be used to analyze readings. However, you must also do the readings. Generative AI analysis is not a

substitute for reading the works themselves. Similarly, participating in online discussions of readings requires that you provide your own contributions. Unless I specifically allow it, do not generate responses to readings using AI.

- **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.
- **Simulations**: In principle, you may use AI tools for advice or brainstorming. It should **not**, however, be used to find shortcuts or other unfair advantages. If a report is part of the assignment, your documentation of how you used AI in completing the simulation must make the process transparent.
- **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).
- **In-Class Activities**: Instructions on the appropriate use of AI for in-class activities will be provided.
- **Written & Oral Exams:** Unless I explicitly grant permission, the utilization of AI tools is prohibited and could potentially constitute a reportable violation to the UNC Honor Court. If the use of AI tools is explicitly permitted, you are required to adhere to the guidelines concerning AI citation, verification, and clarity as outlined below.

Sourcing Use of Artificial Intelligence (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 did not use AI at any stage in its development or in the creation of any of its components."
- "I attest that this project made use of AI in the following ways:"
  You must then use the following form to document your usage. *

Table of Contents

Lesson Schedule

The Modules are set up as a guide for what to do for each unit, each week, and each day. However, if you're looking for one consolidated resource, visit the Lesson Schedule page (See below). Any updates to the lesson schedule will be highlighted in green and announced electronically via Canvas.

Table of Contents

This lesson schedule gives you an overview of our semester together. The schedule is subject to change, and if that happens you will be informed via Canvas announcements. Note that GRQ stands for "Guided Reading Questions" and will be turned in as Canvas Assignments.

FOR BEST RESULTS -- go to the Modules and follow along with the class pages where you will find detailed instructions for what do to before, during and after class!

>> If you have questions about the Lesson Schedule, please ask them on the Piazza discussion board!

Updated: August 5, 2023

Week	Date	Lsn #	Day	Lesson Topic	Complete the following tasks BEFORE class starts	Due by 11pm night before class (Grace Period: start of class for the day)
Unit 0				**Welcome Week**		
Wk 1	22-Aug	1	Tu	Welcome and Introductions	• Complete all of the START HERE instructions	Google Form:

					• Read the Syllabus found on Canvas Site	Pre-class Survey (participation)
	24-Aug	2	Th	Setting up for success: Why does biodiversity matter?	• SimUText: Ecosystem Services • "Learning to See" By Robin Kimmer (link) • Short video about Lyme disease	Gradescope: GRQs
Unit 1				**What is Biodiversity?**		
Wk 2	29-Aug	3	Tu	Tools for creating knowledge	• SimUText: Scientific Process Chapter; • Student Success Guide (Canvas): Introduction and Part 1	**Gradescope**: GRQs
	31-Aug	4	Th	Describe and Measure Biodiversity	• PDF: Measuring Biodiversity (Canvas) • Student Success Guide Part 2	**Gradescope**: • Quiz 1 Due • GRQs
Wk 3	5-Sept	x	Tu	NO CLASS, Wellbeing Day	Nothing due; rest/recover/look ahead	none
	7-Sept	5	Th	The diversity of ecosystems	• SimUText: Biogeography, Ecosystems, Climate Change	**Gradescope**: GRQs
Wk 4	12-Sept	6	Tu	Nutrient Cycling	• SimUText: Nitrogen Cycling	**Gradescope**: GRQs and Quiz 2
		7	Th	Problem Solving Day	• Read "River Masters" PDF • Read Student Success Guide Part 3	**Gradescope**: • GRQs • Exam Prep Self Reflection
Unit 2				**How does biodiversity arise?**		

Wk 5	19-Sep	x	Tu	Exam 1 (Covers Unit 1)	Make your exam notesheet (optional); Complete Practice Exam (pdf)	None
	21-Sep	8	Th	Naturalistic explanations for biodiversity (evolutionary theory)	Watch short HHMI video and read SimUtext: Evolution for Ecology (Ch18, section 1)	**Gradescope**: GRQs
Wk 6	26-Sep	9	Tu	Measuring Evolution (Hardy-Weinberg Equilibrium)	• SimUtext: Chapter 19	**Gradescope**: GRQs and **Canvas**: Part 1 iNaturalist Project Due (quiz, observations + reflection)
	28-Sept.	10	Th	Natural Selection and Heritability	• SimUText: Evolution for Ecology Section 2	**Gradescope**: GRQs and Quiz 3
Wk 7	3-Oct.	11	Tu	Parsimony and Phylogenies	• SimUText: BioStax Ch 20	**Gradescope**: GRQs and Study Skills Check List
	5-Oct	12	Th	Sexual Selection and Speciation	• SimUText: Behavioral Ecology (Sections TBD)	**Gradescope**: GRQs
Wk 8	10-Oct	13	Tu	The importance of individuals to populations (genetic drift)	SimUText: Bottlenecked Ferrets (Drift) sections 1-3	**Gradescope**: GRQs
	12-Oct	14	Th	ASYNCHRONOUS: Mutations (University Day, so no inperson class)	TBD	**Gradescope**: GRQs and Quiz 4 Due
Unit 3				**What limits biodiversity?**		
Wk 9	17-Oct	x	Tu	Exam 2 (Covers Unit 2)	Make your exam notesheet (optional); Complete Practice Exam (pdf)	none

	19-Oct	x	Th	Fall Break!	None!	none
Wk 10	24-Oct	15	Tu	Limits to populations: population regulation	• SimUText: Population Growth	**Gradescope** GRQs and **Canvas**: Part 2 iNaturalist Project Due (quiz, observations, reflection)
	26-Oct	16	Th	How diseases spread (SIR models)	• SimUtext: How disease spreads	**Gradescope**: GRQs and Quiz 5
Wk 11	30-Oct	17	Tu	Food Webs	• SimUText: Community Dynamics; Watch Video (Yellow Stone National Park)	**Gradescope**: GRQs
	2-Nov	18	Th	ASYNCHRONOUS: Island Biogeography	• SimUText: Biogeography	**Gradescope**: GRQs + **Learning Cataylitics** Questions
Week 12	7-Nov	19	Tu	Diversity: Limits in space and time and Exam Review	• SimUText: Historical Biogeography	**Gradescope:** GRQs and Quiz 6
	11-Nov	xx	Th	Exam 3 (Covers Unit 3 only)	Make your exam notesheet (optional); Complete Practice Exam (pdf)	
Unit 4				**How does biodiversity change?**		
Week 13	14-Nov	20	Tu	Natural disturbances over ecological (short) timescales	SimUText: Community Dynamics Section 1: page 1-22	**Gradescope**: GRQs
	16-Nov	21	Th	Human Evolution: Inferences from fossil record	TBD	**Gradescope**: GRQs **Canvas**: Part 3: iNaturalist Due (quiz, observations, reflection)

Week 14	21-Nov	22	Tu	Extinctions: Natural disturbances over geologic timescales	TBD	**Gradescope**: GRQs and Quiz 7
	23-Nov	x	Th	Thanksgiving Break -- No Class	None	none
Unit 5				**Why does biodiversity matter?**		
Wk 15	28-Nov	23	Tu	Human Caused Disturbance	TBD	**Gradescope**: GRQs
	30 Nov	24	Th	Conservation and Restoration	TBD	**Gradescope**: GRQs
Wk 16	29-Nov	25	Tu	LDOC Review/Reflection TBD	TBD	NONE
Final Exam	9 Dec		Sat	Exam 8AM-11AM Carroll 111 Cumulative Exam	*Make 1 page note sheet for exam (optional) * No practice final availble. *Use study guide	