

Introductory Biology: Evolution, Biodiversity, and Ecology (BIOL 412)

Syllabus and Course Outline

University of New Hampshire

Fall 2021

Class Time: T/H 11:10-12:30pm, Location: MURK 115 [Google Map](#)

Instructor: Dr. Easton White

Office: G44 Spaulding Hall

Office hours: TBD

Phone: TBD

Class Email: BIOL412.White@gmail.com

Instructor Email: easton.white@unh.edu (only use this email if you have a confidential matter to discuss)

Teaching Assistant: TBD

Office: TBD

Office hours: TBD

Phone: TBD

Class Email: BIOL412.White@gmail.com

Communication policy

All questions related to the course (besides personal matters) **must** be posted to the myCourses (Canvas) discussion board called **Piazza** before emailing the course TA or instructor. This has two advantages. First, other students in the class might have the same question as you. And second, other students might already know the answer and could respond quickly. If no one answers your question on the Piazza, it is appropriate to email the course email address (see here: BIOL412.White@gmail.com). As a last resort you can email the course instructor or TA or discuss your question during office hours.

Course Description

Welcome to BIOL 412! This introductory course explores how the diversity of life has arisen by using the unifying theme of evolution. After an introduction to evolution, students will explore the major organismal groups and how organisms interact with each other and their environment through an evolutionary lens. Throughout the course, students will practice the process of science by interpreting scientific data and evaluating hypotheses. The laboratory is an integral part of the course, designed to introduce students to the skills required by

biologists as they seek the most strongly supported answers to questions, which is fundamental for providing students with knowledge of science as a way to understand the natural world.

Course Learning Objectives

By the end of this course, students should be able to:

- Explain the process of science.
- Explain the process of evolution and how it has given rise to the diversity of life from a common ancestor.
- Describe the relationship between form and function and how biological structures and systems have evolved to perform particular functions.
- Explain how biological components (e.g., genes, cells, organs, individuals, ecosystems) interact with each other and how changes in one component can affect other components.
- Use the process of science: Design experiments to test hypotheses, and interpret data tables, graphs, and model output to make claims about hypotheses.

This is clearly a lot of concepts and skills to cover in one semester. However, there will be lots of time to ask questions and to have discussions. The format of the class will change from day to day, but will include a combination of lectures, problem sets, group activities, and demonstrations.

Any and all of the content of this syllabus is subject to change as we go through the course. The material will be tailored to fit the needs of the class. Changes will be announced in-class and electronically.

Course website

All course materials are available on the course website at: myCourses (Canvas)

Required course materials

1. **Biology in Focus, 3rd Edition** etextbook by Urry, Cain, Wasserman, & Minorsky. Mastering Biology is the electronic resource that accompanies the Biology in Focus etextbook. It contains online homework assignments that will be graded as part of this course.

To enhance your learning experience and provide affordable access to the right course material, this course is part of an inclusive access model called First Day. You can easily access the required materials for this course at a discounted price, and benefit from single sign-on access

with no codes required in myCourses (Canvas). UNH has billed you for your Biology in Focus etextbook at the discounted price as a course charge for this course. You can locate your required etextbook by going to the BIOL 412 myCourses page and clicking on “First Day Course Materials” on the left-hand side of the myCourses page. You can choose to Opt-Out through September 4, 2021, but you will be responsible for purchasing your course materials at the full retail price and access to your materials may be suspended. It is NOT recommended that you Opt-Out, as these materials are required to complete the course. For more information and FAQs go to customercare.bncollege.com.

2. **iClicker 2:** iClicker is a student response system that will be used during class. iClicker 2 can be purchased from the University bookstore in the MUB (see here) or from Amazon.com (see here). Once purchased, your iClicker needs to be registered on the BIOL 412 course webpage on myCourses by clicking on “i>clicker” in the left-hand menu and following the directions. If you encounter problems, you can find specific directions for registering your iClicker here: <https://td.unh.edu/TDClient/KB/ArticleDet?ID=1790> If you have any problems with your iClicker, see the troubleshooting guide here: <https://td.unh.edu/TDClient/KB/ArticleDet?ID=806> If this does not help, you can contact/visit the Academic Technology Support Center in Dimond Library or fill out a webform here: <https://td.unh.edu/TDClient/Requests/ServiceDet?ID=194>

3. **Scientific Calculator:** During the semester, you will be doing problem sets that may require a calculator. It need not be fancy, but it must be able to take logs and natural logs (ln). You can purchase a simple scientific calculator for about \$10 from Staples.

Assignments

Weekly quizzes: (15%)

Almost every week, we will have an online quiz to gauge your understanding of the material. This will serve as an important check on your knowledge before the exams. I drop the two lowest quiz grades over the course of the semester.

Homework assignments (15%):

At the end of each module (usually one week) there will be an individual homework assignment due on myCourses. This will serve as an important check on your knowledge before the exams. I drop the two lowest homework grades over the course of the semester.

In-class assignments (10%)

Students will be expected to be engaged each class period. This will involve participating in discussions, group activities, and clicker questions.

Exams (30%)

There will be three exams over the course of the semester, including the final exam. The final exam is not cumulative.

Lab (30%)

The laboratories have been developed to support their designation as Inquiry Attribute courses. They are focused on sustaining student curiosity, developing student understanding and the ability to construct and evaluate different hypotheses, and creating effective communicators. **Although a part of your overall grade for the course, these laboratory activities are not taught or coordinated by Professor White.**

Grading scale

Final letter grades for Biology 412 are a composite of your lecture grade (70% weight) and lab grade (30% weight) and are not curved but based on the following grade ranges: The grading scale will follow the standard UNH percentage scale:

Percentage	Grade
100.00-94.00%	A
93.99-90.00%	A-
89.99-87.00%	B+
86.99-83.00%	B
82.99-80.00%	B-
79.99-77.00%	C+
76.99-73.00%	C
72.99-70.00%	C-
69.99-67.00%	D+
66.99-63.00%	D
62.99-60.00%	D-
At/below 59.99%	F

Course Policies and General Expectations

- **Academic Honesty and Honor Code:** In all cases except for explicitly stated group work, performance on tests is to be based on individual effort, and will be graded as such. Tests are to be electronics-free; phones, tablets, ipods/pads, whatever, are expected to be put away, not visible, and not accessed during the test. Any violation of the academic honesty policy (<https://www.unh.edu/student-life/09-academic-honesty>) can result in

an F in the class. This includes, but is not limited to: cheating on exams, using multiple clickers for absent students, submitting an assignment completed as coursework for another class (misrepresentation), and plagiarism. Particularly for laboratory reports, be aware of what plagiarism is (unattributed use of others' ideas as your own). I encourage all of you to take the plagiarism tutorial because you are responsible for understanding what plagiarism is: <https://cola.unh.edu/academics/plagiarism-tutorial>.

- **Classroom Behavior Expectations:** To ensure a climate of learning for all, disruptive or inappropriate behavior may result in exclusion (removal) from this class. As a reminder, cell phone/pda, etc. use, including text messaging, and videotaping and recording is not permitted in this class by Faculty Senate rule unless by instructor permission.
- **Exam Policy:** Make-up exams will be scheduled only under the most compelling circumstances (e.g., death in the family, severe illness). If you think you may have to miss an exam, talk to me prior to the exam date. Make-up exams must be completed within one week of the original exam. The final exam will only be given during the officially scheduled time.
- **Online Assignment Policies:** Some of the assignments you complete will be directly on myCourses (Canvas). It is your responsibility to check to make sure that a grade was properly recorded.
- **Late Work Policy:** No assignments turned in late will receive credit. Instead, I have a policy of dropping the lowest scores on assignments in some categories (see Course Activities and Grading section).
- **Re-grade Requests:** Everyone makes mistakes, instructors included. Re-grade requests for a question you think I may have mistakenly graded must be made within one week of when the assignment or exam was returned. These requests must be made in person, not over email.

Communication Policy:

If you have questions about anything related to the course, please use the course email: BIOL412.White@gmail.com. We will not reply to emails sent via myCourses.

If you need to contact me about a personal or confidential matter (e.g., disability accommodations), please e-mail me directly (Easton.White@unh.edu). I will make every effort to answer your emails promptly, but email replies may take up to 24 hours during the week and 48 hours over the weekend. Additionally, I will not reply to emails between the hours of 10 pm – 8 am. All emails, including those sent from phones, should be addressed respectfully to Dr. or Prof. White. Beginning emails with "Hey," or no greeting at all does not fall into this category. Additionally, please use proper spelling and punctuation and include your name at the bottom of the email. Before sending an email, ask yourself the following: If I were looking for a job, would I send this email to my prospective employer?

Disability Accommodations

According to the Americans with Disabilities Act (as amended, 2008), each student with a disability has the right to request services from UNH to accommodate his/her disability. If you are a student with a documented disability or believe you may have a disability that requires accommodations, please contact Student Accessibility Services (SAS) at 201 Smith Hall. Accommodation letters are created by SAS with the student. Please follow-up with your instructor as soon as possible to ensure timely implementation of the identified accommodations in the letter. Faculty have an obligation to respond once they receive official notice of accommodations from SAS, but are under no obligation to provide retroactive accommodations. For more information refer to www.unh.edu/studentaccessibility or contact SAS at 603.862.2607, 711 (Relay NH) or sas.office@unh.edu.

Getting academic help

If you are having academic difficulty, you should visit the Center for Academic Resources (CFAR) in Smith Hall (on Main Street by Stoke Hall, phone 862-3698; or <https://www.unh.edu/cfar>). They have a variety of written materials that will help you develop effective study skills, including note-taking, planning your study time, exam skills, how to take different kinds of exams, and how to study for different exam types. This is an extremely valuable source of information for students. The Center also has counseling and training sessions tailored for individuals and groups.

Your academic success in this course is very important to me. If, during the semester, you find emotional or mental health issues are affecting that success, please contact Psychological and Counseling Services (PACS) (3rd fl, Smith Hall; 603 862-2090/TTY: 7-1-1) which provides counseling appointments and other mental health services.

The University of New Hampshire and its faculty are committed to assuring a safe and productive educational environment for all students and for the university as a whole. To this end, the university requires faculty members to report to the university's Title IX Coordinator (Donna Marie Sorrentino, dms@unh.edu, 603-862-2930/1527 TTY) any incidents of sexual violence and harassment shared by students. If you wish to speak to a confidential support service provider who does not have this reporting responsibility because their discussions with clients are subject to legal privilege, you can find a list of resources here (privileged confidential service providers/resources). For more information about what happens when you report, how the university considers your requests for confidentiality once a report is made to the Title IX Coordinator, your rights and report options at UNH (including anonymous report options) please visit (student reporting options).

Tips for being Successful in this Course

Research on how students learn best has shown that it is critical for students to be involved in the learning process—termed active learning. Thus, watching lectures or reading through a textbook is not sufficient. Instead, in this course, you will be challenged during class-time, through assignments, and during the lab section. You will be expected to be an active participant in your learning. Thus, students should be prepared to actively participate in their learning experience. In addition, in order to succeed, it is also important to:

- **ATTEND CLASS** and take your own notes. Studies on learning have repeatedly documented that each exposure to hearing and seeing material, and writing your own notes has a cumulative positive effect on retention of material. Other studies have reinforced that it is best to write your notes by hand rather than type them into a computer initially.
- **ACTIVELY READ** the assigned textbook sections before class. This means taking notes, verbally summarizing each section, reciting key concepts and terms, linking concepts to things you already know or are personally meaningful, quizzing yourself on the material, and doing practice questions in the book BEFORE class.
- **REVIEW AND SUMMARIZE** your notes after each class. If not reviewed within 24 hours, 50% of information is forgotten. This is a good time to write out answers to the Learning Objectives and the Practice Questions. Always organize your answers so that it is easy to see the critical points - an outline or skeleton structure for the complex questions allows you to easily identify the major parts. In writing out answers to the Practice Questions, use both your class notes and the textbook.
- **BE ATTENTIVE AND ASK QUESTIONS** during class. Share your thoughts and ideas during group and class discussions.
- **FORM A STUDY GROUP** and meet regularly. Most learning takes place among peers where you are given opportunities to verbalize your own understanding of concepts. Can you explain your answers and give examples to others?
- **DON'T FALL BEHIND** in your reading or in answering the Practice Questions, and then attempt to “catch up” just before an exam. My recommendation is to make sure that you have done ALL the Practice Questions one week before the exam, and that you have your notes organized and ready for mastering concepts - this involves being able to recognize the parts of a concept, explain them, and give examples if asked. Don't attempt to re-learn everything the night before an exam. If you have not looked at your notes each week, you are not going to do well on the exam by cramming for 4-8 hours the night before. It is not possible to re-learn all of that material in such a short time!
- **SEEK OUT HELP** when you begin to experience a problem rather than right before an assignment is due. If you need help at any point during the course, take advantage of office hours. I want to help you to succeed!

Schedule

Date	Unit	Topic
Tue, Aug 31	Evolution	Process of Science
Thu, Sep 02	Evolution	Process of Science
Tue, Sep 07	Evolution	Intro Evolution
Thu, Sep 09	Evolution	Intro Evolution
Tue, Sep 14	Evolution	Hardy-Weinberg
Thu, Sep 16	Evolution	Hardy-Weinberg
Tue, Sep 21	Evolution	Forces of Evolution
Thu, Sep 23	Evolution	Forces of Evolution
Tue, Sep 28	Evolution	Phylogeny
Thu, Sep 30	Evolution	Phylogeny
Tue, Oct 05	Evolution	Exam 1
Thu, Oct 07	Speciation and Biodiversity	Speciation
Tue, Oct 12	Speciation and Biodiversity	Speciation
Thu, Oct 14	Speciation and Biodiversity	Biodiversity
Tue, Oct 19	Speciation and Biodiversity	Biodiversity
Thu, Oct 21	Speciation and Biodiversity	Plants
Tue, Oct 26	Speciation and Biodiversity	Plants
Thu, Oct 28	Speciation and Biodiversity	Animals
Tue, Nov 02	Speciation and Biodiversity	Animals
Thu, Nov 04	Speciation and Biodiversity	Exam 2
Tue, Nov 09	Ecology	Population Ecology
Thu, Nov 11	Veteran's day	Holiday
Tue, Nov 16	Ecology	Population Ecology
Thu, Nov 18	Ecology	Community Ecology
Tue, Nov 23	Ecology	Community Ecology
Thu, Nov 25	Thanksgiving	Holiday
Tue, Nov 30	Ecology	Human impacts
Thu, Dec 02	Ecology	Human impacts
Tue, Dec 07	Ecology	Human impacts
Thu, Dec 09	Ecology	Final Review
Wed, Dec 15	Final Exam	Final Exam (Exam 3 - not cumulative)
