Deployed site: https://aroles.github.io/biol210/

Welcome to BIOL 210, Fall 2025!

All course materials will be provided via this website or links therein.

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Lecture Instructor

Angie Roles (she/her)

Office: Science Center A134

Email: aroles@oberlin.edu

Drop-In Student Hours

MTW 2:00-3:30pm, or email for appointment. Sign up for student hours here.

Student Hours are times that I have set aside specifically to meet with students. I will be in my office and available – you can sign up for a slot on my gcal or just stop by and give the door a knock! You can drop in by yourself or bring friends; you may have specific questions or just want to say hi – any reason is good enough. If you aren't available during these intervals, I'm happy to find another time that works – just email me with some times you are available.

Lecture Class Meetings

MWF 9:00-9:50 am in King 123.

Enrollment in both 210 lecture and 211 lab are required of all students. All lab sections meet 1:30-4:20 pm in SCTR K119. More information will be provided in your first meeting of BIOL 211.

Course Description

This course provides biology majors and others with an integrated introduction to key biological principles of genetics, ecology, and evolution, including principles of inheritance, structure and expression of genes, and gene-phenotype relationships, selection, drift, sources of variation, and patterns of diversity, as well as factors and processes governing biotic and abiotic interactions that influence distribution and abundance of organisms. Students must register for both the lecture and laboratory (BIOL 211) concurrently. Prerequisite(s): BIOL 100.

Course Objectives

Upon completion of this course, students should be able to:

- Understand and apply fundamental evolutionary and ecological consepts. Apply all parts of the scientific method to ecological and evolutionary questions.
- Appreciate the nature of variation and the importance of random events in natural systems, across levels of organization from the molecule to the ecosystem.
- Be aware of the broad diversity of life, past and present, and the major patterns of life through time.
- Practice interpreting graphical presentations and statistical analyses of data representing the relationship between two (or more) variables.
- Recognize the relationship of biology to other sciences, disciplines, and society.
- Build 'soft' skills valuable for life-after-college including team work, time management, reflection, revision, self-assessment, and critical thinking.

Statement on Accessibility and Inclusion

Central to this course is an understanding and appreciation of diversity across the tree of life. In line with that value, we aim to make this course accessible and inclusive of all students. Each individual brings with them a unique set of experiences which inform their perspective when interacting with others and learning new information. All are welcome in this class and expected to put in the work to learn more than you knew coming in. You have the right to ask for assistance, access, or additional resources to meet your learning needs. If you find yourself unable to fully access the course in any way, you are welcome to contact us to discuss your needs. During the first week of classes, we will discuss community norms to guide us in our interactions.

In case of emergency... Should circumstances arise that prevent you from fulfilling your responsibilities, such as completing exams on time, you should contact Angie ASAP (email is fine). If you anticipate issues or conflicts arising, please contact Angie in advance so that we may make arrangements.

Course Structure

This course adopts a flipped classroom style for all lecture meetings and uses contract grading for assessment. Your performance depends on your responsibility in completing the assigned work to a satisfactory level. Each week, video recordings are provided, to be studied outside of class meeting times (replacing assigned readings; occasionally readings may also be assigned). During the MWF lecture meetings, we will work on case studies or problem sets relating to that week's material.

Reference Material and Textbooks

- There are no required textbooks for this course. You are welcome to use your Biology 100 textbook as a reference; the current Biology 100 text is available on reserve in the Science Library. Suggested readings will be available throughout the course via provided PDFs or web links.
- All materials will be shared via the website and using Google Drive. You must be logged into Google using your Oberlin account to access shared materials on Google Drive.
- The open-source text Biology 2e is recommended for many topics when you may wish more information or a different presentation than given in the content videos.

Honor Code

You are expected to adhere to and sign the Honor Code:

1. On exams, affirming the work is your own, without giving or receiving aid;
2. On problem sets, affirming that the work is your own and, when appropriate, that you have cited references accurately;

3. On quizzes, affirming that the work is completed by you and your team, without external sources of information;
4. For all reflection assignments and the individual mastery project.

Your instructors are required to report any suspected violations of the Honor Code to the Honor Committee. Independent of any deliberations of the Honor Committee, in this course suspected violations of the Honor Code may result in amendment of the grade contract to a D or F if appropriate. More information on the Oberlin Honor Code may be found here: https://www.oberlin.edu/dean-of-students/student-conduct/academic-integrity.

Resources Offering Support

Angie is available for individual consultation during student hours or by appointment. If you are looking to improve your performance or are struggling in ways new to you but not sure how to proceed, I am happy to discuss and provide suggestions.

- Students who have been approved by the Office for Disability and Access (Peters Hall 127) for accommodations should speak with the instructors to ensure that your needs are being met in this course. Please reach out in advance so that we may make appropriate arrangements before they are needed.
- Peer Tutors are available - for free - through the Academic Advising Resource Center (AARC), https://www.oberlin.edu/aarc/peer-tutoring or email peertutoring@oberlin.edu. You are encouraged to arrange for a tutor as soon as you like.
- The Executive Functioning Program offers peer tutors, freely available through the ODA office. If you struggle with planning and organization skills, you might contact this program!
- Additional support is available via the CLEAR Quantitative Skills Drop-in Tutoring Center (Science Center K100). They can assist students with math skills, statistics, computer software like Excel, or programming languages. No appointment is necessary.
- Health & Wellbeing: The offices of Student Health Services and Counseling and Psychological Services are located in Dascomb Hall, Suite B. Services are free and drop-in hours are available.

Assessment via Contract Grading

In this course, we use a form of contract grading, a method of assessment in which you complete a contract laying out the work you must complete to a satisfactory level in order to earn a specific letter grade.

Read the following contract requirements carefully before filling out the Grade Contract form to complete your contract. **Contracts are due by Wed Sep 3.**

If you have questions about the contract process, email or visit Angie to discuss.

General Overview and Expectations

In this course, you will determine your final grade based on the amount of work that you complete to a satisfactory level (as determined by the instructor). All passing grades will be expected to complete a baseline amount of work while higher grades will require additional work to be completed to satisfactory (thus, a higher level of mastery). Letter or number grades will not be assigned for any assignments. Instead, when work is returned to you it will be marked either "Satisfactory" or "Revise". Any work marked Satisfactory needs no more attention from you. Work marked Revise requires that you address the comments provided by the instructor and attempt to correct issues in the assignment, turning in a revised version of the assignment within one week. If that revision is sufficient, it will be returned as Satisfactory; if not, additional revisions may be needed or perhaps a meeting with the instructor. More than 1 revision requires a one-on-one meeting with the instructor before submitting the revision. At the end of the semester, you and I will determine your final grade depending on how many of each assignment you completed to Satisfactory. Requested revisions

that are not completed can count for partial credit. In addition to the above, you will be responsible for determining due dates for some assignments for this course (primarily exams).

Late Work: Generally, you must turn in quizzes or problem sets within 2 weeks of the due date though exceptions can be arranged individually with the instructor. A pattern of late work may result in a reduction in the final grade (for example, from a B+ to a B or B-).

I am choosing to use contract grading in order to provide you ownership over your grade and to enable you to focus more on what you are actually trying to learn. As a further benefit, contract grading helps you to develop and practice valuable life skills such as time management and the ability to assess the quality of your own work. Grades do not follow you into jobs after college (unless you do more schooling!), so it's important to learn to assess yourself.

Here is a breakdown of the work expected to be Satisfactory in order to achieve a grade of B. Applying +/- to the grades will be decided by you and I at the end of the term and can be used to adjust for discrepancies from the guidelines below (such as work turned in but not revised as requested). Grades of D and F are reserved for cases in which there is a systematic failure to meet contractual obligations.

To complete the work required for a B, expectations are that you will spend at least 10 hours per week on this course.

Table of expectations

Assignment (max number)	B contract requirement
Lecture periods attended (41)	35
Problem Sets (14)	12
Quizzes (14)	12
Exams (3)	3
Mid-term Reflection (1)	1
Final Reflection (1)	1

Earning an A will require all of the work for a B plus completion of 1 individual Mastery Project, exploring a course topic or topics in greater depth. Thus, an A represents a greater demonstration of mastery of course material than does a B. **Project goals and plan must be set by Oct 10 and completed by Dec 1.**

Earning a C will occur when work required for a B is not completed to Satisfactory or in a timely fashion (ex: repeatedly late). Grades of D or F represent a breakdown of the contract.

Assignment Descriptions and Guidelines

Class attendance and participation Class attendance is expected. Up to 6 absences, for any reason, are allowed with no consequence for the final grade.

Quizzes (weekly) – Due Fridays by end of class. A set of content videos is assigned for each week (videos less than 20m each), providing the content that you are learning in a lecture format. Live class meetings will focus on particular aspects of the content and explore them in greater depth via case studies. Weekly quizzes (about 10-20 multiple choice or true/false questions) practice the understanding you are learning in the videos and lecture meetings.

Quizzes must be completed before class on Fridays. In class, assigned teams will work together on completing revisions for any quiz questions that you got wrong. **For any questions for which you did not achieve full credit, you will submit revisions explaining why you got the question wrong and how you know the correct answer is correct.** You are encouraged to ask Angie when you are not sure why an answer is considered correct or incorrect! While revisions are due 1 week after quiz completion, you are encouraged to submit them before the end of the class period.

If you miss class on Friday, you will be responsible for completing quiz corrections on your own, due a week from when you took the quiz.

Problem Sets (weekly) – Due Saturdays by end of day. In order to practice your understanding of the content video material and in-class materials, you will complete a weekly problem set focused on that week's material. Optional supplemental readings will also be provided in most cases. You may use any source of information that you desire to complete these problem sets, including working with other students in the course (such as your assigned group). Once completed, you will check your answers against the key provided by Angie. For any incorrect responses, you will endeavor to correct them and provide a written explanation of what you think led you astray. **You will submit your responses and your corrections as a single document. If you had correct responses for all the questions, you will still be sure to reply to the reflection question on the submission form in order to achieve a Satisfactory assignment.** Revisions are not be requested for problem sets: all assignments that fit the above criteria are accepted as Satisfactory (you must respond to the reflection question on the submission form). Problem sets are due Saturdays by the end of the day.

Short-answer Exams (3 exams) – You choose due dates. In order to bring together your learning in live lecture meetings, during lab periods, and from the content videos, there will be 4 short-answer exams. These exams will be open-note, open-book, and untimed but designed to require 50 minutes to complete (if studied for). This means you may use any materials supplied by Angie to complete the exam but you should not discuss the exam with anyone other than Angie. There will be no time limit on completion of the exam and all exams will be available as of the first day of class. You am responsible for scheduling when you will take each exam. For responses that are not Satisfactory, Angie will give you feedback and you will revise your response(s) until achieving Satisfactory. I suggest you choose due dates no earlier than the following to ensure all material is covered in class before you work on the exam:

- **Exam 1 after Oct 3 and before Oct 18**
- **Exam 2 after Nov 7 and before Nov 22**
- **Exam 3 must be after Dec 10 and before 4pm Dec 16**

Self-reflections (mid-semester and final) - You choose due dates. One important skill you will practice in this class is self-assessment, the idea that you develop your own standards for your work rather than merely hoping that your work meets someone else's standards. To that end, it's important that you engage in a process of self-reflection. It is only by examining how things have gone and comparing that to how you might like them to have gone, that you can plan for making adjustments in the future. **For this course, you will undertake one self-reflection after the first month of classes (by Oct 3) and a second at the end of the term (by Dec 16).** For each, you will complete and submit the provided form before attending a short meeting scheduled with Angie to discuss your responses.

Independent Mastery Project (for an A) To earn an A in this class, you must complete all the B-level work plus an extra project that demonstrates your mastery of a topic or topics closely related to the course material. You must submit a project plan for Angie's review by Oct 10 and the final project is due by Dec 1. Projects can take a variety of forms; papers (15-20 pages, double-spaced, 12pt) and videos presentations (10-15 min) are two examples. Discuss with Angie if you would like to propose an alternate type of project. Topics from any point in the course, including the second half, are suitable topics; please see Angie if you are unsure or would like to brainstorm topics.

Expected Weekly Schedule

Week	Dates	Topics
1	Aug 27-29	Course Introduction; Biodiversity, Phylogenies, Cells
2	Sep 1-5	Eukarya, Genomes, Eukaryotic genomes
3	Sep 8-12	Mitosis, Meiosis, Life cycles

Week	Dates	Topics
4	Sep 15-19	Genes, Transcription, RNA processing
5	Sep 22-26	Translation, Sex determination, Inheritance and segregation
6	Sep 29-Oct 3	Dominance, Independent assortment, Linkage
7	Oct 6-10	Hardy Weinberg, Detecting evolution, Genetic variation
8	Oct 13-17	Mutation, Gene flow, Genetic drift
-	Oct 20-24	Fall Break
9	Oct 27-31	Nonrandom mating, Selection, Heritability
10	Nov 3-7	Speciation, Population Ecology, Life History
11	Nov 10-14	Behavior, Learning, Genetics of behavior
12	Nov 17-24	Interspecific interactions, Competition
-	Nov 26-28	Thanksgiving
13	Dec 1-5	Community structure, Ecological succession, Energy flow
14	Dec 8-10	Biodiversity patterns, Nutrient cycling
-	Dec 12-15	Reading Period
-	Dec 16, 2pm	Final Exam slot