

OEB 10: Foundations of Biological Diversity (Fall 2024)

Lectures: MWF 10:30-11:45am (Location: Biolabs 1080)

Sections/Labs: Weekly 2.5 hr Meetings (Science Center 413c)

This course takes an integrated approach to understanding the diversity of life. Lectures emphasize how chemical, physical, hereditary, ecological and geologic processes contribute to the origin and maintenance of biological diversity.

Topics to be covered include:

- 1) Evolution of metabolic pathways
- 2) Multicellularity and structural complexity
- 3) Causes and consequences of diversity over space and time;
- 4) The role of species interactions (including symbioses) as an evolutionary force;
- 5) The evolution of humans and their impact on the environment.

In-class activities will provide opportunities for engaged learning and exercises during sections/laboratories will familiarize you with conducting experiments and dissecting scientific articles.

Course Expectations

As instructors in this course, we know that the material covered in our class material can sometimes be challenging due to the breadth of content we cover, and the complexity that exists when studying biology. We encourage you to embrace these challenges, as productively working through challenge is key to the learning process and development of your skills and abilities. We believe that students who engage with the class content thoughtfully, attend lecture and lab section, complete assignments promptly, and reach out to TFs and lecturers for help will be successful in this course.

Instructors:

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Student Hours:

(In-Person)

Lab Section Times

Tuesday 03:00 PM - 05:30 PM

Tuesday 06:00 PM - 08:30 PM
Wednesday 03:00 PM - 05:30 PM
Wednesday 6:00PM - 8:30PM
Thursday 09:00 AM - 11:30 AM
Thursday 03:00 PM - 05:30 PM

Textbook Readings

Biology: How Life Works 4th edition, Morris *et al.* W.H. Freeman and Co. An electronic version of this text can be purchased through the [publisher's website](#) or other online retailers. In addition to the electronic version of the text, this website offers a variety of resources for students. There are simulations and animations that enhance student learning, and several different activities whereby students can assess their own understanding of the material covered in a particular chapter.

Biology: How Life Works 3th edition, Morris *et al.* is also a great resource. We've provided the corresponding chapters and page numbers for both editions.

Come chat with us! Virtual "Office"/Student Hours

We have set aside Fridays from 2:00-3:00 PM as student/ "virtual office" hours. If you have questions about any of the material, would like to review any concepts, or just get to know the faculty and other students in the class, this is the time and place! Feel free to stop by, even if you don't have anything you'd like to ask in particular. This hour is for you all!

Zoom link is located here: <https://harvard.zoom.us/j/95042179807>

Lectures and Class Engagement

Many lectures will incorporate interactive classroom activities and your participation in these activities will contribute to your overall grade. Some activities involve accessing the course website, so please bring either a laptop or phone to lecture. Lecture videos will be made available to all students after a lecture is presented as a tool to review the material. The PDFs of the lecture slides will be uploaded to the course website before each lecture. However, the availability of the lecture slides should not dissuade you from taking notes during lecture.

One lecture per week will end with a short reflection ("Final Thoughts and Takeaways"), which will take ~5minutes. The purpose of these reflections is for us to receive feedback from you regarding topics that you found engaging or challenging. These will be assessed on Satisfactory/Unsatisfactory and contribute to "Class Engagement". A minimum completion of 80% (ie 8 of 10 FTTs) will give earn you full credit for the "Class Engagement grade".

Sections/Laboratories

There is a 2.5 hour lab component to this course. The objectives of the lab components are to:

- 1) Engage in lecture material in novel ways
- 2) Get hands-on experience with type science that takes place at OEB
- 3) Develop skills in critical thinking and science communication

Information about section assignments will be sent out after enrollment is finalized.

Field Trips

In lieu of one lab section, we will be taking a field trip to the Charles River to survey local biodiversity. Please be prepared to attend this trip tentatively on SATURDAY, SEPTEMBER 14th, 21st or 28th. More information about the Charles River field trip will be provided during the first lab section. We will be using iNaturalist, so please be prepared to use your Smartphone. If you will need to borrow a device, please let us know as soon as possible.

Grading and assignments

Grades will be based on performance on seven problem sets covering lecture material and textbook readings, section participation and section activities, and four Module Learning Opportunities which aim to help you develop skills in primary literature reading.

Problem sets – there are seven problem sets that will be spread out during the course of the semester. The problem sets covers material from the lecture component of the course and assesses your conceptual

understanding of the material. The problem sets should be completed individually.

Section participation and activities – Attendance of your lab section is a required component of the course. If you cannot attend your assigned section one week (due to illness, family/medical emergency), please contact your TF and Ogie Avramovska to arrange attending another section time. Each lab section will have a short assignments or worksheet that will be due at the end of that section. They will be assessed for effortful completion.

Academic Integrity and Generative AI Policy

Discussion and the exchange of ideas are essential to academic work, and we encourage collaboration on laboratory assignments, and any group projects. However, problem sets must be completed individually.

Please ensure that any written work you submit for evaluation is the result of your own research and writing and that it reflects your own approach to the topic. You must also adhere to standard citation practices, and properly cite any books, articles, websites, lectures, *etc* . that have helped you with your work. In instances when collaborative work is assigned, we expect for the assignment to list all team members who participated.

We specifically prohibit the use of ChatGPT or any other generative artificial intelligence (AI) tools at all stages of the work process, including preliminary ones. Violations of this policy will be considered academic misconduct. Different classes at Harvard may implement different AI policies, and it is the student’s responsibility to conform to expectations for each course.

Late Work

Every student will receive one no-questions asked "late work" 48hr token. Please email contact Ogie at least 24hrs prior to the deadline of the assignment if you would like to apply the token.

Otherwise, when work is submitted late, grades are reduced by 10% per day up to one 5 days. After one week, the assignment will be give a 0%, as the answer key and feedback will be released. In the case of illness, family or medical leave, please contact Ogie Avramovska as soon as possible.

Accommodations for students with disabilities

Students who need accommodations because of a documented disability must present their Faculty Letter from the Accessible Education Office (AEO) and speak with Ogie Avramovska by the end of the second week of the term. All discussions will remain confidential, although faculty are invited to contact AEO to discuss appropriate implementation.

Catalog of Graded Assignments

<u>Assignment</u>	<u>Percentage of Total Grade</u>
Problem sets (7)	35%
Section Activities (11)	20%
Module Learning Opportunities (4)	35%
Course Engagement	10%