









## Geobiology and the History of Life EPS/OEB 56

### Instructor Information

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### Overview

The lab component of Geobiology and the History of Life will meet once a week and is designed to get more hands on activity with material. Geology and paleontology are grounded in the observation and interpretation of physical samples and specimens. The main purpose of this lab section is to allow you to see and explore the basic materials that we use to piece together elements of Earth history. The lessons are designed to cultivate thoughtful, comparative description and classification of geological and paleontological specimens. Our objective is to equip you with the basic skills to describe, categorize, interpret and articulate the importance of subtle attributes of these specimens that you are likely to encounter at real outcrops located throughout the world.

### Material

Any required journal articles, book chapters and videos will be provided on Canvas.

### Grading Scheme

Each lab is worth 10 points, for a total of 110 points. The lab component is worth **20%** of your final grade for the course.

### Learning Objectives

- Become familiar with types of rocks, how sedimentary rocks form and how they can inform us about the environment.
- Learn about fossilization, major groups of marine fossils through time and how that tells the history of life on Earth.
- Learn about how geologists and paleontologists utilized rocks, fossils and other evidence to reconstruct earth history and the kinds of questions we ask.

### Make-up Policy

Attendance to all lab sections is mandatory and you must attend your lab section. If you are sick or will miss lab for another reason, please contact your TF at the earliest time to arrange a make-up. We are happy to work with you to ensure you complete every lab assignment and get the most out of lab.

### Diversity and Inclusivity Statement

This classroom is a place where everyone will be treated with respect, from me and your peers. I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations and ability, and other visible and non-visible differences. All members of this classroom are expected to behave in a respectful and inclusive manner. Please contact me if there are any questions, concerns or something you would like to discuss.

# FAQs

## ? How long are labs?

! Labs will be about two hours long, included a brief introduction to the topic by your TF.

## ? What are lab assignments?

! Each week there will be a short document with background information and questions based on samples and specimens.

## ? Are these group activities?

! We encourage you to work in groups and will set up Breakout Rooms in Zoom as appropriate. But each student should complete their own assignment and submit it on Canvas.

## ? When are labs due?

! Labs are due **one week** after the activity. We will do our best to grade labs within one week and return them to you.

## Accommodations for Students with Disabilities

Please don't hesitate to reach out to any member of the teaching team with any concerns or difficulties that you're experiencing. We hope to help with the transition to online learning however we can! Additional resources are available through Harvard's Academic Resource Center: <https://academicresourcecenter.harvard.edu/college-students> which offers individual consultations, workshops, and tutoring services. Any student needing academic adjustments or accommodations is requested to present a letter from the Accessible Education Office (AEO) and speak with the professor by the end of the second week of the term. All discussions will remain confidential, although the AEO may be consulted to discuss appropriate implementation.

## Academic Integrity

The Code of Academic Integrity and Academic Dishonesty is central to this course. Without honesty, a learning community has no substance or validity. Academic honesty and ethical behavior are necessary for the proliferation and communication of research and ideas. Academic integrity is fundamental to learning and achieving course goals. Students are expected to recognize that work for this course is expected to be their own original work. Violations of this Code are serious and will be handled in an appropriate manner.

## Lab Schedule

Week of January 28th	No Lab
Week of January 31	<b>Lab 1: Rocks and Minerals</b> Students will learn about some important minerals and the conditions where their crystals precipitate. Students will learn about the three types of rocks and how they relate.
Week of February 7th	<b>Lab 2: Sedimentary Rocks and Depositional Environments</b> Students will learn more about sedimentary rocks, which contain important information about earth history and the environments in which the rocks formed.
Week of February 14th	<b>Lab 3: Carbon Cycle</b> Students will learn how carbon moves through the Earth system and how we can use carbon isotopes to make inferences about the world.
Week of February 21st	<b>Lab 4: Oxygen and Redox History - Take home lab</b> Students will learn about redox reactions and the history of oxygen in the atmosphere, with a focus on how we get and interpret that data.
Week of February 28th	<b>Lab 5: Review</b> Instructors and TFs will be available to answer your questions before the midterm.
Week of March 7th	No Lab Use lab time to study for the midterm!
Week of March 14th	No Lab Spring break! Field trip March 14th-17th
Week of March 21st	<b>Lab 6: Stromatolites and Microfossils</b> Students will examine microfossils and stromatolites from the Proterozoic Eon and explore what those tell us about life.
Week of March 28th	<b>Lab 7: Fossilization</b> Students will learn about how fossils form and how to interpret them.
Week of April 4th	<b>Lab 8: Paleozoic Fossils</b> Students will examine Paleozoic marine fossils and look for trends in evolution, extinction and diversity.
Week of April 11th	<b>Lab 9: Mesozoic and Cenozoic Fossils</b> Students will examine Mesozoic marine fossils and look for trends in evolution, extinction and diversity.
Week of April 18th	<b>Reconstructing Past Climates</b> Students will learn about methods of reconstructing past climates with a focus on periods of rapid climatic shifts.
Week of April 25th	No Lab