**Earth History and Evolution SIO 12**

### Fall-2023

### MWF 12:00-12:50

**Center Hall 105**

**Instructors:**

Cheryl L. Peach (she/her)

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Office Hours: Tuesday 1:00-2:00PM on Zoom or by appointment:

**Teaching Assistants:**

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**Texts:**

Required text: None. Exams will be based on lecture material and weekly assigned readings, videos, websites and homework assignments. Required reading, etc. will be assigned throughout the quarter and either posted on Canvas or made accessible from publicly available online resources.

**Website:** TBD

**Who should take this course?** The course is designed as an introductory course for non-majors. The course will describe how and why we have come to our current understanding of the Earth and organisms that inhabit it. We’ll expect you to be able to understand and communicate the logical underpinnings of the major paradigms in Earth Sciences today including: plate tectonics, geologic time, evolution of life, and global environmental change.

There are 2 basic components to this course:

1. Physical and evolutionary processes – the origin and composition of Earth and the principle processes that have shaped the Earth, and life on Earth, from 4.6 billion years ago to the present day.
2. Earth History– the origin and evolutionary history of life on Earth, including evolutionary processes and mass extinctions, within the context of major geologic and climatic developments.

**Course requirements, exams and grading:** You are required to attendall class meetings. If you need to miss a class you must view the recorded podcasts of class lectures. Exams will cover material presented in lecture and assigned readings/web resources. You will not be able to succeed in this class if you don't attend/watch class meetings.

**Grading Scale:**

**Your grade** in the class will be determined by the following:
        Exam #1:     20%

Exam #2: 20%
        Exam #3 (Final): 20%
        Homework Assignments (4): 40%

**Exams and Assignments:**

All exams and assignments will be administered on Canvas. Exams are not timed and can be taken anytime during the period that starts at class time (12 PM) and the due date (2 class periods after the exam is posted). Exam III will work the same way, but will be posted shortly after the last day of class and due the last day of exams (Dec. 11). You are required to work independently but can use class materials during the exam. Homework assignments are due by midnight on the due date. Late assignments will be accepted but reduced by 1 letter grade per class period overdue.

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### COURSE OUTLINE

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| --- | --- | --- |
| **Week 0** |  |  |
| 09/29 | F | 1 – Class orientation: Earth systems |
| **Week 1** |  |  |
|  | M | 2 – Earth’s place in the universe  |
| 10/02-10/06 | W | 3 – Formation of Earth |
|  | F | 4 – Earth’s layers and magnetic field |
| **Week 2** |  |  |
|  | M | 5 – How continents move and mountains grow **Homework #1 Posted** |
| 10/09-10/13 | W | 6 – Plate tectonics, super continents and the rock cycle |
|  | F | 7 – The rock record of geologic time: Grand Canyon! |
| **Week 3** |  |  |
|  | M | 8 – Making the fossil record |
| 10/16-10/20 | W | 9 – Clocks in rocks: Telling geologic time**Homework #1 Due 11:59 PM** |
|  | F | **Exam I (Lectures 1-9) Due 10/25 11:59 PM** |
| **Week 4** |  |  |
|  | M | 10 – Evolution on a geologic time scale (millions to billions of years) |
| 10/23-10/27 | W | 11 – Evolution and family trees**Exam I Due** **11:59 PM** |
| Add/Drop Deadline  | F | 12 – The first 4 billion years: Overview**Homework #2 Posted** |
| **Week 5** |  |  |
|  | M | 13 – The first 4 billion years: The story of oxygen |
| 10/30-11/03 | W | 14 – The first 4 billion years: Complex life |
|  | F | 15 – History of biodiversity  |
| **Week 6** |  |  |
|  | M | 16 – Paleozoic: The explosion of life!**Homework #2 Due 11:59 PM** |
| 11/06-11/10 | W | 17 – Paleozoic: From backbones to four limbs  |
|  | F | **Holiday – Veteran’s Day No Class** |
| **Week 7** |  |  |
|  | M | 18 – Paleozoic: The giants before the dinosaurs |
| 11/13-11/17 | W | 19 – Paleozoic: The biggest mass extinction of all |
|  | F | **Exam II (Lectures 10-18) Due 11/20 11:59 PM** |
| **Week 8** |  |  |
|  | M | 20 –Mesozoic: Recovery and evolutionary reset  |
| 11/20-11/24 | W | 21 – Mesozoic: Age of “Reptiles” **(Recorded Online Lecture; No in person class)****Exam II Due 11:59 PM****Homework #3 Posted** |
|  | F | **Thanksgiving Holiday – No Class** |
| **Week 9** |  |  |
|  | M | 22 – Mesozoic: Mammals in the shadows |
| 11/27-12/01 | W | 23 – Mesozoic: Mass extinction |
|  | F | 24 – Cenozoic: Mammals emerge**Homework #3 Due 11:59 PM** |
| **Week 10** |  |  |
|  | M | 25 – Cenozoic: The story of mammals **Homework #4 Posted** |
| 12/04-12/08 | W | 26 – Cenozoic: From primates to humans |
|  | F | 27 – Humans as agents of change**Homework #4 Due 11:59 PM** |
| **Finals Week** | M | **Mon. 12/11 Final Exam posted (Lectures 19-27)** |
| 12/11-12/15 | S | **Sat. 12/16** **Exam III (Final Due Date) 11:59 PM** |