# Geology 0060: History of the Earth, Spring 2025

Lecture: MWF 10:00 - 10:50 pm, Thaw 203
Lab: Mondays 2:00 - 3:50 pm, Thaw 203

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| Instructor: | Charles E. Jones (cejones@pitt.edu) |
| Office: | SRCC 503 |
| Phone: | Disconnected to save money during the pandemic; costs too much to reconnect! |
| Office Hours: | Drop in or make an appointment. Appointments most easily made in-person after class. |
| TA: | Claire Mock (CEM291@pitt.edu) |
| Textbook: | Recommended: **Evolution of the Earth** by Prothero and Dott, 6th, 7th, or 8th edition. ***This book is on reserve in the Engineering Library in Benedum Hall.*** |

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| Grading: | Labs and Homeworks: | 30% |
| | On-Line Lecture Quizzes: | 15% |
| | Exams: | 55% (Exam 1, 17%; Exam 2, 23%; Exam 3, 25%; Final, 35%) |

**Labs:** The labs are designed to build on the skills introduced in the GEOL 0055 Geology Lab class. There may be lab quizzes on both the content and hand-on skills of the labs, or there may be on-line quizzes that focus on this same material. The details will be discussed in lab.

**Homework:** The homework will be posted-on line and graded by the lab T.A. Feel free to get help from Dr. Jones.

**Exams:** The exams will include both short answer questions and questions that require labeled diagrams and longer explanations of how things work. The dates of the exams may be pushed back, depending on what I cover in lecture, or I may modify the study guide to exclude material so as to get the exam in on time. Announcements will be made in class. The final exam will be comprehensive, but I will give you guidelines as to exactly which topics the exam will cover.

**Field trip:** We will plan an overnight field trip with the general goal of crossing the Appalachian orogen. We will visit rocks from the Appalachian Plateau to the Gettysburg Basin. The date of this field trip is **April 5-6** (**Saturday and Sunday**). We have tents, but you'll want to get ahold of sleeping bags and pads. We will leave promptly no later than 8 am on Saturday morning. (The earlier the better.)

**Honor Code:** I expect all students to fully abide by the University Honor Code. All in-class exams are to be taken without the assistance of books, notes, or other people. When it comes to studying for these exams, or preparing labs, I encourage people to study in groups and to discuss difficult topics. This is not only a good way to learn, but collaborative projects are the norm in academic and business settings. However, unless directed to work as a group when writing up a specific project, people should independently write up their own labs and homework. Finally, plagiarism is as evil as any other form of cheating, so be sure to avoid it.

**Accommodations:** Please let me know of any learning disability or language accommodations that would help you succeed in this class. Also, please let me know of any physical limitations that might impact your participation or attendance on the field trip.

**Diversity Statement:** We welcome diversity in all its forms because we look forward to a time when the sciences are as diverse as society as a whole. You represent the future of our field, and we wholeheartedly welcome you into this class. If you would like us to refer to you by particular pronouns, or if a scheduled activity conflicts with a religious holiday, or if there is something else that is preventing you from feeling a full part of this class, please let us know. Our job is to teach the next generation, and this most certainly includes you.

## Tentative Schedule of Lecture and Lab Topics

| Week | Day | Dates | Lecture Topics *(Topics tenative; exam dates firm)* | Related Readings: | Lab Topics *(may also change)* | Homework |
|---|---|---|---|---|---|---|
| 1 | | | 1. Origin of the Elements | Ch 6 | - | Review of Geologic Structures |
| | W | 8-Jan | 2. Formation of the Earth | | | |
| | F | 10-Jan | - | | | |
| 2 | M | 13-Jan | - | Ch 4 | Lab 1: Review of Common Minerals | Review of How to Determine Relative Time |
| | W | 15-Jan | 3. Search for the Oldest Rocks on Earth | Ch 6 | | |
| | F | 17-Jan | 4. The Archean World | | | |
| 3 | M | 20-Jan | **Martin Luther King, Jr. Day: NO CLASS** | | No lab this week (MLK Day) | Isostasy & Plate Tectonics |
| | W | 22-Jan | 5. How to Rift a Continent | Ch 7, 14 | | |
| | F | 24-Jan | - | Ch 7 | | |
| 4 | M | 27-Jan | 6. Geology of Rifted Margins | Ch 7 | Lab 2: Igneous Rocks | |
| | W | 29-Jan | 7. Geology of Suduction | | | |
| | F | 31-Jan | - | | | |
| 5 | M | 3-Feb | **Exam 1** | Ch 7 | Lab 3: Sedimentary Rocks | Absolute Geologic Time and Rates |
| | W | 5-Feb | 8. Sedimentary Basins | | | |
| | F | 7-Feb | - | Ch 8 | | |
| 6 | M | 10-Feb | 9. The Origin of the Continents | Ch 8 | Lab 4: Metamorphic Rocks | |
| | W | 12-Feb | = | Ch 8 | | |
| | F | 14-Feb | 10. Proterozoic Geology | | | |
| 7 | M | 17-Feb | | Ch 6 | Lab 5: Sedimentary Facies | Introduction to Excel |
| | W | 19-Feb | 11. Earth's Long-Term Habitability | Ch 6 | | |
| | F | 21-Feb | - | | | |
| 8 | M | 24-Feb | 12. History of Atmospheric O2 | Ch 9 | Lab 6: Lithostratigraphy | Radiometric Dating (Excel exercise) |
| | W | 26-Feb | 13. Precambrian Paleoclimate | Ch 7 | | |
| | F | 28-Feb | **Exam 2** | | | |
| 9 | M | 3-Mar | **Spring Break - No Classes** | | Spring Break! | More Radiometric Dating! (Excel exercise) |
| | W | 5-Mar | | Ch 10 | | |
| | F | 7-Mar | | | | |
| 10 | M | 10-Mar | | | Lab 7: Fossil Record I | More Radiometric Dating! (Excel exercise) |
| | W | 12-Mar | 14. Proterozoic Life | | | |
| | F | 14-Mar | | | | |
| 11 | M | 17-Mar | 15. Paleomagnetism | Ch 11 | Lab 8: Fossil Record II | |
| | W | 19-Mar | 16. Cambrian Geology | | | |
| | F | 21-Mar | - | | | |
| 12 | M | 24-Mar | 17. Cambro-Ordovician Geology | Ch 12 | Lab 9: Fossil Record III | |
| | W | 26-Mar | 18. The Taconic Orogeny | | | |
| | F | 28-Mar | 19 Ordovician Radiations | Ch 12 | | |
| 13 | M | 31-Mar | 20. Some Silurian Geology | Ch 12 | Lab 10: Biostratigraphy | **WEEKEND FIELD TRIP: April 5 & 6** |
| | W | 2-Apr | **Exam 3** | Ch 13 | | |
| | F | 4-Apr | 21. Devonian Geology | Ch 13, 14 | | |
| 14 | M | 7-Apr | 22. Life in the Devonian | Ch 14 | Lab 11: More Stratigraphy | |
| | W | 9-Apr | 23. Mississip./Pennsyl. Geology | | | |
| | F | 11-Apr | | Ch 14 | | |
| 15 | M | 14-Apr | 24. Alleghenian Orogeny | | Field Trip Maps | |
| | W | 16-Apr | 25. Western Orogenies | Ch 15 | | |
| | F | 18-Apr | | | | |

*FINAL EXAM Time: Friday. Apri 25, 4:00 to 5:50 pm, in the regular classroom.*