Spring 2019 | GEOL 0061 | Historical Geology

Professor: Ryan Kerrigan
Office: Krebs 227A **Office Hours:** Thursdays 9:00-11:00 AM or by appointment
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Class time: Monday, Wednesday and Friday, 9:00-9:50 AM **Class Room:** Krebs 220
Lab time: Monday 2:00-4:50 PM **Lab Room:** Krebs B52

Welcome to Historical Geology!

This course is designed to introduce students to two topics: the history of the Earth and the science of the history of the Earth. The fundamental questions of the course are, "How did we get here?", and "How do we know that?"

Lectures in the first half of the course will cover the core ideas of how we study the Earth and some explanation of how the Earth works. Labs in the first half of the course will allow students to develop these skills for themselves and provide hands on experience with sedimentary structures. Lectures in the second half of the course will start with the Big Bang and the formation of the Earth and then proceed to explore how the physical structure of the Earth and life on Earth have evolved together to this day. Labs in the second portion of the class will give students hands-on experience with fossils and geologic maps

Goals

1. to continue to develop your ability to comprehend, analyze, and think in an objective manner
2. to give you a better understanding of science and the history of the Earth
3. to provide an awareness of basic concepts that allow scientists to understand past events on the Earth

To accomplish these goals there will be a variety of instructional activities: lecture-discussion sessions, group problem solving, laboratory work, and individual readings and investigations.

COURSE RESOURCES

Text (required): Harold Levin (2013 [10th edition]), The Earth though Time. There is a new addition (the 11th), do not get this, it more expensive and my page numbers will not correspond. Get the 10th edition! The bookstore has it at ~$?. Amazon has new copies at ~$75 and used copies at ~$45. Additionally, I have asked the library to have a copy on reserve. It is imperative that you have a version of this book in some manner. You will complete assignments using it and I will refer to its contents in lecture frequently. There is no lab text; I will provide all necessary lab materials.

Web-material: Most (not all) class materials (schedule, power points, reading guides, etc.) will be posted on CourseWeb for your convenience.

Electronics: Electronics are PROHIBITED in class; no computers, ipads, phones, music players, beepers, pagers, watches, etc. Please turn them off and put them away. Use them on break if you need to, but please do not use them during class.

Clean-up: Please don't make a mess, but if you choose to make a mess, please clean up after yourself.

Safety: The only cautionary material we will work with is very dilute hydrochloric acid. We will take the necessary precautions when handling the dilute HCl. You should also be careful handling the rocks,

minerals, and tools, for their safety, as well as yours. Don't abuse the lab materials; specimens, supplies, tools. Use brain.

Special Needs Students: Students with documented disabilities who need course adaptations or accommodations, have emergency medical information to share with me, or require special arrangements for building evacuation, should contact me after class within the first two weeks of class. I'm here to help.

Academic Integrity: Although there will be opportunities for group work in this course, all students are responsible for understanding the material and should indicate with whom they collaborated on any assignment. Group work does not mean that one person does all the work and everyone else puts their name on it…this is considered cheating. Students **should not:** claim other's ideas as their own, turn in other's work as their own, copy sources without proper citation (plagiarism), allow others to take their work or ideas, or pass off past projects as original work. If you have questions about academic honesty, see the instructor or refer to the document "Academic Integrity at the University of Pittsburgh at Johnstown." (http://www.upj.pitt.edu/en/academics/academic-affairs/academic-advising/academic-integrity/). Anyone found to be in violation of the Pitt-Johnstown standards for academic integrity will fail the course. We will cover scientific ethics in this course, until then use your brain.

Late Work: Contact me prior to any absence/missed: due dates, classes/labs, or quizzes/exam. If you can show me that respect and we will find an arrangement to allow you to make-up/hand-in the missed work. Without prior contact, any work not received by the due date will have points deducted, except for a documented exemption. For each day late 10% of the total possible points will be deducted (this includes weekends and holidays). The work will not be accepted for credit after 10 days.

Outside Resources: Perhaps there are questions that I cannot answer, or issues you feel you cannot discuss with me, UPJ has outlets these issues. I am new at UPJ so I am learning where this stuff is myself and I would most likely ask the division administrative assistant, Kathy Mishler. Chris Coughenour is the Senior Geology Professor and Steve Stern is the Natural Science Division Chair; they are my bosses.

EVALUATION

1. Quizzes and Reading Guides / Participation:
To make the Group Discussion work, each person must be prepared when she/he comes to class. I cannot expect you to know the answers to the group questions if you have no background, so it is important that everyone read the assigned readings in the text prior to our lecture/discussion of the topic. You will receive Reading Guides that will focus your attention to what I believe are the most important points of the chapters. These guides will be distributed at the beginning of each unit and will be available on the CourseWeb Site. We will have a quiz over the information in the Reading Guides on the dates noted on the Course Schedule below. The first reading guide quiz will be on Chapt 3 material on Monday, January 14th. **The quiz questions will be verbatim from the reading guide. You may use your Reading Guides during the quiz and the quiz will cover just the information in the Reading Guides.** Before the quiz you are welcome to ask me questions about parts of the Reading Guide that you do not understand or could not find in the text. Reading guides used to aid you on the quizzes must be filled out by hand by you. I do not mind if you work together with other students; however, parasites blatantly copying other students will not be tolerated.

The quizzes will be graded on a basis of points (from 0 to 100 pts). Quizzes will be conducted during the first ten minutes of class. If you are late to class, you will have less time to complete the quiz. If you are sufficiently late that you miss the quiz, that quiz is now gone, unless you have contacted Dr. Kerrigan. However, I will drop the lowest quiz to account for the inevitable unforeseen absence.

2. Laboratory
In the lab you will be given hands-on problems to solve. Labs will generally be focused on the lecture topics being discussed that week. Labs are designed such that a student who is current with the class material and focuses should be able to complete the lab in the time allotted. However, some labs will at times be more difficult and require work outside of class time. Lab topics will parallel those covered in concurrent lectures as closely as possible, but there may not always be a perfect overlap. At times, materials will be made available for use. Out of courtesy to others, please do not remove any materials from the lab. If you ask questions during the lab, I will help you get to the correct answer; I will not let you hand in incorrect material, if you ask tons of questions you should do very well.
Please always bring a pencil to lab; you will make mistakes, erasers erase mistakes.

3. Term Project and Presentation:
Students will be asked to complete a semester-long research project that will culminate in the presentation of the independent investigation on a topic of their choosing. A separate sheet will be distributed discussing expectations, timelines, formats, and potential topics.

4. Field Trip
Fieldwork is at the core of geology and it is in this environment that students link learned course concepts to the observation of natural phenomena around them. Consequently, we will have one full day fieldtrip for this course tentatively scheduled for Saturday, April 13th at 8 AM (Sharp!) and returning at 6 PM. There will be a short assignment connected with the fieldtrip. Students unable to attend the fieldtrip will miss a great deal and will need to complete a substantial make-up assignment. Attendance on the fieldtrips is required, I will discuss everyone's schedule the first week of class and determine if people have conflicts. Additional details will be provided regarding the field trip so that students can plan accordingly.

5. Exams
There will be three unit exams during the semester (including the final). The tentative dates of these exams are shown on the Course Schedule found below. The exams are generally 60% multiple choice and 40% of short answer/drawings/labeling/calculations/etc.

Exams will emphasize material presented in lecture; however, you will also be tested on material contained in the readings. Exams will not just test your factual knowledge of the material; you will also be expected to *apply* your knowledge and understanding of the course material. In this regard, it is of prime importance to understand geologic concepts, more so than facts. Some memorization will be necessary, but I consider this of secondary importance. Exams are closed-book. If you know you will be missing an exam, see me and we may be able to arrange to have you take the exam early.

ASSESSMENT

- 20% Reading Guide Quizzes [lowest quiz will be dropped]
- 20% Weekly Labs (11 labs) [lowest lab will be dropped]
- 10% Term Project
- 5% Field Trip Assignment
- 45% Exams (3 – 15% each)
- Standard grade cut-off apply (100-96.6 =A+, 96.6-93.3=A, 93.3-90=A-, etc)

Schedule of Events

***Chapters listed indicates a Reading Guide Quiz on that date**

Week	Monday (Lec)	Monday (Lab)	Wednesday (Lec)	Friday (Lec)
1	January 7th Introduction to Historical Geology	January 7th Maps, Rates & Time	January 9th Early Theories Chapt 1 (1-12)	January 11th Early Theories Chapt 2 (13-28)
2	January 14th Geologic Time **Chapt 3 (29-48)**	January 14th Dating	January 16th Geologic Time	January 18th Minerals and Rocks **Chapt 4 (49-80)**
3	January 21st **NO CLASS** **MLK DAY**	January 21st **NO LAB** **MLK DAY**	January 23rd Minerals and Rocks	January 25th Sedimentary Record **Chapt 5 (81-124)**
4	January 28th Sedimentary Record	January 28th Minerals and Rocks	January 30th Fossils **Chapt 6 (125-168)**	February 1st Fossils ***Research Topics Due***
5	February 4th Plate Tectonics **Chapt 7 (169-214)**	February 4th Sedimentary Environments and Structures	February 6th Plate Tectonics	February 8th **EXAM I**
6	February 11th Early Earth **Chapt 8 (215-250)**	February 11th Facies Correlation	February 13th Early Earth	February 15th Early Earth
7	February 18th The Proterozoic **Chapt 9 (251-274)**	February 18th Evolution	February 20th The Proterozoic **Citations Due**	February 22nd Early Paleozoic Events **Chapt 10 (275-302)**
8	February 25th Early Paleozoic Events	February 25th Paleontology I: Learning fossil taxa	February 27th Late Paleozoic Events **Chapt 11 (303-334)**	March 1st Late Paleozoic Events

Schedule of Events

***Chapters listed indicates a Reading Guide Quiz on that date**

Week	Monday (Lec)	Monday (Lab)	Wednesday (Lec)	Friday (Lec)
9	March 4th Life in the Paleozoic **Chapt 12 (335-384)**	March 4th Paleontology II: Unknown Fossils	March 6th Life in the Paleozoic ***Outline Due***	March 8th **EXAM II**
10	March 11th **NO**	March 11th **CLASS**	March 13th **SPRING**	March 15th **BREAK**
11	March 18th Mesozoic Events **Chapt 13 (385-416)**	March 18th Paleontology III: Practice Fossil Quiz	March 20th Mesozoic Events	March 22nd Mesozoic Events
12	March 25th Life in the Mesozoic **Chapt 14 (385-416)**	March 25th Geologic Maps I: Cross Sections	March 27th Life in the Mesozoic	March 29th **NO CLASS** **I'm at a conference**
13	April 1st Cenozoic Events **Chapt 15 (469-504)**	April 1st Geologic Maps II: Basic Structures	April 3rd Cenozoic Events	April 5th Cenozoic Events
14	April 8th Life in the Cenozoic **Chapt 16 (505-542)**	April 8th Geologic Maps III: Interpreting Maps	April 10th Life in the Cenozoic	April 12th Life in the Cenozoic
15	April 15th Human Origins **Chapt 17 (543-567)**	April 15th **TERM PROJECT PRESENTATIONS**	April 17th Human Origins	April 19th Review / Loose Ends
16	**Wednesday** April 24th 8:00 AM - 10:00 AM **FINAL EXAM**			

*This schedule will be fluid at times to adjust for the pace and comprehension of the class.