

## **ERTH200 Geologic Inquiry**

**Spring 2022**

**Text:** Earth System History (4th Edition) by Stanley & Luczaj, (2014)

**Instructor:** Henrietta Dulai, POST 707, 956-0720, [hdulai@hawaii.edu](mailto:hdulai@hawaii.edu)

**Office hours:** Office: POST 707 but this semester we also use Zoom for office hours; they will be after class or by appointment set up by e-mail

**Hybrid: in person lectures, synchronous alternating on-line and in person labs using zoom and other apps; availability of a computer with internet connection required for participation.**

**Lecture: M&W&F 9:30-10:20 am**

**Lab: M 12:30-3:20 pm**

**Prerequisites:** An introductory geology course (ERTH101 or comparable) and an introductory geology lab (ERTH101L or comparable). The ERTH101L lab may be taken concurrently, but this is not encouraged.

**Course content and its relationship to Earth Sciences Department student learning objectives (SLOs):** Geologic Inquiry (ERTH200) is a course designed for Earth Sciences majors to build a strong foundation in important geologic concepts, serving as a bridge between ERTH101 and upper division ERTH course work. The course is open to non-majors who meet the prerequisites if space is available. ERTH200 builds upon content introduced in ERTH101, such as the theory of plate tectonics, geologic time, biogeochemical cycles and the fossil record. These concepts are further developed in ERTH200 in the context of how geoscientists go about reconstructing Earth's history and understanding the processes responsible for changes in the Earth system over time. In this course students will gain a better appreciation for the role of geologic processes in maintaining conditions suitable for life on Earth and some of the ways human activities are altering important natural processes (SLO 1). Students will be introduced to making simple calculations in MS Excel and use these calculations to gain an appreciation of how math, physics and chemistry can be applied to the study of the Earth (SLO 2). Examples of how the scientific method is applied to testing hypotheses in the geosciences will be presented (SLO 3). As a W-focus course, ERTH200 students are required to develop their ability to express geologic information and ideas in a variety of written formats (SLO 4).

### **Student Learning Objectives (SLOs) for with the BA and BS degrees in Earth Sciences.**

1. Students can explain the relevance of geology and geophysics to human needs, including those appropriate to Hawaii, and be able to discuss issues related to geology and its impact on society and planet Earth.
2. Students can apply technical knowledge of relevant computer applications, laboratory methods, field methods, and the supporting disciplines (math, physics, chemistry, biology) to solve real-world problems in geology and geophysics.
3. Students use the scientific method to define, critically analyze, and solve a problem in earth science.

4. Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.
5. Students can evaluate, interpret, and summarize the basic principles of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relationship to other core sciences, to explain complex phenomena in geology and geophysics.

### Tentative weekly schedule of lecture topics

<i>Week</i>	<i>Topic</i>	<i>Reading</i>
1	Review: History of Geology & Stenos Laws	Chapters 1 & 2
2	Earth Structure & Calculations in Earth Science	Chapters 1 & 2
3	Review of Plate Tectonics & Plate Motions	Chapters 2 & 8
4	The Carbon Cycle: Respiration, Photosynthesis	Chapters 3, 10 & handouts
5	The Carbon Cycle: Respiration, Photosynthesis	Chapters 3, 10 & handouts
6	Diversity of Life	Chapter 3
7	The Modern Earth System & Paleoproxies	Chapter 4
8	Facies and Depositional Environments	Chapter 5
9	Time Scale, Geochronology & Paleomagnetism	Chapter 6
10	Evolution: Selection, Speciation & Extinction	Chapter 7
11	Stable Isotopes, Hadean & Archean	Chapters 10,11
12	Paleozoic Life: Cambrian Explosion, The Rise of Plants & Early Extinctions	Chapters 13, 14 & 15
13	Paleozoic Tectonics: North American Mountain Building, Coal Swamps & Pangea	Chapters 13, 14 & 15
14	Mesozoic & Mass Extinctions	Chapters 16 & 17
15	Cenozoic Climate	Chapters 18
16	The Neogene & Holocene	Chapter 19 & 20

**ERTH200 is designated as a writing intensive (“W-focus”) course.** Writing assignments will account for 45% of your final grade in the course. There are 3 types of writing assignments required for the course. To streamline revision and grading, all writing assignments must be handed in electronically as a Microsoft word document or a pdf file via Lualima to streamline revision and grading. The grading rubric will be provided and explained for each assignment.

(1) **Figure Caption Writing:** Over the course of the semester each student will be required to write detailed figure captions to accompany 3 figures or diagrams presented in lecture or lab. Each caption is to be approximately 300 words in length. These assignments are described in separate hand-outs. There will be a “draft revision cycle” for each assignment including student written peer reviews, written feedback from the instructor with a preliminary grade, which the students can revise and resubmit for improved grade. It will be ongoing throughout the semester. (9% of course grade).

(2) **Essays related to course content:** Three brief (600-700 words) essays related to the content presented in the lab and lecture are required. The instructor will work with students to develop outlines and cover the ethical use of previously published information. These assignments will be peer reviewed and you will receive feedback from the instructor. You will be given the opportunity to revise and resubmit these essays

in order to improve your grade. (12% of course grade)

(3) **Events in Earth History:** The final product will be a summary of an important event in Earth History in encyclopedia format. Before preparing your final summary, you will be required to compare and contrast different peer-reviewed articles describing the event in an extended outline. The instructor will provide feedback on the extended outline and the first draft of the paper, after which a grade and further feedback from the instructor will be provided. A separate handout gives more detail on this assignment. This project is intended to help students develop the ability to read and think critically when they encounter conflicting viewpoints. (approximately 2000 words plus appropriate figures and references; 24% of the course grade)

**Testing & Grading:** The final grade for the course will reflect a student's performance on exams, lab assignments and on writing assignments outlined above. The weighting is as follows: mid-term (20%), final exam (20%), lab quizzes and assignments (not graded as WI; 15%), and writing assignments (45%; detailed above).

**Laulima:** Course resources (handouts and power point slides from lectures) will be posted on Laulima under the "Resources" link on the course site. In addition, all writing assignments must be turned in electronically by posting either a MS word or pdf document. To do this follow the "drop box" link to access your personal folder. To access the Laulima course web site use a web browser to visit the following address: <https://laulima.hawaii.edu/portal>. Click on the tab with the heading: EARTH200-001 [MAN.81248.SP22].

**Attendance:** Although attendance is not formally scored, regular attendance is expected. A pattern of poor attendance can negatively affect your grade. Students should attend lecture because not all material included in exams is contained in the text. In addition, individual student assignments are given during lectures. Students are responsible for completing these assignments by the due date given. *Attendance at the lab is required.* One important reason for having a lab is to expose you to a variety of maps, as well as rocks & fossils as hand specimens. If you miss the lab, you miss this part of the course content & will be marked down accordingly.

### **LATE POLICY FOR EARTH200 ASSIGNMENTS**

In order to motivate people to turn in their work in a timely manner the following policies regarding turning in lab assignments will be used throughout the semester.

1. All lab assignments must be turned into the course instructor at the start of lab on the day they are due, unless indicated otherwise by email to the class from the instructor.
2. Late assignments will be marked down.
3. If you are sick please let the instructor know that you may be turning in the assignment late. If you become very ill we will accept medical excuses from a doctor.
4. Note that assignments that are required for in-class work will not receive any credit for being late. This is especially important for peer review of written assignments in lab.

Requirement to submit quality work: In addition, if labs come in with questions

incompletely answered or written so sloppily that they are difficult to read they will be marked down. Specifically, extremely sloppy or badly written labs will be marked down by 15%.

**Disability Access:**

If you have a disability and related access needs the Department will make every effort to assist and support you. For confidential services students are encouraged to contact the Office for Students with Disabilities (known as “Kokua”) located on the ground floor (Room 013) of the Queen Lili'uokalani Center for Student Services:

**KŌKUA Program**

2600 Campus Road  
Honolulu, Hawaii 96822  
Office hours 7:45 AM – 4:30 PM  
Voice: 956-7511  
Email: kokua@hawaii.edu  
URL: www.hawaii.edu/kokua

**Title IX:**

The University of Hawai‘i is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community. Here are some of your options:

As members of the University faculty, your instructors are required to immediately report any incident of potential sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and your instructors cannot guarantee confidentiality, you will still have options about how your case will be handled. Our goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

If you wish to remain ANONYMOUS, speak with someone CONFIDENTIALLY, or would like to receive information and support in a CONFIDENTIAL setting, use the confidential resources available here:

<http://www.manoa.hawaii.edu/titleix/resources.html#confidential>

If you wish to directly REPORT an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support, contact: Dee Uwono Title IX Coordinator (808) 956-2299 [t9uhm@hawaii.edu](mailto:t9uhm@hawaii.edu).

**Student basic need related resources:**

Basic needs include food and housing, childcare, mental health, financial resources and transportation, among others. Student basic needs security is critical for ensuring strong academic performance, persistence and graduation and overall student well being. If you

or someone you know are experiencing basic needs insecurity, please see the following resources: [UH System Basic Needs](#).