

Dept. Geology & Geophysics

GG101 Fall 2013

Dynamic Earth

Instructor: Clint Conrad
804 POST
956-6649
clintc@hawaii.edu

Lectures: 723 POST
TuTh 9:00-10:15



Office hours: after class or by appointment

Text: **Physical Geology: The Science of Earth (2011),** by Charles Fletcher

Web Site: www.soest.hawaii.edu/GG/FACULTY/conrad/classes/GG101/GG101.html

Planet Earth provides the land surface on which we live, and the mineral, water, and energy resources that we need for our society. These attributes of our planet are the result of geologic processes that constantly change Earth's surface and interior, and can be understood through scientific study of geologic materials and landforms. In this class we will survey the geologic processes that result in landforms such as mountains, volcanoes, and earthquakes, and aspects of our surface environment such as glaciers, beaches, and groundwater. We will examine the impact of geologic processes on human society, and we will also consider the impact of humans activities on the global environment.

Grading:	Three Exams	50% (about 17% each)
	<u>Homework Assignments (about 20)</u>	<u>50% (about 2.5% each)</u>
	Total	100%

Homework Assignments: 1-2 homework assignments will be assigned weekly and will be completed online using the WileyPlus Online system. You may use your book, your notes, or any other material. You may collaborate with other students – discussing solutions is a good way to learn. Homework assignments are not timed (you may take as long as you like), but they must be completed by the assignment date (typically 1 week after they are assigned). Late homeworks receive zero credit.

Text: We will be using the text *Physical Geology: The Science of Earth* (2011) by Charles Fletcher. You may buy a “binder-ready” version of the text at the bookstore, or you can buy the online version at WileyPLUS: www.wileyplus.com/WileyCDA (use “Manoa” for school, choose Conrad as instructor)

WileyPlus: All students must register with the WileyPlus Online system using the registration code that you received with your textbook. We will be using this system for all homeworks and exams. Make sure to sign up with the correct class (GG101 with instructor Conrad).

Class Schedule:

Week	Days	Lecture	Reading
------	------	---------	---------

Part I: Planet Earth

1	8/27	1. Introduction	Ch. 1
	8/29	2. Solar System	Ch. 2
2	9/3	3. Planet Earth	Ch. 3
	9/5	4. Minerals	Ch. 4
3	9/10	5. Igneous Rocks	Ch. 5
	9/12	6. Weathering	Ch. 6
4	9/17	7. Sedimentary Rocks	Ch. 7
	9/19	8. Metamorphic Rocks	Ch. 8
5	9/24	Review for first Exam	
	9/26	First Exam (Weeks 1-4)	

Part II: Earth's Dynamic Interior

6	10/1	9. Plate Tectonics	Ch. 3
	10/3	10. Mantle Dynamics	Ch. 3
7	10/8	11. Volcanism	Ch. 6
	10/10	12. Mountain Building	Ch. 11
8	10/15	13. Earthquakes	Ch. 12
	10/17	14. Geologic Time	Ch. 13
9	10/22	15. Earth History	Ch. 14
	10/24	16. Geologic Resources	Ch. 10
10	10/29	Review for Second Exam	
	10/31	Second Exam (Weeks 6-9)	

Part III: Earth's Dynamic Surface

11	11/5	17. Global Warming	Ch. 16
	11/7	18. Global Change	Ch. 16
12	11/12	19. Glac. & Paleoclim.	Ch. 17
	11/14	20. Mass Wasting	Ch. 18
13	11/19	21. Surface Water	Ch. 19
	11/21	22. Groundwater	Ch. 20
14	11/26	23. Coastal Geology	Ch. 22
	11/28	NO CLASS (Thanksgiving)	
15	12/3	24. Marine Geology	Ch. 23
	12/5	Review for Third Exam	
16	12/10	Third Exam (Weeks 11-15)	
	12/12	Wrap-Up	

Tips for doing well in this course:

Reading: We will be covering about 1 chapter per lecture. Make sure to read each chapter before lecture. The class schedule tells you which chapters to read.

Lectures: Make sure to attend *every* lecture! We cover some material in lecture that is not in the book.

Homeworks: Make sure to do *every* homework! They will help you learn the material for the exams, and each homework is worth ~2.5% of your grade.

Questions: Questions are welcome and help learning. Please ask questions freely!

Learning Objectives. The Department of Geology & Geophysics has established the following undergraduate student learning objectives. All are relevant targets for the curriculum of GG101.

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, and field methods 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.

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:

KOKUA Program; 2600 Campus Road;

Honolulu, Hawaii 96822

Voice: 956-7511; Email: kokua@hawaii.edu;

URL: www.hawaii.edu/kokua