

SUST 116 / EARTH 106 Humans and the Environment (3) Prepares students to make decisions such as where to build/buy a house, sustainable use of natural resources, and what environmental actions relevant to society and Earth's ecosystem are appropriate on a local and global scale. A-F only. **DP**

SUST 116 / EARTH 106 : Humans and the Environment

Fall 2020

Tuesday-Thursday 12:00 – 1:15 pm synchronous on-line using zoom and other apps; availability of a computer with internet connection required for participation

Instructor: Henrietta Dulai

Office: POST 707 but this semester we use Zoom for office hours after class or by appointment set up by e-mail

e-mail: hdulaiov@hawaii.edu

Office Hours: always available after class and by appointment

You can also communicate with the instructor and the class via Lulima and e-mail

Text: Introduction to Environmental Geology – Fourth edition or newer by Edward A. Keller, book OR loose-leaf bundle

Class material is available through Lulima under the EARTH106 tab

The class prepares students to make decisions on sustainable use of natural resources and what environmental actions relevant to society and Earth's ecosystem are appropriate on a local and global scale.

Environmental geology is essential to understand and study because:

"...the minerals and metals required to power our low-carbon future are often buried in the Earth's crust, requiring geological expertise to map, analyse, target and extract sustainably. High-capacity batteries, solar panels, turbines and electrical systems depend on precious metals such as indium, lithium, neodymium and nickel, stored in rocks beneath our feet. Exploiting geothermal energy resources requires drilling through strata and circulating hot fluids through porous underground networks. Building wind or solar farms requires geo-engineering for stable large-scale structures rooted on bedrock, as well as materials for motors and generators. Managing water resources for an increasing global population requires models for groundwater utilisation and aquifer dynamics. The geologist is a core player in all these endeavours and is, therefore, a [key part](#) of a sustainable and healthy future." Wadsworth et al. 2020.

<https://www.timeshighereducation.com/opinion/earth-sciences-face-crisis-sustainability>

Class student learning objectives

At the end of the class you should:

- Explain the basic concepts of environmental geology: be able to describe examples of how Earth systems are connected, what natural hazards humans

face, how natural resources are formed and used, how climate change affects natural resources and humans.

- Be a more informed citizen concerning your environment: demonstrate critical thinking about sustainability, the use of natural resources and environmental pollution.
- Document problems using real world data sets (collect data in the field and interpret what they mean)
- Reconstruct knowledge in an oral presentation (final project).

The class will consist of lectures w/active participation via polls, group discussions, quizzes; readings, worksheets and videos as homework; field work on voluntary basis with alternatives to get credit for on-line activity.

Grades will be based on completion of worksheets (8 best grades out of 10 worksheets, 20 %), field and/or on-line project participation (15%), 2 exams (20% each), final presentation of the class project (15%), attendance/in-class participation through polls/quizzes (10%). If a student must miss an exam because of illness, family crisis, etc she/he must inform the instructor by e-mail for alternative arrangements.

An important aspect of the class is service learning through participation in the Ala Wai watershed monitoring program. Each student will participate in background analysis of the watershed, either directly or via virtual field trip participate in sample collection and lab analysis, be part of data processing and evaluation of results. These will be group projects, as well as the final presentation about the project.

Preliminary schedule – will adjust to fit class needs

Week #	Week of	Topic	Chapter
1	8/24	Introduction, Philosophy and Concepts	1
2	8/31	Population growth and sustainability	1
3	9/7	Group project preps	
4	9/14	Earth's Structure and Plate Tectonics, HI specific relevance	2
5	9/21	Volcanoes, recent HI eruptions	8
6	9/28	Earthquakes, Tsunami	6, 7
7	10/5	Coastal processes – field component	10
8	10/12	Coastal processes	10
		Exam 1	1,2,3,6,7,8, 10
9	10/19	Water Resources	13
10	10/26	Water Resources	13
11	11/2	Water Pollution – lab component	14
12	11/9	Energy Resources	16
13	11/16	Field and lab data processing	

14	11/23	Global Climate Change	19
15	11/30	Global Climate Change	19
16	12/7	Presentations and Review sessions	
		Exam 2	13,14,16,19

This is an introductory Earth and Environmental Science class focusing on how humans interact with the environment.

Most class periods are lecture-based with short videos, in class exercises, and discussions.

For most students, the difficulty of the class comes from a new vocabulary and new concepts.

Department Learning Objectives

The Department of Earth Sciences has established the following undergraduate student learning objectives.

- 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.
- Students can apply technical knowledge of relevant computer applications, laboratory methods, and field methods to solve real-world problems in geology and geophysics.
- Students use the scientific method to define, critically analyze, and solve a problem in earth science.
- Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.
- 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.

Sexual Harassment

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 (including me) 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** (and see below).

<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; or contact me and I will take you to the Title IX office.

Confidential Reporting

University of Hawaii students, faculty and staff have an important resource to confidentially report violations of laws, rules, regulations and UH policies. A whistleblower hotline launched in June 2016 further advances the university's commitment to encourage and enable any member of UH or the general public to make good faith reports of misconduct.

University of Hawaii Whistleblower website:

<https://secure.ethicspoint.com/domain/media/en/gui/40480/index.html> UH

Whistleblower Hotline: 1-855-874-2849

For more information go to UH News at <http://go.hawaii.edu/coj>

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. The instructor has worked with Kokua program several times in the past years.

Services:

KOKUA 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