

ERTH135 – Natural Disasters and Human History

Class Times: Tue & Thu 9:00–10:15 am, POST 723
Instructor: Deborah Eason
Office: POST 719B
Phone: 808-956-4634
email: deborah@hawaii.edu (best way to reach me!)
Office Hours: Tue & Thu 10:30–11:30am and by appointment
(email me your availability to schedule)

We live on an active dynamic planet. The same natural processes that have made Earth habitable also sometimes result in hazardous conditions. In this course, we will explore how a variety of geologic events and environments have influenced human history from prehistoric times through present day. We will analyze the social, cultural, and economic effects of various natural disasters that led to significant societal changes in Africa, the Americas, Asia, Europe, and Oceania.

This course will use a mix of interactive lectures, discussions, and group projects. After outlining the hazards associated with various geologic processes, we will investigate historical examples and how different societies have reacted to and been shaped by these natural disasters.

Following a week of introduction to how our dynamic planet works and how this dynamism results in sometimes-hazardous conditions, the semester will be divided into 4 modules dedicated to volcanism, earthquakes, tsunamis, and floods. Each module will consist of 7 classes and start with an introduction to the particular hazard (classes 1–2). At the end of class 2, the group project for that module will be assigned. Class 3 will present case studies of disastrous events, including their cultural and historical effects. Classes 4–6 will be dominated by in-class discussions and group presentations, augmented by additional case studies (as time permits). Class 7 will consist of an exam for that module.

Textbook: We will not be using a single specific textbook, and instead rely on reading materials across a broad range of sources (will be provided).

Course grading:

Exam (12.5% for each topic/block exam; total for all 4 exams: 50%) (non-cumulative; 4th exam will be during official Final Exam slot)

Problem sets (5% per topic/block; total for all 4 problem sets: 20%)

Course attendance and participation (30%) – half (15%) for participation in class discussions and presentations, and half (15%) for “clicker” question participation. NOTE: we will be using free software for our “clickers” (not physical iClicker remotes).

Tentative Schedule (subject to change)

Jan 10 – Introduction, Earth Structure, Plate Tectonics I

Jan 12 – Plate Tectonics II: Plate boundaries

Jan 17 – Volcanism I: Magma generation and volcanic eruptions

Jan 19 – Volcanism II: Volcanic hazards; assign group project 1 (effects of Tambora)

Jan 24 – Volcanism III: Historical effects (Toba 73K BCE; Santorini ~1600 BCE; Vesuvius 79 CE)

Jan 26 – Volcanism IV: In-class discussions on volcano topics/projects
Jan 31 – Volcanism V: Hawaiian eruptions (‘Ailā‘au & Keanakāko‘i eruptions and connections to epic Hi‘iaka story, 2018 lower Puna eruption); 20th century eruptions in Hawai‘i and Italy; Gas disasters in Cameroon. Begin Project 1 student presentations
Feb 2 – Volcanism VI: Finish Project 1 student presentations
Feb 7 – Volcanism VII: Exam #1

Feb 9 – Earthquakes I: Causes, measurement, location
Feb 14 – Earthquakes II: Hazards; assign group project 2
Feb 16 – Earthquakes III: 1755 Lisbon, 1868 Ka‘ū Mw 8.0(?)
Feb 21 – Earthquakes IV: In-class discussions on earthquake topics/projects
Feb 23 – Earthquakes V: Earthquakes in China (prehistoric to recent), 2010 Haiti (poverty and corruption). Begin Project 2 student presentations
Feb 28 – Earthquakes VI: Project 2 student presentations
Mar 2 – Earthquakes VII: Exam #2

Mar 7 – Tsunami I: Generation and propagation
Mar 9 – Tsunami II: Hazards; assign group project 3
— ***March 13–17: SPRING BREAK*** —
Mar 21 – Tsunami III: 2004 Indian Ocean, 2011 Tohoku
Mar 23 – Tsunami IV: 1868, 1946 and 1975 Tsunami in Hawai‘i, Eastern Mediterranean (365 CE) and Lisbon (1755); In-class discussions on tsunami topics/projects
Mar 28 – Tsunami V: Misc. tsunami case studies. Begin Project 3 student presentations
Mar 30 – Tsunami VI: Project 3 student presentations
Apr 4 – Tsunami VII: Exam #3

Apr 6 – Floods I: Causes, measurement
Apr 11 – Floods II: Bosphorus flood; assign group project 4 (flood cases)
Apr 13 – Floods III: Chinese floods in ~2200–2000 BCE and effects on dynasties
Apr 18 – Floods IV: In-class discussion of flood topics/projects
Apr 20 – Floods V: Holland: ~823–present, with emphasis on the 1421 St. Elizabeth Flood, Louisiana flooding in 1927 (Mississippi River) and 2005 (Katrina). Begin Project 4 student presentations
Apr 25 – Floods VI: Project 4 student presentations
Apr 27 – Other natural hazards and their impacts
May 2 – Overview of semester, likely hazards/impacts in Hawaii; course evals
Week of May 8-12 – Exam #4 (non-cumulative); Day/time TBA

Admin Stuff:

The **Department of Earth Sciences** has established the following undergraduate student learning objectives for introductory courses such as EARTH 135:

Students can explain the relevance of earth science 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. *The focus of this class on specific Earth science-related hazards will lay out the processes that may represent natural hazards, and their impact on people and their cultures, world-wide.*

Students use the scientific method to define, critically analyze, and solve problems in earth science. *Students will complete a problem set for each unit, and work in groups to research particular events, what caused them, and how the event affected humans.*

Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.

The presentation component of the class will help build oral presentation skills.

In addition, as a UH General Education Foundations course, the following student learning objective applies:

Students can analyze the development of human societies and their cultural traditions through time in different regions (including Africa, the Americas, Asia, Europe, and Oceania) and using multiple perspectives.

The class will examine natural hazards and their impacts across the world and through history.

Please review the UH Mānoa **Student Conduct Code** at:

http://www.studentaffairs.manoa.hawaii.edu/policies/conduct_code/

“The University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to respect the rights, privileges, and property of others; and to observe national, state, and local laws and University regulations.”

The code also outlines the serious penalties for violations, so **please do not violate the code. Academic dishonesty will be reported**, and any exams or assignments affected by dishonesty will receive “0” credit and cannot be retaken.

Make-Up Exams/Early Exams

Make-up exams will only be given when a student misses the exam for a legitimate reason such as illness or family emergency (a doctor's note is required in the case of illness, or family emergencies). Please contact me as soon as possible if such a situation arises. Anyone with official UH-sponsored event conflicts (e.g., UH sports teams) must provide at least 2 weeks notice with appropriate signed paperwork. Note that make-up and/or early exams may be essay/short-answer instead of the usual format.

Students with Disabilities

The Earth Sciences Department will make every effort to assist those with disability and related access needs. For confidential services, please contact the Office for Students with Disabilities (known as “Kokua”) located in the Queen Lili‘uokalani Center for Student Services (Room 013): KOKUA Program; 2600 Campus Road; Honolulu, Hawaii 96822. 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.