

ERTH135 Natural Disasters and Human History Spring 2020

INSTRUCTOR: **SLOAN COATS**
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Office Hours: **Tuesday-Thursday 10:30 – 11:30 am and by
appointment**
Class Times: **Tuesday-Thursday 9:00 – 10:15 am (POST 723)**

We live on an active dynamic planet. Human history has been determined mainly by the activities of humans, but it is not completely divorced from natural processes. In this course, we will explore how a variety of geologic events and environments have influenced human history from pre-historic times up to the present. We will analyze the social, cultural and economic effects of various disasters that led to significant changes in societies in Africa, the Americas, Asia, Europe and Oceania.

This course will use a mix of lecture and hands-on learning through group projects. After outlining the hazards associated with various geologic processes, we will investigate historical examples and how different societies have reacted to, and changed because of, 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 four modules, dedicated to volcanism, earthquakes, tsunami, and floods. Each module will consist of 7 classes, and start with an introduction to the particular hazard (class 1 and part of class 2). At the end of class 2 the group project for that particular module will be assigned. Class 3 will present case studies of the particular hazard, including their cultural and historical effects. In class 4, the student groups will present their preliminary results to the class, with feedback and discussion from fellow students and the instructor. Class 5 and class 6 will be the final presentations from the student groups, augmented by additional case studies (as time permits), and Class 7 will consist of an exam.

Course grading:

Exams (15% per exam, total for all 4 exams = 60%) (non-cumulative; 4th exam will be during “official” Final Exam slot)

Course attendance and participation (40%) – includes 30% participation in class discussions and group projects and 10% for iClicker questions.

NOTE: Each class will include a few questions that you will answer using iClickers, so please make sure that you have either an iClicker or Reef Polling software for your phone (you can find info at: <https://www.iclicker.com/>)

Tentative Schedule

Jan 14 – Intro., Earth Structure, Plate Tectonics I

Jan 16 – Plate Tectonics II: Plate boundaries

Jan 21 – Volcanism I: Magma generation and volcanic eruptions

Jan 23 – Volcanism II: Volcanic hazards, assign group project 1 (effects of Tambora)

Jan 28 – Volcanism III: Historical effects (Santorini ~1600 BCE; Vesuvius 79 CE)

Jan 30 – Volcanism IV: In class discussion about volcanic topics

Feb 4 – Volcanism V: Hawaiian eruptions (‘Ailā‘au and Keanakāko‘i eruptions and connections to epic Hi‘iaka story, current eruption and Pāhoā); 20th century eruptions in Hawai‘i and Italy; Gas disasters in Cameroon; Begin Project 1 student presentations

Feb 6 – Volcanism VI: Finish Project 1 student presentations

Feb 11 – Volcanism VII: First Exam

Feb 13 – Earthquakes I: Causes, measurement, location

Feb 18 – Earthquakes II: Hazards, assign Group Project 2 (earthquakes from 1800-1950)

Feb 20 – Earthquakes III: Lisbon quake of 1755; Begin Project 2 in class discussions

Feb 25 – Earthquakes IV: 2010 Haiti (poverty and corruption); Continue Project 2 in class discussions

Feb 27 – Earthquakes V: Begin Project 2 student presentations

Mar 3 – Earthquakes VI: Finish Project 2 student presentations

Mar 5 – Earthquakes VII: Second Exam

Mar 10 – Tsunami I: Generation and propagation

Mar 12 – Tsunami II: Hazards; Assign Group Project 3 (1946 and 1960 tsunamis around the Pacific)

Mar 17, 19 – Spring Break

Mar 24 – Tsunami III: 2004 Indian Ocean, 2011 Tohoku

Mar 26 – Tsunami IV: Preliminary presentations, discussion of preliminary results.

Mar 31 – Tsunami V: 1868, 1946 and 1975 Tsunami in Hawai‘i, Eastern Mediterranean (365 CE) and Lisbon (1755). Begin student presentations

Apr 3 – Tsunami VI: Project 3 student presentations

Apr 7 – Tsunami VII: Third Exam

Apr 9 – Floods I: Causes, measurement

Apr 14 – Floods II: Opening of Bosphorus = Noah’s flood? Assign group project 4 (flood cases)

Apr 16 – Floods III: Chinese floods in ~2200-2000 BCE and effects on dynasties

Apr 21 – Floods IV: Holland: ~823- present, with emphasis on the 1421 St. Elizabeth Flood, Louisiana flooding in 1927 (Mississippi River) and 2005 (Katrina).

Apr 23 – Floods V: Drought in middle east – primer for Syrian civil war and mass exodus of Syrian people to Europe?

Apr 28 – Floods VI: Historic US Floods

Apr 30 – Floods VII: Historic Asian floods

May 5 – Floods VI: Project 4 student presentations

May 7 – Floods VII: Project 4 student presentations 2

May 14 – Non-cumulative Final Exam (Thursday of Finals Week, 9:45-10:45 am)

Admin Stuff:

The **Department of Earth Sciences** has established the following undergraduate student learning objectives for introductory courses such as EARTH135:

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.

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.

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.

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 format, instead of multiple choice exams otherwise conducted.

Please review the UH Mānoa Student Conduct Code at:

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

A key line in the Code says, **“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.

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.