

ERTH 410 Undergraduate Seminar

Lecture: Mon 1:30–3:20pm, POST 723

Enrollment Limit: 20 students

Instructor: Deborah Eason

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Office: POST 719B

Office Hours: Mon 12-1:30pm (tentative), and by appointment (email me to schedule)

Overview: The primary objective of this course is to contribute to the development of informed and responsible citizens able to (1) think critically and analyze the ethical implications of geoscience research, and (2) effectively communicate complex scientific topics. By learning to apply ethical principles within a cohesive framework, students will become more adept at evaluating current controversies in the geosciences and engaging with the moral dilemmas that inevitably arise from living on a dynamic planet and interacting with our environment.

During this course the students will:

1. Improve oral communication skills, primarily as an individual but also as a member of working groups and receive feedback from the instructor.
2. Learn an applied framework for making ethical deliberations, using the “8 Key Questions” approach developed by James Madison University, and the American Geosciences Institute’s Guidelines for Ethical Professional Conduct.
3. Explore a variety of controversial issues at the intersection of societal needs/threats and Earth Science as part of their preparation of oral presentations.
4. Practice integrating ethically- and scientifically-valid frameworks for analyzing and responding to ethical dilemmas through reasoned deliberation.

Reading: All course reading and resources will be provided on Laulima. There is no required textbook.

Prerequisites: An introductory geology course (ERTH101 or comparable) and EARTH200 (or equivalent). Experience has shown that this course is best suited to more senior/advanced students with more prior course knowledge to draw upon in their oral presentations.

Attendance:

- It matters and *is required*. An excused absence requires a note from a healthcare provider or similar.
- If non-attendance becomes a persistent problem, you will be contacted directly. *You can be failed for excessive non-attendance*. It is unfair to your peers to skip out on their talks, and you are not fulfilling the E-focus requirements if you miss ethics discussions in class. Arrangements must be made with the instructor to make up missed material.

- Active participation in class discussions and peer feedback groups counts towards 10% of the course grade (evenly distributed between O and E requirements).

Overview of focus designations:

E-Focus: This course has a Contemporary Ethical Issues (E) Focus designation. Contemporary ethical issues are fully integrated into the main course material and will constitute at least 30% of the content. At least 8 hours of class time will be spent discussing ethical issues. Using lectures, discussions and assignments, students will develop basic competency in recognizing and analyzing ethical issues; responsibly deliberating on ethical issues; and making ethically determined judgments.

O-Focus: Each student will participate in three oral communications assignments (or a comparable amount of oral communication activity) as well as class discussions. Students will receive explicit training in oral communication to develop speaking skills and proficiencies. Students will receive guidance and specific feedback (written and verbal) both from the instructor and from their peers. Approximately 60% of the final grade will be determined by the student's oral communication activities, including presentation preparation and delivery. Only students who satisfactorily complete the oral communication assignments will be allowed to pass the course with a "D" or better.

Course content & relationship to programmatic student learning objectives (SLOs):

The purpose of this course is to give undergraduate Earth Science majors experience in giving oral presentations on topics concerning contemporary ethical issues in geoscience. In the beginning of the semester, the course covers the basic aspects of preparing and presenting a talk (e.g., good speaking practices, effective slide layout, how to introduce a speaker). Student effort and class time is directed toward presenting talks they have prepared themselves on topics concerning contemporary ethics issues.

The major theme will be the intersection of geoscience and society, including the impact of uncertainty about natural phenomena, limits to available resources, etc. on ethical deliberation. Students select topics or case studies for oral presentation assignments and develop ethical arguments to support or critique a particular course of action. While students are given the opportunity to identify topics they will speak about, all topics require instructor approval. Presenters will receive feedback from the instructor as well as their peers. In addition, at least one class session will be devoted to discussion of hypothetical situations relevant to individual STEM students and professionals, including best practices, scientific fraud, plagiarism, conflicts of interests, abuse of power, intellectual property, role of institutional policy, and interpersonal conflicts.

The primary programmatic student learning objective (SLO) this course satisfies is SLO #4 (*Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports*), particularly SLO #4c pertaining to scientific ethics. Other SLOs are addressed as students prepare their talks, including SLO #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) and SLO #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).

Schedule: A detailed course schedule will be finalized when the number of enrolled students is known. A list of assignments and the associated weights for grading follows.

Assignments

In addition to the presentation assignments listed below, your course grade will also include quizzes on ethical frameworks and professional ethics (10%), and active participation in class discussions and peer feedback sessions (10%).

Presentation 1: Students present content drawn from introductory geoscience coursework that has ethical dimensions/implications in a style suitable for a non-expert audience. The presentation time is 10 min and the format/style is a lecture type presentation. (15% of course grade, of which 66% counts toward the O-focus & 34% toward the E-focus)

*Note: for this assignment, students may elect to present their own research, which may or may not have an ethics component. In this case, no E-focus credit is given for this assignment, and ethical content must be emphasized in future assignments.

Preparative work in advance of presentation: For this assignment there are three elements of prior preparation: (1) instructor lecture on public speaking; (2) in-class discussion/workshop of presentation content with an emphasis on developing effective visual aids, and strategies for making effective oral presentations; (3) overview of ethical deliberation using the JMU “8 key questions” and the 8 Key Questions Handbook.

Presentation 2: Students will present a persuasive presentation related to a current or recent controversial issue pertaining to the geosciences. Students are expected to use data from the public domain to express an ethical judgement by supporting their position and critiquing opposing views. Topics will be assigned (with some student input/interest) and will contain a strong ethical component. The presentation time is 10 min (and may be conducted in teams, depending on total enrollment). (25% of course grade, of which 60% counts toward the O-focus & 40% toward the E-focus)

Preparative work in advance of presentation: For this assignment there are three elements of prior preparation: (1) instructor lecture and in-class discussion on persuasive vs. informative presentations; (2) discussion/workshop of presentation content emphasizing developing effective arguments; (3) discussion of professional ethics, and ethical dilemmas that can arise at the intersection of science and persuasion (e.g., policy advocacy, activism).

Presentation 3: Students prepare a 10-12 min presentation on a topic at the intersection of geoscience and society. Example topics include: conveying degrees of confidence and uncertainty to the public, policy makers, and resource managers about the frequency, magnitude, duration, recurrence interval of natural phenomena; limits to available resources; environmental impacts of human activities, or other ways in which data collected by geoscientists is used to shape public policy. Students will choose a specific topic or case study that includes an ethical component (e.g., man-made earthquakes associated with hydraulic fracturing (fracking), potential climate change impacts and/or related litigation, the Fukushima crisis following an earthquake and tsunami) and develop their presentation within an ethics framework. (40% of course grade, of which 75% counts toward the O-focus & 25% counts toward the E-focus).

Preparative work in advance of presentation: Students will draw upon preparative work for presentation 1 and, as a supplement to their presentation, students will provide a written outline of their ethical analysis in which each of the “8 Key Questions” is considered explicitly. Students will workshop and refine their presentation in small groups prior to their final presentation.

Feedback & Assessment

Student Feedback: Following each presentation, students will (1) be asked to conduct a short self-reflection on their presentation; (2) receive written peer feedback from all peers (anonymous), as well as verbal feedback and discussion in a smaller group peer feedback session; and (3) receive a written evaluation and personalized feedback from the instructor.

Scoring: For Presentation 1, the expectation is that students will receive full credit if they participate and demonstrate effort (including presentation preparation, delivery, the presence of scientific and ethical content, and completion of a short revision exercise).

Scoring for Presentation 2 will include: (1) Delivery of presentation (20% of assignment); (2) Organization and quality of visual aids (20%); (3) Quality and accuracy of scientific content (15%); (4) Quality and breadth of ethical analysis and deliberation (40%); (5) Completion of a short revision (1-2 slide(s)/narrative) (5%).

Scoring for Presentation 3 will include: (1) Delivery of presentation (30% of assignment); (2) Organization and quality of visual aids (20%); (3) Quality and accuracy of scientific content (20%); (4) Quality and breadth of ethical analysis and deliberation (25%); (5) Completion of a short revision (1-2 slide(s)/narrative) (5%).

Student Resources:

KOKUA: Any student who feels they may need an accommodation based on the impact of a disability is invited to contact me privately. I am happy to work with you and the KOKUA Program (Office for Students with Disabilities) to ensure reasonable accommodations in the course. For confidential services, please contact the KOKUA Program (Office for Students with Disabilities) 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

Basic Needs: UH also has resource that aim to help students who are struggling to meet basic needs – “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.](#)”

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.