

Department: Center for Integrative Geoscience

Course number: 4050W

Course title: Geoscience and Society

Credits: 3

Contact Person: Jean Crespi

Q/W: W

Catalog Copy:GEOL 290W; 4050W. Geoscience and Society Second semester. Three credits.

Prerequisite: GEOL 1050 or 1051; at least two 2000 level or higher GEOL courses, one which may be taken concurrently; and ENGL 1010, 1011, or 3850 Open to juniors or higher. Application of fundamental geological principles to issues of concern to society such as global climate change; wildfires; drought and water resources; earthquake, volcano, and tsunami hazards; medical geology; energy resources; sustainability; and coastal processes

Justification: -a) A major in geoscience is currently offered as a structured individualized major through the Individualized & Interdisciplinary Studies Program. The individualized major requires a capstone course and, like other majors at the university, writing within the major. When the structured individualized major was approved, the director of the Individualized & Interdisciplinary Studies Program asked that a separate capstone be created because INTD 295W is typically at capacity. The proposed course will fulfill the capstone and W requirements and will allow the first students to pursue a structured individualized major in geoscience to graduate in a timely manner.

c) Adds a much needed W course to the curriculum and provides a capstone experience for majors.

d) No significant effect on other departments.

e) Course content overlaps with other courses in that students will be asked to integrate principles and concepts learned in other courses.

g) See above.

[W Criteria](#)

The proposed course will allow students to take the basic scientific concepts that they have learned in the major and apply them to the solution of problems of importance to society. This approach will sharpen students' understanding of a wide range of geological principles and processes, and it will create a venue in which they can integrate material learned in different courses in the major. Potential topics include global climate change; wildfires; drought and water resources; earthquake, volcano, and tsunami hazards; medical geology; energy resources; sustainability; and coastal processes. Only some of these topics will be offered in any given semester to allow the material to be explored in depth; to be

responsive to student interest; and to take advantage of current events of local, national, and international significance.

The content specific to the topics of the course will be communicated through reading assignments and lectures. The writing assignments will enable and enhance student learning of the content of the course because they are designed so that students must be actively engaged in their own learning. They must identify the questions most significant to the problem at hand; they must synthesize material from a variety of sources to address the identified questions; and they must analyze the questions from more than one viewpoint.

Each student will produce a minimum of 16 pages of written text, which will undergo at least one revision (see response to 3 below for details). The writing assignments constitute 80% of the final grade.

Writing instruction will be accomplished through written comments on first and final drafts; through writing workshops during formal class meeting time; and through individual conferences scheduled at the convenience of the student and instructor. See syllabus.

As shown in the sample syllabus for the situation in which two topics are covered in the course, each of the four writing assignments (two 5-page Q&As and two 3-page Rs) will undergo revision. The times when the first and final drafts are due are staggered such that there is adequate time for instructor evaluation and student revision of the first draft before the final draft is due. In addition, the use of multiple writing assignments allows for the application of newly learned writing tools by the student throughout the semester and reinforces learning. For situations in which one topic is covered or more than two topics are covered, the number and length of Q&As and Rs will be appropriately modified while adhering to the goals stated herein.

The syllabus will inform students that they must pass the “W” component of the course in order to pass the course. See syllabus.

Syllabus:

GEOL 290W (4050W)

Geoscience and Society

Generic syllabus

Course objective: To learn how to integrate knowledge obtained within courses in the major. This will be accomplished through reading and writing assignments, oral presentations, and group discussions designed to address how geological principles and processes relate to the solution of problems of concern to society.

Week 1 Background – topic 1

Week 2 Background – topic 1

Week 3 Identification and assignment of questions – topic 1

Week 4 Background – topic 2

Week 5 Background – topic 2; Topic 1 Q&A first draft DUE

Week 6 Writing workshops and individual meetings

Week 7 Identification and assignment of questions – topic 2; Topic 1 Q&A final draft DUE

Week 8 Background – topic 1; Topic 1 R first draft DUE

Week 9 Background – topic 1; Topic 2 Q&A first draft DUE

Week 10 Writing workshops and individual meetings; Topic 1 R final draft DUE

Week 11 Background – topic 2; Topic 2 Q&A final draft DUE

Week 12 Background – topic 2; Topic 2 R first draft DUE; Forum presentations DUE

Week 13 Forum presentations

Week 14 Follow-up of forum presentations; Topic 2 R final draft DUE

Grading:

Topic 1 Q&A first draft – 5 pts

Topic 1 Q&A final draft – 20 pts

Topic 1 R first draft – 5 pts

Topic 1 R final draft – 10 pts

Topic 2 Q&A first draft – 5 pts

Topic 2 Q&A final draft – 20 pts

Topic 2 R first draft – 5 pts

Topic 2 R final draft – 10 pts

Forum presentations – 10 pts

Final exam – 10 pts

Total – 100 pts You must pass the W component of the course to pass the course.

This document provides a generic syllabus for GEOL 290W (4050W) Geoscience and Society for the case in which two topics are covered. For each topic, the students will work together to formulate

fundamental questions about the topic. The number of questions they come up with will be the same as the number of students enrolled in the course. Each student will be assigned or can choose one of these questions. Each student will write a 5-page paper addressing his or her question (noted as Q&A above). In addition, each student will be given another student's 5-page paper from which they must write a 3-page paper presenting an opposing viewpoint (noted as R above). A student does not necessarily need to agree with the opposing viewpoint he or she crafts. The total amount of writing will be 16 pages and a first draft will be critiqued for all writing assignments.

Scientific concepts relevant to the selected topics will be presented in lecture format during weeks denoted as background above.

There will be weekly reading assignments, which will provide the content for seminar-style discussions of the different topics. Reading assignments will be taken from sources such as GSA Today (a publication of the Geological Society of America), Eos (a publication of the American Geophysical Union), Elements (a joint publication of thirteen mineralogical/geochemical societies), Scientific American, and the primary literature.

The students will present their work in a forum to which geoscience faculty, graduate students, and undergraduate students will be invited. Each student will prepare 15 minutes of material for each of the two topics (10 minutes for his or her Q&A and 5 minutes for his or her R).