

Geosciences: Interdisciplinarity, Society, and Careers.

Instructor: Upper level Graduate Student TA with faculty supervision

Email:

Office:

Line number:

Course Listing:

Schedule: a 1.5 hours weekly meeting (1-2 credits) or 2 x 1.25 hours a week (3 credits).

Credits: 1-3 (could be expanded via the internship idea and a more rigorous evaluation of geoscience policy literature to become a science and society class for majors).

Location: Somewhere to hold ~20 students, suite panel discussion, media presentation.

Desired Demography: Undergraduates majoring Geosciences/SESE or with a strong background and career aspirations related to Geosciences.

Course Description

A graduating B.S. student in the geosciences has expertise that compliments a variety of other disciplines such as biology/ecology, city planning, engineering, public policy, climate studies/atmospheric sciences, planetary science, geographical sciences, archeology/anthropology, sustainability, education, and numerous others. This seminar will help guide you to think about utilizing your geoscience education beyond your undergraduate degree. In government, industry, policy, academia and elsewhere it is becoming more likely that you will work in an interdisciplinary environment. In this course, we will discuss the cross disciplinary nature of the geosciences and professional development in the geosciences utilizing primary literature, class discussions, mini internships, and guest speakers (faculty, graduate students, and industry professionals).

Goals for the course:

1. Students will gain an appreciation of the breadth of their discipline, how it interfaces with other fields of study, and how to begin to think with an interdisciplinary perspective.
2. Students will learn about career, internship, and graduate school opportunities in the geosciences and interdisciplinary fields.
3. Students will practice critical analysis and discussion of science literature accompanying guest speaker topics.
4. Students will establish or strengthen mentoring relationships.

Assessment:

General Attendance and Participation:	40%
Career Reflection Paper (3 pages)	20%
SESE 4hr internship and Reflection Paper (3 pages)	20%
CV creation	10%

Possible Schedule: This schedule could be variable by year depending upon instructor specialty and student interest (could administer a survey at the start of course). The Schedule is set up for a once a week meeting, but could be expanded to two meetings per week and turned into a science and society class. Additional seminar topics are listed after this weekly schedule.

- Week 1** – Introductions and syllabus discussion; we will discuss class goals and student interests/expectations along with student introductions; we will outline the semester class structure. **Reading Due:** AGI 2009 Geoscience Workforce Report: <http://www.agiweb.org/workforce/reports.html>
- Week 2** – Discussion of disciplinary, interdisciplinary, multidisciplinary, and transdisciplinary ways of knowing (Bring in a panel (3-4) guest speakers from GISER – Graduates in Social and Ecological Research) **Reading due:** Miller T.R., T.D. Baird, C.M. Littlefield, G. Kofinas, F.S.Chapin III, and C.L. Redman (2008) “Epistemological Pluralism: Reorganizing Interdisciplinary Research” *Ecology and Society* **13**, no. 2
<http://www.ecologyandsociety.org/vol13/iss2/art46/>
- Week 3** – 6-10 SESE or related graduate students come in and present their research (5-10 minutes each) to solicit the undergrads to come and volunteer for them (minimum 4 hrs commitment + 1 reflection paper due at end of semester).
- Week 4** – Discussion of **CV creation and establishing mentoring relationships.**
Reading due: *CV creation documents and mentoring documents.*
- Week 5** – Lecture on **REU programs** and gaining research experience as an Undergrad.
(CV Due with Cover Letter submitted to graduate students for internship selection)
- Week 6** – **Geoscience Education:** Discussion of 2 Geoscience education papers with guest faculty speaker talking about geoscience education research/careers.
- Week 7** – Guest speaker on applying to Graduate Programs in the Geosciences.
Reading Due: Toke and Arrowsmith: *Selecting and Applying to Graduate Schools in the Geosciences:* http://activetectonics.asu.edu/teaching/GLG494-ICOG/Gradschool_ApplicationGuide_Toke_Arrowsmith.pdf
- Week 8** – Panel of SESE graduate students “Day in the life of a graduate student.”
- Week 9** – Lecture and discussion of job hunting tools in the Geosciences. **Readings Due:**
<http://activetectonics.asu.edu/teaching/GLG494-ICOG/links.html>
- Week 10** – Industry and Mineral Resources – 2 guest speakers and background reading.
Career Reflection Paper due
- Week 11** – Government agencies: Series or panel of speakers from 1-3 backgrounds: EPA, NASA, AZGS, USGS, or ADEQ, etc.
- Week 12** – Consulting and Geotechnical Engineering 2 speakers and **Readings Due:**
(industry technical report or other)

Week 13 – SESE Faculty Presentations 2 Speakers present their career history.

Week 14 – Students report on their SESE internships. Fill out class evaluations and give oral feedback on the course to the instructor (who takes notes and reports on suggestions via a letter to the following year's class leader). ***Turn in internship reflection paper.***

Additional potential topics to fill out a two day a week science and society class:

Geoscience and Public policy/Governance/law (i.e. EPA, Development Regulations, Yucca Mtn, Superfund sites)

Geoscience and Ecosystems (i.e. Biogeochemistry, Soils, Astrobiology)

Geoscience and Engineering and Planning (i.e. Geotechnical Engineering, Hazard Assessment, Sustainable Solutions)

Geoscience and Human Response to Global Hazards (i.e. Volcanoes, Earthquakes)

Geoscience and Human History (i.e. Paleohominid studies, Archeology)

Geoscience and Evolutionary Biology (i.e. Paleontology)

Geoscience and Energy Resources (i.e. Geothermal studies, Hydropower, Hydrocarbons)

Geoscience and Climate Studies (i.e. Paleoclimatology, Lower atmosphere dynamics, Microclimates)

Policies:

Attendance is required. We will be learning primarily from one another's ideas and in class discussions so attendance is critical for getting the most from the course. That being said, you must let the instructor know **prior to class** if you will be absent. More than 2 absences during the semester will negatively affect your grade in the class.

Academic Honesty and Misconduct: All university rules on academic honesty and misconduct can be found online. Don't cheat, don't plagiarize, etc. Be good honest people. We are in this class to learn from one another.