

GEOL 387a Undergraduate Team Research
2 Units
Spring 2025

Tuesday 9.00 am-10.50 am

Location: ZHS 130

Instructor: Prof. Sarah Feakins

Office: ZHS 223F

Office Hours: drop in or by appointment

Contact Info: feakins@usc.edu

Prof. Feakins replies to emails within hours or certainly 2 work days.

IT Help: Steven Lin

Contact Info: ZHS 117 slin2@usc.edu

Library research help: In person and by phone, chat and email at [Ask a Librarian](#), through [research guides](#) and [FAQs](#)

Course Description

An expanded version of the description published in the University catalogue:

This is a scientific research communication class for GEOL undergraduate majors and minors. Science is usually collaborative, therefore coursework includes team work. Scientists have to produce a variety of products, alone and in collaboration, that represent their contribution to scientific progress. Scientists have to communicate in a variety of formats including technical writing, formal writing, writing for non-technical specialists, presentations to fellow scientists, to policy makers, and to the public. Students will study and deliver a range of such products. Students who have declared a major or minor in the Earth Sciences or in related disciplines, or who are keen to do so, are encouraged to take this course. It is a required course for students on the BSc track, but it is equally designed to be valuable for the BA track and minors. Students would ideally already have taken an Earth Science GE or other science class. In this course we will make connections from coursework to research opportunities and careers. Students will develop skills needed for their further careers, and will implement these skills in proposals, research activities and presentations.

Learning Objectives

Learning objectives, reproduced from those of the Department of Earth Sciences:

Scientific Method

- Students will learn how to critically evaluate scientific information in visual and written forms.

Scientific Communication

- Students will demonstrate the ability to acquire and communicate scientific data, ideas, and interpretations through written, oral, visual, and digital means.
- Students will demonstrate the ability to accurately report on and draw conclusions from careful readings of works of scientific journalism and research literature.
- Students will use the USC library and online databases to locate and retrieve publications relevant to a research question or project.
- Students will produce written reports that clearly and accurately describe and illustrate the background, methods, data, and interpretations relevant to a particular project.
- Students will produce and present oral reports based on posters or digital media (e.g. Power Point, Keynote) that clearly and accurately describe and illustrate the background, methods, data, and interpretations relevant to a particular project.
- Students will demonstrate proficiency in the visual display of quantitative information and associated plotting and editing software.
- Students will demonstrate the ability to accurately and ethically incorporate and cite a variety of scholarly sources in their written reports and oral presentations, and will evaluate the relative reliability of sources of information and discriminate between peer-reviewed, edited, and “wiki” publishing.

In addition:

Introduction to the world of research

- Students will learn about opportunities for research in the earth sciences, sources of funding and opportunities to present on their research on campus and off-campus.
- This course will introduce students to the norms of scientific communication within college writing, academic research and technical careers.
- Students will learn to communicate technical information to non-scientists where earth-science meets society in life-threatening ways (geohazards).

Recommended Preparation: A GE course in Earth Science. No pre/co-requisites.

Technology Use: This course is web and technology-enhanced. Class materials and some readings will be posted on Brightspace. Technology-enhanced learning strategies will be used, including video recording of oral presentations and play-back in class, for class peer review.

Technological Proficiency and Hardware/Software Required: You will need access to a computer and to standard Microsoft Office software: Word, Excel and Powerpoint. You will need access (within teams) to a smart phone with video and audio recording capability. Students can download the MS Office package free through USC if they don't already have it: <https://itservices.usc.edu/officestudents/>

Required Readings and Supplementary Materials

Readings will be provided and/or located by students using database software via USC libraries.

Description and Assessment of Assignments

6 'short' writing assignments: The top 4 will be counted at 10% each (40% of total). This provides a learning environment that is not punitive, students can make mistakes and obtain feedback that they can incorporate in later assignments. See schedule for components, additional instructions in class.

Team Multi-Media Presentations: 10%. Communicate earth science to non-science audiences via a range of media. Top 2 of 3 will be counted at 10% each (20% of total). See schedule for components, additional instructions in class.

Team Technical Presentation: 5%. Use the skills needed in technical presentations and work as a team, consider this practice for technical careers. Detailed instructions to be given in class.

Individual Academic Presentation: 10%. Use the skills needed in academic presentations (undergraduate classes, graduate school and beyond), consider this practice for academic research presentations such as on your own research later at USC or beyond. Detailed instructions to be given in class.

Research Proposal: 25%. Frame your research plan for a funding opportunity, such as an application for one of the USC fellowships for undergraduate research (Provost, SOAR, SURF, ESRAP etc.). Detailed instructions to be given in class, as well as on funding source websites.

Class Participation: 5%. This coursework centers on active participation in learning, it is not a lecture-based course. While I hope you will all participate in every class session, graded participation activities (presentations and discussions) comprise the participation score.

Activities teach the various writing, reading, graphing, communication, presentation and research preparation learning objectives – and the evaluated activities and rubrics assesses the degree to which students have met the learning objectives.

Grading Breakdown

Grading will be based on your performance on writing assignments, presentations, and class discussion.

Assignment	Points
Homework short writing assignments (6 assignments, /10, drop lowest score best 4 grades)	40
Multi-media public communication efforts (3 assignments, /10, drop lowest score, best 2 grades) (team)	20
Technical presentations (team)	5
Academic presentations (individual)	10
Active participation	5
Research proposal (final)	20
TOTAL	100

Grading Scale

Course final grades will be determined using the following scale

A 95-100	C 73-76
A- 90-94	C- 70-72
B+ 87-89	D+ 67-69
B 83-86	D 63-66
B- 80-82	D- 60-62
C+ 77-79	F 59 and below

Assignment Rubrics

A: Independently identifies important scientific research questions or if topic assigned, frames the topic well; uses coherent, clear, compelling, excellent argumentation; demonstrates a qualitative and quantitative grasp of concepts; uses appropriate examples or data to support the argument; appropriate display and reporting of data.

A-: As for A, but some minor weaknesses in one or two categories.

B+: As above but minor weaknesses in more than 2 categories.

B: Good quality work, but may suffer in terms of organization, such as may reveal minor gaps in comprehension, articulation and/or presentation of ideas.

B-: As above but with minor weaknesses in all areas, or major in one.

C: Passing work, with +/- as appropriate; minimum standard for a geoscientist.

D: Not-passing work for major credit; does not meet minimum standards for a geoscientist.

F: Failing work.

Assignment Submission Policy

Due dates for all assignments are noted on the syllabus. All assignments are **due by Monday 8 am**, before the next class. Assignment submission occurs within Brightspace.

Grading Timeline

Assignments completed by the due date will be returned during the following class.

Additional Policies

Completing assignments on time is key to staying on track with learning and building successful skills for coursework and careers. However, extensions or replacement assignments may be requested, for university sanctioned absence (athletes) or illness, by emailing the professor in advance.

This class requires active participation by all students, and part of your grade depends on it. Attendance and participation is expected and encouraged at every class session, and participation is graded for discussions of papers and for PowerPoint presentations, to a total of 5%.

Text messaging, email, social media use, or web-browsing, is not permitted in class except where required for in-class work. Turning your cell phone off and taking notes only with a notebook, may be good strategies, if you find this hard advice to follow.

Course Schedule: A Weekly Breakdown

week	Activities	Readings	Deliverable/ Due Dates
Scientific focus: academic research			
	In class	Expect: 4 hrs of outside class effort	
Week 1 Scientific research questions	<i>Team building:</i> write a “bio” about yourself to introduce yourself to the team.	<i>Assigned science reading</i> on Expedition 401 to learn about the plan to study the Mediterranean in the past <i>Read writing materials</i> General writing resources on plain language	Assignment 1 - Write plain language summary Due 8pm Mon
Week 2 Scientific ocean drilling methods	Paleoceanography and paleoclimate lecture <i>Team building:</i> each chooses a technique	<i>Read</i> about shipboard methods. <i>Locate information and read</i> to gain knowledge of your selected technique. <i>Read writing materials</i> technical writing	Assignment 2 - Methods On team slides, contribute a presentation slide (include title/limited text, suitable illustration, and source link) and on a second write a paragraph describing the method. Due 8pm Mon
Week 3 Read a scientific proposal	<i>Learn</i> about the geology, oceanography and climatology of the region and drilling project. <i>Team writing:</i> write about the study location, each contributes a slide	<i>Read</i> the Exp 401 scientific prospectus and locate relevant information for study location	Assignment 3 – Study location Write about each drill site, include a description the latitude, longitude, water depth, distance from shore. Describe the regional geological, oceanographic, climatic and adjacent terrestrial context. Due 8pm Mon
Week 4 Write a press release	Attend scientific talk in any of the dept seminars. <i>Write</i> a press release about the expedition, or about a science talk in the department	<i>Read</i> Exp 401 long format press release Include a quote from the presenter or a shipboard scientist	Assignment 4 – Press release Write a short format press release following the instructions provided on Brightspace. Due 8pm Mon
Week 5 Read a scientific paper	Reading the scientific literature	<i>Read</i> assigned scientific article <i>Read writing materials</i> parts of an academic paper	Complete reading worksheet and come to next class ready to discuss the article.
Week 6	Making figures & captions Academic articles: finding and citing references.	Generate a figure and caption from assigned data. Locate a scientific article of interest to your research direction.	Assignment 5 – Figure & caption due 8am Monday Bring your chosen scientific article to next class.
Week 7	Writing results Intro to scientific papers	<i>Write</i> results section. <i>Read</i> scientific article to inform your own research plan ready for next week	Assignment 6 – Results due 8am Monday

Careers focus: academic research and industry			
Week 8	Looking ahead: technical career, graduate degree? How to get involved in research at USC & beyond Resume & cover email/letter workshop	Make an appointment to discuss a research opportunity and/or industry internship with a professor or similar. Define your topic/goal for individual proposal.	Meet with Prof Feakins (or another prof/research advisor) for one-on-one guidance, 30-min. Resume due Monday 8am
Communication of geoscience to society			
Week 9	Writing for public Know your audience, the visual abstract or infographic, death by powerpoint.	Read to research a geohazard topic in the news.	Public communication of geoscience assignment part 1 team product: draft a single ppt slide to inform public, together with a mock email (as if to a city official). Due by next class.
Week 10	SPRING BREAK – no classes		
Week 11	Translating scientific information into the public arena: Analysis of language, length, format and audience.	Make a video or audio recording in teams with information to present your vetted topic geared to “public” audiences.	Public communication of geoscience assignment part 2 team product: Zoom video (<3mins), professional role play scenario. Due 8am Mon
Week 12	Public communications of Geohazards Examine geohazard communication effectiveness.	What’s in the news? hurricane, earthquake, flood, fire. Write an executive brief.	Public communication of geoscience assignment part 3 team product: Write a 1 page executive brief team product: Due 8am Mon
Industry and Academic Presentations, Written Products and Proposals			
Week 13	Collaborate to deliver a team presentation to a deadline: all within class time! Industry style	Work on individual presentation.	Individual presentation ready for next class.
Week 14	Individual presentation Academic style	Outline/draft your research proposal for workshop session using google docs ready for next class.	Outline draft: title, subheadings, bullet points, working with any application-specific instructions. Outline draft due by next class.
Week 15	Proposal writers workshop Get pro tips; see successful examples; bring your Qs for Q&A; use your outline draft for in class workshop.	Write a first full draft of your research proposal using google docs ready for next class.	First full draft of proposal due by next class.
Week 16	Proposal writers review Teamwork; bring your drafts to class for peer-review	Continue work on your research proposal.	Research proposals due by the final date.
FINAL	Research proposal	Written proposal due on or before USC official final scheduled time of Tuesday May 13th 10am see Brightspace for instructions.	

Statement on Academic Conduct and Support Systems

Academic Integrity

The University of Southern California is foremost a learning community committed to fostering successful scholars and researchers dedicated to the pursuit of knowledge and the transmission of ideas. Academic misconduct is in contrast to the university's mission to educate students through a broad array of first-rank academic, professional, and extracurricular programs and includes any act of dishonesty in the submission of academic work (either in draft or final form).

This course will follow the expectations for academic integrity as stated in the [USC Student Handbook](#). All students are expected to submit assignments that are original work and prepared specifically for the course/section in this academic term. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s). Students suspected of engaging in academic misconduct will be reported to the Office of Academic Integrity.

Other violations of academic misconduct include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see the [student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask me if you are unsure about what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Collaboration. In this class, you are expected to submit work that demonstrates your individual mastery of the course concepts.

Group work. Unless specifically designated as a 'group project,' all assignments are expected to be completed individually.

Computer programs. Plagiarism includes the submission of code written by, or otherwise obtained from someone else.

If found responsible for an academic violation, students may be assigned university outcomes, such as suspension or expulsion from the university, and grade penalties, such as an "F" grade on the assignment, exam, and the course.

Course Content Distribution and Synchronous Session Recordings Policies

USC has policies that prohibit recording and distribution of any synchronous and asynchronous course content outside of the learning environment.

Recording a university class without the express permission of the instructor and announcement to the class, or unless conducted pursuant to an Office of Student Accessibility Services (OSAS) accommodation. Recording can inhibit free discussion in the future, and thus infringe on the academic freedom of other students as well as the instructor. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

Distribution or use of notes, recordings, exams, or other intellectual property, based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study. This includes but is not limited to providing materials for distribution by services publishing course materials. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the internet, or via any other media. ([Living our Unifying Values: The USC Student Handbook](#), page 13).

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The University of Southern California is a learning community committed to developing successful scholars and researchers dedicated to the pursuit of knowledge and the dissemination of ideas. Academic misconduct, which includes any act of dishonesty in the production or submission of academic work, comprises the integrity of the person who commits the act and can impugn the perceived integrity of the entire university community. It stands in opposition to the university's mission to research, educate, and contribute productively to our community and the world.

All students are expected to submit assignments that represent their own original work, and that have been prepared specifically for the course or section for which they have been submitted. You may not submit work written by others or "recycle" work prepared for other courses without obtaining written permission from the instructor(s).

Other violations of academic integrity include, but are not limited to, cheating, plagiarism, fabrication (e.g., falsifying data), collusion, knowingly assisting others in acts of academic dishonesty, and any act that gains or is intended to gain an unfair academic advantage.

The impact of academic dishonesty is far-reaching and is considered a serious offense against the university. All incidences of academic misconduct will be reported to the Office of Academic Integrity and could result in outcomes such as failure on the assignment, failure in the course, suspension, or even expulsion from the university.

For more information about academic integrity see [the student handbook](#) or the [Office of Academic Integrity's website](#), and university policies on [Research and Scholarship Misconduct](#).

Please ask your instructor if you are unsure what constitutes unauthorized assistance on an exam or assignment, or what information requires citation and/or attribution.

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University's educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

[Counseling and Mental Health](#) - (213) 740-9355 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

[988 Suicide and Crisis Lifeline](#) - 988 for both calls and text messages – 24/7 on call

The 988 Suicide and Crisis Lifeline (formerly known as the National Suicide Prevention Lifeline) provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States. The Lifeline is comprised of a national network of over 200 local crisis centers, combining custom local care and resources with national standards and best practices. The new, shorter phone number makes it easier for people to remember and access mental health crisis services (though the previous 1 (800) 273-8255 number will continue to function indefinitely) and represents a continued commitment to those in crisis.

[Relationship and Sexual Violence Prevention Services \(RSVP\)](#) - (213) 740-9355(WELL) – 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender- and power-based harm (including sexual assault, intimate partner violence, and stalking).

[Office for Equity, Equal Opportunity, and Title IX \(EEO-TIX\)](#) - (213) 740-5086

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

[Reporting Incidents of Bias or Harassment](#) - (213) 740-5086 or (213) 821-8298

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

[The Office of Student Accessibility Services \(OSAS\)](#) - (213) 740-0776

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

[USC Campus Support and Intervention](#) - (213) 740-0411

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

[Diversity, Equity and Inclusion](#) - (213) 740-2101

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

[USC Emergency](#) - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

[USC Department of Public Safety](#) - UPC: (213) 740-6000, HSC: (323) 442-1200 – 24/7 on call

Non-emergency assistance or information.

[Office of the Ombuds](#) - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

[Occupational Therapy Faculty Practice](#) - (323) 442-2850 or otfp@med.usc.edu

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

EEO-TIX Statement:

My priority as your professor is to ensure a safe, respectful education environment where all students can learn and thrive. The University does not tolerate any form of discrimination or harassment (including sexual assault, dating and domestic violence, stalking) based on protected characteristics (e.g., race, disability, ethnicity, sex, gender identity, sexual orientation, religion, pregnancy, etc.) or related retaliation (i.e., Prohibited Conduct). All faculty and Teaching Assistants are considered Designated Employees by the University, which means that if they observe or learn of Prohibited Conduct, they are obligated to immediately share that information with the University's Office for Equity, Equal Opportunity, and Title IX (EEO-TIX). This obligation, grounded in law and policy, is designed to protect the safety of students and the broader USC community, as well as ensure that students receive information about available supportive measures and resolution options to enable them to make informed choices. Supportive measures include reasonable academic accommodations available with or without the filing of a Formal Complaint.

If you need academic accommodations due to protected class discrimination, harassment, or related retaliation, you may:

- Contact EEO-TIX directly (eeotix@usc.edu or 213-740-5086), without sharing any personal information with me.
- If you would like to speak with a confidential counselor about sexual misconduct, [Relationship and Sexual Violence Prevention Services](#) (RSVP) provides 24/7 confidential support for students (213-740-WELL (9355), or 213-740-4900 and press 0 after hours).
- If you are a student with a disability and require reasonable accommodations to meaningfully participate in this course, please contact the University's Office of [Office of Student Accessibility Services](#) (OSAS) at your earliest convenience (OSASfrontdesk@usc.edu or 213-740-0776), as DSP is responsible for processing and approving such requests.
- If you are pregnant, have recently experienced childbirth, and/or have medical needs related to childbirth, please contact OSAS or EEO-TIX for assistance.
- Finally, if you need reasonable accommodations for a religious observance, please submit a request to me by email as far in advance as possible.

Accommodations do not relieve you of the responsibility for completion of any part of the coursework you miss as the result of a religious observance. If you have questions or concerns about your request, you may contact EEO-TIX.