GEOL 566 – Geochemistry Seminar – Fall 2018

Topic: Science Communication

Class Time: Friday 3-5pm 1/2 semester, Location ZHS 130 or as arranged

Instructor: **Professor Sarah Feakins,** ZHS 223F, 213 740 7168 **feakins@usc.edu**
Office Hours: 11-12am Monday or whenever door is open.
Text: none assigned, academic and popular press as needed
Grading: Participation 50% Products 50%
Units: 1
Goals: The goal of this course is active learning about scientific communication to the public and the two-way process of public engagement in science. Graduate students will learn to communicate with others outside of their discipline, we will seek to replace the standard 'deficit-model' (communication as a one-way dissemination of scientific knowledge) with a partnership model where both scientist and intended audience guide the dialogue to allow learning and communication to occur. The graduate students will co-produce communication products in collaboration with non-scientists for broader dissemination for the goal of communication of Earth Science to the broader public.

Action: Graduate students will craft their science message for a public audience. As part of communication we will seek to partner with non-scientists during the course of the semester, seeking undergraduate journalism or other non-science major, recruited via a URAP-sponsored research experience, to intern in the Earth Sciences department in association with a graduate student enrolled in this course. The graduate student and undergraduate intern will co-produce materials for further public communication and engagement in science. The graduate student will work with the intern as part of their public engagement in science and may further disseminate their course products upon agreement between the participants and professor.

Training: Students will be introduced to the science communication methods that I use and the training I have received for example via the NSF Funded Expert Witness Training Academy (2017) and the AAAS Leshner Fellowship (2018-2019). Students will produce communications products that highlight their research areas for their target audience (e.g. policy makers, college students, K-12, other). Students will obtain generalizable knowledge about public communication and engagement in science, those communication skills are useful in many careers including but not limited to academic research careers. Students will build institutional networks between the Earth Sciences and Annenberg School of Journalism and thus enhance their personal networks.

Assessment: The graduate student will be assessed on their efforts at engagement in the class and with journalism students, and the graduate student will be responsible for producing communication products for the wider public. The products are expected to include a range of media e.g. one or more short format social media posts to introduce a longer engagement – the format is not proscribed. As there are many 'publics', students will be responsible for identifying their target audience and developing an engagement plan suitable for that audience. Although there are many formats for

engagement, students are encouraged to develop in this course short and long format written pieces, e.g. Tweets and long-form blog posts or 'op eds' for policy makers. The class philosophy is one of co-production and co-direction with guidance from the professor. To be successful, the student's semester plan should be developed and implemented together with the intern (if available), seeking guidance from the professor during the semester, towards a product release before the end of the semester.

Who should take this class: Graduate students from any sub-discipline of Earth Sciences seeking guided engagement in science journalism, science communication and public engagement. Content guidance can be provided by the professor in the areas of geochemistry and climate science, however for students with other specialties, the evaluation will focus on the implementation of science communication. The format is experimental, service learning and collaborative – students with a passion for innovation are welcome. Students from the **USC Science Policy Group** are especially welcome.

What you will be responsible for: Interacting respectfully and collaboratively. Developing science communications products that can be shared to positively illuminate the research that is underway in the Earth Sciences department. Showing up ready and eager to learn, participate, lead, discuss and create content. Producing communication materials that showcase your own research specialty and incorporating that into your research going forward.

Sequence of topics, by week:

1. Communicate your science: poster session 8/24/2018
2. Introduction to science communication and public engagement in science 8/31/2018
    a. Identify audiences
    b. In person
    c. Web-presence
    d. Preparation for ad hoc student-journalist interview requests
3. Planning phase 9/7/2018
    a. Define your audience
    b. Identify the message
    c. Oral pitch and feedback on the plan
4. Partnership building and social media spotlight 9/14/2018 (Professor away KSU 14th)
    a. Student will host an undergraduate intern for a shadow-a-scientist session
    b. Develop a social media post to showcase a scientist in the Earth Sciences department (likely the graduate student) and their science – include photos.
5. Main project: Implement phase 9/21/2018
    a. Draft a long-form communication piece (draft in class and continue for homework)
6. Main project: Implement phase 9/28/2018
    a. Draft a long-form communication piece (work in class and continue for homework)
7. Main project: editing phase 10/5/2018
    a. Peer-editing feedback on your draft product (in class)
    b. Improve your product (homework)
8. Main project: Dissemination phase 10/12/2018
    a. Internal or external dissemination (in class discussion & planning, release as homework)
9. Assessment and incorporation last class 10/19/2018
    a. Self-reflection, peer-evaluation.
    b. Develop a personal plan for future communication and collaborations.

Grading: Your grade is based upon assessment of participation and products as assessed by the instructor; peer feedback will inform the evaluation.

Academic Integrity: University policies on academic dishonesty are printed in SCAMPUS and SJACS, see http://www.usc.edu/student-affairs/SJACS.

Disability Services: Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed; *please be sure the letter is delivered to the professor as early in the semester as possible*. DSP is open Monday-Friday, 8:30-5:00. The office is in Student Union 301, or (213) 740-0776.

About the Instructor: Prof. Sarah Feakins is an Associate Professor of Earth Sciences at USC, running the Leaf Wax Lab in SHS 460, an organic geochemical facility with GC-FID/MS/IRMS capabilities that she established in 2008. Her research program has been supported by USC, WiSE, the US National Science Foundation, American Chemical Society and other sources. She works with collaborators in the department, nationally and internationally – including the UK, Canada, France, Peru, Switzerland, Germany and China. People working in her lab past and present are listed here, including postdocs, graduate and undergraduate researchers earth.usc.edu/feakins/people/. She serves as a member of the IODP Science Evaluation Panel and as an Associate Editor of *Geochimica et Cosmochimica Acta*. She is the author of over 40 academic peer-reviewed publication, listed here: Google Scholar.

Feakins is a frequent communicator informally (e.g. at the bus stop, on Twitter @SFeakins), as well as formally in the classroom (e.g., a 230-person general education Oceanography course) and at museum events as well as via mass media. Her press & public communication webpage archives past media activity earth.usc.edu/feakins/press. In 2018-2019 she is a AAAS Leshner Fellow, a program that promotes public engagement in science and science communication as well as institutional change. She is also a 2018-2019 IODP lecturer touring the country to speak at museums and Universities about the findings from recent ocean drilling. Via this science communication course, she seeks to provide an initiation into the world of public engagement in science, collaboration with journalists and the production of scientific communication for a lay audience. Students will build confidence and acquire skills that will equip them to engage in the much-needed dialogue between science and society, the relevance of which is explained here, in a recent op-ed by the Dean of Dornsife College, Amber Miller.

Modernization of the graduate curriculum:

Science communication is one of the recommended additions to graduate training recommended by the recent National Academies report on student-centered, modernized graduate STEM education as summarized and explained here.