



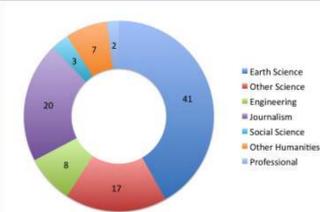
### OVERVIEW

Direct, effective communication with the public has become an important part of the earth scientist's professional toolkit. Issues including climate change, ocean acidification, energy extraction and geological hazard assessment are increasingly relevant to public debates, yet recent, dramatic changes in the media business have led to decreased coverage of science in mass media outlets.

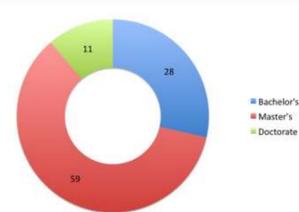
Unfortunately the hallmarks of traditional scientific writing—technical language, dispassionate observation and a passive voice—guarantee failure with all but the most motivated readers. Similarly, science journalism fails when reporters don't understand the content, culture and epistemology of science. Bringing students from both disciplines together to collaborate on science communication projects can help address these issues.

Even novice communicators are usually experienced and often sophisticated consumers of storytelling across many genres. Training in the critical response techniques<sup>1</sup> used in literary and artistic work can leverage that passive sophistication into active skills in effective communication. At the same time, immersion with science students can transform journalism students' understanding of science as a human endeavor—a key concept for effective science writing.<sup>2</sup>

Student background, all classes



Student level, all classes



### COURSES TAUGHT

Three courses were designed and offered to Stanford science and journalism students over three years. Each course is project-based, relies on intensive peer workshoping and is focused on publication.

ENVRES 200 Sustaining Action: Research, Analysis and Writing for the Public. Environmental communication, with an emphasis on informative, engaging and motivating exploration of sustainability science. Built around a question-and-answer column called SAGE: Sound Advice for a Green Earth. ([bit.ly/SAGEpage](http://bit.ly/SAGEpage)) Partnering with *Stanford* magazine and local media outlets ensures an audience that is large, diverse and engaged.

COMM 177c/277c Special Writing and Reporting: Environmental Journalism. Intensive training in the norms and practice of science-based environmental reporting, including the history and scope of environmental journalism, the practice and ethics of journalism, the fundamentals of narrative writing and the nature of scientific information about the environment. Students publish at *Peninsula Press* ([peninsulapress.com](http://peninsulapress.com)), the Stanford journalism news site, and pitch articles to professional media outlets.

ENVRES 215 Digital Storytelling for Researchers. Web-based multimedia approaches to telling science stories.

### APPROACH

- Project-based coursework
- Peer teaching and active collaboration across disciplinary divides
- Critical response via peer workshoping and instructor feedback
- Direct audience engagement through publication



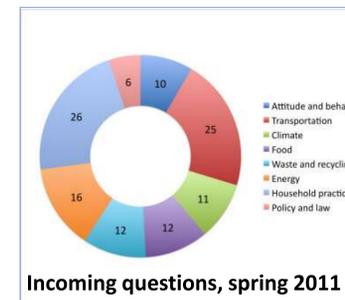
### SAGE: Sound Advice for a Green Earth



The SAGE project ([bit.ly/SAGEpage](http://bit.ly/SAGEpage)) is built on the idea that students learn to communicate with the public best by doing so—and that audiences are most engaged by material that is timely, relevant and inherently interactive. The question-and-answer or “advice” column format fulfills both requirements.



SAGE represents a cycle of active outreach through solicitation of questions, preparation of action-based answers and publication with professional partners, which acts in turn as further outreach and engagement.



Questions submitted to SAGE generally fall into three categories: either-or comparisons, explanations, and existential queries. More than 800 questions have been submitted, and 70 answers published with *Stanford* magazine, *Peninsula Press*, *The Bay Citizen* and *The San Francisco Chronicle*.

### DISCUSSION

It is relatively easy to instruct science students in the fundamentals of clear writing, and to guide them as they practice the craft. The challenges of effective science communication go beyond those of content and clarity, however. They are cultural and aesthetic, too.

Scientists can become more effective communicators by engaging with the traditions and approaches of popular storytelling, including narrative, action and emotional exposition, as well as clarity on the levels of language, intent and relevance.

“There is an art to accessibility.”<sup>3</sup>

In his 1959 “Two Cultures” essay<sup>4</sup>, the physicist and novelist C.P. Snow identified a growing divide between science and the humanities. Today, that gap forms a key barrier to effective science communication. It takes the form on one extreme of widespread skepticism toward scientists, their motives and their evidence. At the other pole, the culture gap is characterized by scientific arrogance and a disdain for popular communication evidenced by terms such as “dumbing down,” or even “simplifying.”

In essence, science alone is insufficient to explain itself to the broad public. It requires art, for lack of a better word, as an equal partner in the pursuit. Bringing together students from across Snow's divide to work collaboratively on publication-quality science communication projects is an effective method of teaching both science and its communication.

### REFERENCES

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