Tom and Carol Williams Fund for Undergraduate Education

Williams Instructional Proposal Application

Submission of a **Williams Instructional Proposal** requires short paragraph responses to the prompts below. The prompts are related to a description of the project, its significance, how you will evaluate the success of the project, the budget or resources needed, and the lasting impact of the project.

Please submit a completed version of this document to OtP@uoregon.edu.

Please write your answers to each of the questions below

Demographic Information

Your name: Kelly Sutherland, Mark Blaine
Your email address:
Your department(s) or unit(s): Biology, Journalism and Communication, Knight Campus
Your title: Associate Professor, Professor of Practice
Proposal title: Science Stories and Popular Media

Williams Instructional Proposal Application

1. Provide a brief overview of the project you're proposing:

We are proposing an innovative, team-taught, 200-level course titled "Science Stories and Popular Media" that cuts across natural science and journalism with the goal of exploring ways that narrative approaches can help translate science to public audiences. Throughout the course, students will engage with and respond to different examples of science narratives, including documentaries, written pieces, podcasts and physical exhibits. The course will culminate in a final project where students work in teams to produce their own science narratives aimed at a non-expert audience. By evaluating how science stories are told, reflecting on their impact, and taking some first steps in creating science stories, we hope to explore a powerful approach to critical thinking about scientific information and its role in popular media.

Project Significance

2. Why is the project worth trying? What issues or gaps would this project resolve? What opportunities would it explore?

Communicating science effectively to diverse audiences is of critical importance to society (NAS report, 2017) and increasing science literacy can help the public critically examine information in everyday life (Sharon and Baram-Tsabari 2020). People interact with and make scientific decisions whether or not they are well-informed about the science – as we have all recently experienced in debates around COVID vaccines and the risk of wildfires to communities. We will explore how a narrative approach can help convey the nuance and process of doing science more effectively than relying on an information deficit model (Martinez-Conde & Macknik 2017). Additionally, by immersing in various types of science storytelling, the course can help to build critical thinking about how some science stories can be useful to connect the public with science while others might create misleading impressions of scientific knowledge and how it's acquired.

National Academies of Sciences, Engineering, and Medicine, Division of Behavioral and Social Sciences and Education, Committee on theScience of Science Communication (2017) Communicating Science Effectively: A Research Agenda(National Academies Press, Washington, DC)

Martinez-Conde, S., & Macknik, S. L. (2017). Finding the plot in science storytelling in hopes of enhancing science communication. *Proceedings of the National Academy of Sciences*, *114*(31), 8127-8129.

Sharon, A. J., & Baram-Tsabari, A. (2020). Can science literacy help individuals identify misinformation in everyday life?. *Science Education*, *104*(5), 873-894.

3. How could this project improve the educational experience of undergraduates?

The focus of this project is to get students excited about science using compelling stories and to show them that story and science can be a powerful combination for broader societal values and initiatives. By exploring the representation of science in both nonfiction and fiction works, we will help students distinguish and appraise scientific ideas that they consume, giving them a toolkit to evaluate scientific claims in popular media and a way to engage with inspiring-but-not-yet-possible representations of science in fictional stories. In addition, students will be asked to develop their own short science stories or explanations of science in the class as a way of investigating the decision making of storytellers. We anticipate that a subset of students will follow their interests in science storytelling to other avenues on campus – through coursework and campus media.

4. How does this proposal create a more inclusive teaching and learning culture on campus? For example, proposals might support student learning about difference,

inequality, and agency or seek to enhance the social and emotional climate of the classroom.

A lack of diversity in the STEM workforce in terms of race, ethnicity, and gender (https://ncses.nsf.gov/pubs/nsb20212) remains, in part due to structural inequities in science education, weakening the potential for scientific impact on society (Tilgman et al. 2021). Traditional, data-based science narratives can be alienating to large swaths of the population. Our exploration of a broad range of tools for effective science communication will draw on diverse backgrounds and strengths in the classroom with the goal of training students to become better communicators and audiences for scientific information. We will also show the stories of researchers and storytellers from diverse backgrounds who participate in scientific storytelling efforts, and help our students critique the scripts of popular science narratives.

Tilghman, S., Alberts, B., Colón-Ramos, D., Dzirasa, K., Kimble, J., & Varmus, H. (2021). Concrete steps to diversify the scientific workforce. *Science*, *372*(6538), 133-135.

5. How many undergraduate students would be directly affected?

We propose a 80-100 person course that we will teach annually. In the first year, as we are developing the course, we would teach a smaller cohort of ~40 students. We expect that this would be a popular pilot offering that would fulfill the science course requirement for non-science majors, while also engaging students with opportunities to be connected to the sciences without becoming full majors.

6. Does the project have implications for teaching and learning that extend beyond a single course or discipline? Are there aspects of this project that encourage students to make connections to areas of thought and experience beyond the context of a single course?

By design we're teaching this course across two disciplines – Biology and Journalism – that aren't typically partnered in a university course. We have worked together on a number of other projects and see interesting connections and values to be explored by each discipline viewed through the frame of another.

In a very practical sense, students who come from the sciences will be asked to explore models of communication that aren't often addressed in scientific training. Students who come from non-science backgrounds will engage with students from the sciences around a shared objective of better science communication.

We expect that we will also learn much from each other's approach to the topics, the stories, and managing the classroom experience of blended science and non-science students.

7. We recognize that it is within the typical job expectations for faculty to design new courses or update current courses, and for the department to support regular curriculum changes. Based on this, how is the project you are proposing unique or in need of Williams Council funds to happen?

Courses that are team-taught and cut across schools or colleges are rare at the UO due to communication gaps and administrative hurdles. We have discussed our interest in developing this class with our home departments, and they are supportive, but Williams Council funds would do much to simplify funding of speakers, field trips, and student access to media by being a shared resource between two faculty members from different home departments in different UO academic units. With this, we would hope to build a model for future partnerships, particularly in the space where science and society meet.

Further, teaching a large discussion and project-based class for non-majors requires attention to recent pedagogical developments.

Assessment/ Evaluation

8. Based on the specific problem you will address with this project, how and when will you assess whether or not you were successful? Will you include a pre-experience/post-experience assessment tool? Will you survey participants? What are your intended outcomes, and how will you measure your degree of success in meeting those outcomes?

We will use Pre- and post-course surveys that explore why students enrolled, ask them to reflect on their pre and post confidence in critically evaluating scientific messages, and ask them what kinds of future experiences this coursework inclines them toward.

Our goal with this assessment is to see change in student confidence and ability to apply critical tools to science messaging. We'd also like to use the findings to shape future offerings in this course and other courses that merge scientific information with societal issues.

Budget/Resources

The Williams Council has set a common stipend of $1000+33%OPE per faculty per week for any summer work included. When summer course development is requested, we gravitate toward a two-week standard and go above that—typically to four—when faculty advocate for this need. The common stipend for guest speaker travel and hosting is $2000. Please use these amounts when building your budget, if relevant. Please also consider that last year's funded proposals ranged from $5,230 to $17,760, although any amount can be proposed up to the approximate $100,000 available.

9. What amount of financial support from the Williams Council would make this project possible, and for what purposes would the funding be used (e.g. travel, equipment, staff support etc.)? It should be clear that the funding requested goes beyond summer stipends for course preparation. If you are asking for funds to purchase equipment, please inquire into the availability of existing campus resources.

We are requesting two weeks of summer salary each to develop the course. We also request funds for six speakers spread over two years (3 per year) to give students the opportunity to engage with experts with relevant experience encompassing communication across diverse media types. Beyond presenting during class, speakers will become a sounding board available to students as they develop their final projects. We envision speakers that are external, regional (Oregon/Pacific Northwest) and local (here at UO). Our preliminary list includes Alexis Gambis (NYC-based docufiction filmmaker, founder of labocine.com), Nancy Lord (Homer, AK-based literary nonfiction writer) and Torsten Kjellstrand (UO-based environmental filmmaker).

Description	Amount
2 weeks summer salary (@1000/wk) + 33% OPE-Blaine	$2,660
2 weeks summer salary (@1000/wk) + 33% OPE- Sutherland	$2,660
1 external speaker (@ $2000 for travel, stipend)	$2,000
2 regional speakers (@ $1000 for travel, stipend)	$2,000
4 UO-based speakers (@ $500 for stipend)	$2,000
TOTAL REQUEST	**$11,320**

10. Are you seeking additional financial support or resources for this proposal? If so, please describe.

This course will leverage research and communication products that Sutherland and Blaine are developing in their own scholarly work. Funding sources include the National Science Foundation and Vision Maker Media and the Corporation for Public Broadcasting.

Our vision is to further extend the Williams funding by seeking support from the Simons Foundation (Science, Society & Culture Programs) and/or the Sloan Foundation (Public Understanding of Science & Technology programs). We expect that these programs will be supportive of our bridge-building approach to encourage belonging and diverse perspectives in science and storytelling.

Lasting Impact

11. If this project proves successful, how could you foresee its continuation and persisting impact after the period of the Williams Council funding?

We anticipate that this class will be a popular offering both for students who need to fulfill a science requirement for their non-science majors and also for science majors who may be interested in further coursework in science communication. Ideally, the class will also help students from the sciences and the non-science disciplines to find a common dialogue around representations of science in popular media.

As faculty members, we hope for this to be a model for collaboration between departments that typically don't get to develop courses together. We believe there is a lot to share and a lot to learn from such partnerships, and the course's delivery will be enhanced by our team effort. Additionally, we expect the course to further on and off campus networks of student and faculty teams working to produce science content for broader audiences – content that can address many issues related to scientific information and its role in society.