

Advanced Science Communication Skills, Winter 2020
ESM 556 (41239)/ESR 656 (41244) 10-11 Fridays in SRTC b1-82

Dr. Catherine de Rivera (Environmental Science & Management)
email: derivera@pdx.edu phone: 503 725 9798
office hours: Fridays 1:30-2:30 pm; office: SRTC, 238e

Overview

In this seminar we will outline the objectives involved in presenting scientific information and discuss how those objectives may be met. Discussions and assignments will mostly focus on oral and written communication of scientific information. This seminar can stand on its own but is part of a two-term series. Fall term we began exploring how best to use words and images as tools to convey the results of our scientific studies and how to focus one's research message for better effect. We now continue this exploration of communicating science to general to expert audiences.

This course strives to improve students' ability to communicate science clearly. **Objectives** include:

- improving comfort level during presentation;
- continuing to determine the core message that should be conveyed and develop useful supporting components;
- continuing to practice effective use of words and images to convey the results of scientific studies;
- developing a framework for a 12-min talk that highlights your key findings;
- developing, improving, presenting/critiquing a 12-min scientific talk to identify which elements are important for a clear, memorable talk;
- creating the framework for a grant proposal (or manuscript), especially working on the opening.

Course topics

Talk evaluation. Early in the term we will discuss the elements of creating and giving successful science talks. We will review one particular rubric for evaluating a talk and use it to critique some short examples in class. You are asked to carry this forward by giving a scientific talk 12 or more minutes long and asking a peer to watch (as a member of the audience) and evaluate the talk using that rubric. The talk may be for a general or technical audience, may be in this class or an assignment for another class, at a meeting or seminar, or something else. The only requirement is that the talk be scientific in nature, gets evaluated, and you consider how to improve it and your other talks based on that evaluation.

12-minute talks. The 12-minute talk (plus 3 for questions) is a standard at major scientific meetings. Speaking in this setting presents two challenges, conveying a clear yet complete message and standing out from the crowd. In this exercise, you will be asked to prepare an outline of sorts (a 6-slide story board) with a few key graphics for a 12-minute talk on a topic related to your research. How would the technical content change? Two to three volunteers will present their talks to the group. You may wish to use this as practice if you have a presentation scheduled at an upcoming meeting. We'll also briefly discuss how you might prepare the same material for a different audience (elementary school students, general public, professional public, ...), including how the balance between background and results may change.

Writing: Grant proposals. Grant proposals also rely on clear communication of ideas and supporting evidence. A fundable proposal requires clear goals, key structural components, and supported yet novel content addressing the rfp. We will touch upon and start to practice the components of proposals. We will compare elements of proposals to papers. As the lessons apply to papers as well, you have the choice of workshoping a paper or grant proposal during the last part of the course.

Advanced Science Communication Skills, Winter 2020
ESM 556 (41239)/ESR 656 (41244) 10-11 Fridays in SRTC b1-82

Tentative Order of Topics (progression may be slowed or accelerated).

1. (1/10) Improv & role playing 1; Introduction of evaluation rubric
Assignment: read over presentation rubric; watch two Ted talks and think about what makes each good and how each could improve; please mail me (derivera@pdx.edu) the link to a talk if you thought it was very strong or otherwise worth watching.
2. (1/17) Critique a Ted talk; Elements of a good talk and how to give one
Assignment: Read excerpt from *Baron* (see d2l)
3. (1/24) Discussion of Baron reading; Storyboarding; quick Improv
Assignment: prepare Storyboard for your talk.
4. (1/31) Review storyboard; 12-min talk introduction, guidelines for longer talks;
Assignment: start graphics for 12-minute talk
5. (2/7) 12 minute talk presentations & constructive critique, assessment using rubric
Assignment: Read excerpt from Schimel Writing Science
6. (2/14) Grant components overview; Grant & paper intros; reducing jargon for public talks
Assignment: reading about key components for public education; work on proposal/paper intro;
7. (2/21) Guest speaker on presenting your science to the general public: Leah Schrodt
Assignment: work on proposal/paper intro;
8. (2/28) Workshop proposal/paper Intro; Writing beyond the Intro
Assignment: revise and continue proposal/paper; read a *Nature* or *Science* paper
9. (3/6) Workshop revised intros and another section of paper/proposal; Discussion of what got papers into *Nature/Science*
Assignment: continue proposal/paper; make concept map or flow chart
10. (3/13) Share concept maps...; SWOT analysis; Final workshopping of proposals/papers; Closing remarks

Readings. Complete readings and other assignments by the next class meeting. Readings and assignments will be posted on d2l.pdx.edu. If you don't have an Odin ID, go to <http://oit.pdx.edu/set-up-odinacct>

Baron, Nancy (2010) *Escape from the Ivory Tower: A Guide to Making Your Science Matter*, Island Press.

Schimel, Joshua (2011) *Writing Science: How To Write Papers That Get Cited And Proposals That Get Funded*. Oxford University Press. (THIS IS A GREAT BOOK – I RECOMMEND YOU PURCHASE IT)

Grade: This course can be taken as pass/no pass (which I encourage) or with letter grades. Each student must participate in at least seven of the nine meetings. However, if you're contagious, please don't come to class. If you are going for a letter grade, to earn an A, you must complete all assignments and demonstrate that you are applying the lessons to your work. Aim to complete all assignments by the class meeting after they are assigned; all students get one pass for late assignments (turn in by email if you cannot be in class).

Advanced Science Communication Skills, Winter 2020
ESM 556 (41239)/ESR 656 (41244) 10-11 Fridays in SRTC b1-82

Resources and code of conduct

If you are a student with a documented disability and are registered with the Disability Resource Center, please contact me so that we can arrange whatever academic accommodations you need.

If you are a Veteran and have questions about University services or need assistance with your transition from military to campus life, please contact Chris Goodrich, Coordinator of Veterans Services at the Office of Veterans' Services, SMSU room 425.

As members of the Portland State University faculty, we “strive to ensure that the highest ethical standards of professional behavior are realized within the University,” as established in the Faculty Code of Conduct. As a member of the PSU student body, you are bound by a Student Code of Conduct. It is your responsibility to be familiar with the code of conduct, which can be read at the Dean of Students website <http://www.pdx.edu/dos/codeofconduct>.

You may report any incident of discrimination or discriminatory harassment, including sexual harassment, to either the [Office of Equity and Compliance](#) or the [Office of the Dean of Student Life](#). Please be aware that, as a faculty member, I have the responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination.

A few useful books on writing in general and on writing science

**Joshua Schimel [Writing Science: How To Write Papers That Get Cited And Proposals That Get Funded](#). I find this to be a super useful book with effective advice and clear lessons. If you are a PhD or MS student, I recommend buying this book.

Paul J. Silvia [How to Write a Lot: A Practical Guide to Academic Writing](#)
This quick read offers many tips for great writing habits.

Jan A. Pechenik [A Short Guide To Writing About Biology](#)
This book is useful for undergrads (lab reports)... but also for grad students. It has sections on rules (including '11 major rules for preparing a first draft'), revisions, developing a thesis, writing research proposals... I still refer to it.

Wendy L. Belcher [Writing your Journal Article in Twelve Weeks: A Guide to Academic Publishing Success](#).
This book isn't geared towards scientists but has helpful tips and is very affirmative. A fine book to consult when you're feeling down about your writing or the peer review process.

*Karen Kelsky [The Professor is In: The Essential Guide to Turning Your PhD into a Job](#).
Obviously not just about writing but there are some good parts for writing in it (and the other advice is also important). I think this one is especially helpful, especially for students of social science (but really all of us)

Peter J Feibelman [A PhD Is Not Enough](#).
Ditto.

Grammar & Style

Strunk & White. [The Elements of Style](#)

Joseph M. Williams. [Style. Ten Lessons in Clarity and Grace](#)