The general format of the Friday morning SOARS scientific communications workshop will be:

8:30-9 am: Logistics and ethics discussions

9-11 am: Scientific communications workshop

11-12 pm: (some weeks) interesting seminars

All events are in Room 1003, FL2.

The SCW this year is designed to be a very hands-on workshop with lots of discussion and a relaxed format. It will not be lecture heavy, so we encourage you to do some background reading ahead of the workshop to ensure you get the most out of it. Please bring your laptops, lab notes and any papers etc. you need for writing!

Our format will be to have a short discussion about a new subject (that will incrementally work our way through the parts of scientific paper), including lots of group discussion. This will be followed by a workshop where you are encouraged to work in small groups to outline the main “bullets” to be included in your writing assignment that week, before each making a start on your own work. The aim is that everyone leaves the workshop with something on paper, so that you don’t have to overcome the challenge of a blank sheet of paper when you get back to your room. On several occasions we will have “peer review”, when you will be expected to give and receive feedback to others in the group. This is an important scientific skill.

During the week following each SCW you should:

a) Complete your communications piece as listed under “prepare”. If it’s a written piece, send it to your writing mentor for comment (by 5 pm Wednesday). If it’s an oral piece, please look it over/practice with your writing mentor before Friday’s workshop.

b) If appropriate, also send the piece to your peer review group (also by 5 pm Wednesday). Read the pieces sent by your peers and prepare useful feedback for discussion at the session on Friday.

c) Look through the suggested ‘background reading’ in preparation for the following week.

Note: If you’d like another reading of your writing following incorporation of your mentor and peer reviewer comments, you are welcome to send things to Bec, rbatch@ucar.edu.
Syllabus

May 23: Overview

Discussion: In this discussion we will talk about all aspects of science communication:
- Going about your research and keeping good records
- Working with your collaborators; giving and receiving feedback
- Presenting it: the poster, the paper and the presentation
- The elevator speech

Workshop: Defining a research question, crafting a title, and the ‘elevator speech’

Prepare: Prepare a one minute elevator speech summary of your research suitable for a general audience (to be presented at the next SCW). Craft a good title for your research, upload it to google-docs and send it to your writing mentor by 5 pm Wednesday, May 28. Find 2-3 papers related to your research to bring with you to the next workshop.

Background reading:
- How to develop an elevator speech:
  http://www.bandwidthonline.org/howdoi/develop_elevator_speech.asp
- Writing an effective title: Chapter 3, Eloquent Science

May 30: Reading the literature and creating a work plan

Ethics discussion topic: Plagiarism

Discussion: After listening to all the elevator speeches, in this discussion we will talk about how to plan out your summer using a work plan. We’ll also discuss how to read and structure scientific papers, correctly cite the existing literature and plagiarism. Finally, we’ll begin work on a literature study.

Workshop: Literature study

Gather and read 2-3 papers in your field. For each:
- List the full citation in AMS style.
- Read the abstract. Look for the context, the specific question the research addresses, and the key findings.
- Read the introduction. Pay attention to the way that previous literature is used to put the research in context and lead to the question that this work will address
- Read the methods section. Are there subsections? What level of detail is provided?
- Read the results/discussion sections. How are these arranged? If figures are used, think about how the captions are used to describe the work. Notice how the figures are referenced and discussed in the text
• Read the conclusion. How does it differ from the abstract?
• Look at the references. How are these cited in text, and in the reference section? (note this will vary by journal)
• Write a 1-2 paragraph summary of the paper that will help you to remember what was in it and why it was important to what you’re going to do. Bullet points are fine, if you’d rather list key points than write full sentences. Make sure to identify the context, the research question and the key conclusion(s), using citations as appropriate.

Prepare: Complete your literature study. Upload it to google-docs and send it to your writing mentor by 5 pm, Wednesday June 4. Work with your mentors to complete your work plan. Make sure each of your research mentors and Bec receive a copy.

Background Readings:

• The Structure of a Scientific Paper: Chapter 4, Eloquent Science (particularly sections 4.6 and 4.7)
• Using Effective Words and Phrases: Chapter 10, Eloquent Science
• Literature reviews: http://writingcenter.unc.edu/handouts/literature-reviews/
• Citations and References: Chapter 12, Eloquent Science
• AMS reference formatting

June 6: Introduction and methods

Ethics discussion topic: Data fabrication in science

Discussion: In this discussion we will talk about the introduction: why do we care, where does my work fit within the current knowledge and how am I going to present my research? We will also discuss the methods section and how to present your methods in a concise and descriptive way, ensuring reproducibility.

Workshop: Writing the methods section.

Prepare: Complete your methods section. Upload it to google-docs and send it to your writing mentor and your peer review team by 5 pm Wednesday, June 11. Read your team’s method sections in preparation for the workshop on the 13th.

Background readings:

• The Structure of a Scientific Paper: Chapter 4, Eloquent Science (particularly sections 4.6- 4.8)
• Using Effective Words and Phrases: Chapter 10, Eloquent Science
June 13: **Illustrations, figures, and oral presentations**

**Discussion:** We will begin this workshop working in groups to provide peer-review feedback on each other’s methods sections. We will then discuss how we present results using figures, captions, tables, charts. We’ll discuss their use in papers, posters and presentations. We will also talk about giving oral presentations – tips and tricks for speaking to an audience, and how to structure a scientific talk.

**Workshop:** Working on your talk for the practice presentation next week.

**Prepare:** Complete the preparation of a 7-10 minute practice presentation, focusing on your introduction and method. You may include some results if you have them, but they are not required! Discuss your presentation with your writing mentor.

**Background readings:**

- Figures, Tables and Equations: Chapter 11, *Eloquent Science*
- Constructing Effective Oral Presentations: Chapter 25, *Eloquent Science*
- Delivering Compelling Oral Presentations: Chapter 26, *Eloquent Science*

June 20: **Practice talks**

Practice talks will be held in the small auditorium in FL2 from approximately 9 am – 2 pm (schedule to follow). This is not a high-stress environment, but a chance to practice standing in front of an audience and talking about your work. You will also have the opportunity to give and receive feedback from the other protégés.

June 27: **Abstracts and how to talk about expected results**

**Ethics discussion topic:** Student-advisor professional relationships

**Discussion:** In this week’s discussion we will talk about abstracts – what they are, how they’re laid out, the differences between conference and paper abstracts, and how to write about the results you’re hoping to get, when you haven’t got them yet! We will discuss the requirements of the EWSS abstract and figure that you’ll be preparing for SOARS, and the conferences you may choose to attend in the fall.

**Workshop:** Working on your abstracts for EWSS, SACNAS, AMS or AGU

**Background readings:**

- The Structure of a Scientific Paper: Chapter 4, *Eloquent Science* (particularly section 4.4)
- The Abstract and Extended Abstract: Chapter 23, *Eloquent Science*
• SACNAS abstract submission information: http://sacnas.org/events/national-conf/student-postdoc-research-presentations
• AMS conferences as part of 95th annual AMS meeting (January 4-8, Phoenix, AZ) - abstracts due August 1 http://annual.ametsoc.org/2015/index.cfm/call-for-papers/
• AMS Student conference (January 3-4, Phoenix, AZ), abstract deadline October 1: http://annual.ametsoc.org/2015/index.cfm/programs-and-events/conferences-and-symposia/14th-annual-ams-student-conference/
• AGU Fall Meeting, (15-19 December, San Francisco, CA) - abstract deadline TBD (early August) http://fallmeeting.agu.org/2014

Prepare: During the next two weeks, write your EWSS (paper) abstract and create a figure and caption suitable for inclusion with it. The figure should be in grey scale only, in tiff, eps or very high resolution jpg formats, and all text must be completely readable when compressed to 1/3 of a page. Send it to your mentors and peer-review team by 5 pm July 9. We will review the abstracts at the start of the workshop on July 11. The final version will be due on July 23 at 5 pm.

July 4: HOLIDAY - No workshop!

Prepare: See details on EWSS abstract/figure above. Think about what adaptations (if any) you need to make to the EWSS abstract for submission to AGU, AMS, SACNAS or any other conferences you want to attend (those abstracts are due soon).

July 11: Results and discussion, introduction revisited

Discussion: We will begin this workshop reviewing each other’s abstracts in small peer groups. We will re-visit the introduction now you’re familiar with your research, and will talk about writing the Results and Discussion sections.

Workshop: Working on your introduction, results and discussion

Prepare: Write your introduction. Upload it to google-docs and send it to your writing mentor by 5 pm, Wednesday July 16. If you are planning on submitting an abstract to SACNAS, make sure to do it before July 14, leaving time for your mentors to read over it in advance if you’ve made any changes!

Background Readings:

• The Structure of a Scientific Paper: Chapter 4, sections 4.6 and 4.7, Eloquent Science

July 14 5pm – SACNAS Conference Abstract deadline

July 19: Preparing your presentations, conclusions

Ethics discussion topic: Co-authorship
Discussion: We will discuss conclusions in this workshop. We will also talk about effective presentations - formatting, text/figures, acknowledgements and design of posters and power points. Finally, we will discuss the process for submitting your paper to OpenSky.

Workshop: Working on your poster or talk.

Prepare: Complete your results and discussions sections, and write your conclusions. Send them to your writing mentor and upload to google-docs by 5 pm, Wednesday, July 23.

Background readings:

- Potent Poster Presentations: Chapter 27, Eloquent Science
- OpenSky: http://opensky.library.ucar.edu/

DEADLINE: EWSS Abstract and figure due to Bec, rbatch@ucar.edu by July 23 at 5 pm.

July 25: Pulling it all together

Discussion: No formal discussion this week. Instead we’ll break into small groups to assist with editing, do a practice talk, show your poster or have them read over your paper (no formal lecture).

Workshop: Working on talk, poster or paper with opportunities for feedback/help.

Prepare: In addition to the SOARS deliverables, AMS conference abstracts are due August 1 (except the student conference, which is due on October 1), and AGU abstracts are due early August. If you plan to attend these conferences, make sure to submit your abstracts now!

Background readings:

- AMS conferences as part of 95th annual AMS meeting (January 4-8, Phoenix, AZ) - abstracts due August 1 http://annual.ametsoc.org/2015/index.cfm/call-for-papers/
- AGU Fall Meeting, (15-19 December, San Francisco, CA) - abstract deadline TBD (early August) http://fallmeeting.agu.org/2014