

2016 SOARS Scientific Communications Workshop (SCW)

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

9:00-9:30 am: Ethics seminar; program announcements
9:30-11:30 am: Scientific communications workshop
11:30-12:30 pm: (some weeks) SOARS Seminar Series

Note that this year there will also be 4 scientific computing and data science workshops on Friday afternoons, dates to be confirmed.

All events are in the EOL Atrium FL1-2918, UCAR Foothills Campus.

The SCW is designed to be a hands-on, discussion based workshop that will guide you through the process of preparing scientific presentations, posters and papers while also developing your confidence in talking about your research with a wide variety of audiences. The format is relaxed, and will not be lecture heavy, so we encourage you to do the 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 this year is going to be a mixture of instructor-led and peer-led content presentation (so you should expect to be part of at least one group presentation), writing analysis and peer review. There will be ample time for questions, and opportunities for the workshop style to evolve based on the needs and experience of the class.

During the week following each SCW you should:

a) Complete your communications piece as listed under “homework”.

- If it's a written piece, send **A DRAFT** to your writing mentor for comment (by 5 pm Wednesday, or as arranged with your mentor), and upload to the SOARS google drive. (Incorporating your mentor's suggestions is expected, but a revised version does not have to be submitted, as we realize it may evolve significantly through the summer and may undergo several revisions with your various mentors). Many research mentors like to see your drafts at this stage too – please discuss with them when they'd like to be included in the writing feedback process.

- If it's an oral piece, please look it over/practice with your writing mentor before Friday's workshop.

b) If appropriate, also send your draft 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 next week's suggested 'background reading' in preparation for the next workshop.

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

Syllabus

May 20: Overview

Discussion [Bec]: 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
- Defining your research question and crafting a title
- The elevator speech

Homework:

- 1) Prepare a one minute elevator speech summary of your research suitable for a general audience, to be presented at the next SCW.
- 2) Craft a good title for your research, upload it to google-docs and send it to your writing mentor by **5 pm Wednesday, May 25**.

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 27: Reading the literature and writing a research proposal

Ethics discussion topic: Plagiarism

Discussion [Bec]: 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, and review and correctly cite the existing literature. Finally, we'll talk about what a research proposal looks like, and set you up to write (a very short) one.

Homework:

- 1) Write a 1-2 page research proposal that specifically identifies:
 - a) your research question (or problem statement/objectives),
 - b) a small amount of background literature relevant to this question (demonstration of need)
 - c) a brief description of how you plan to investigate the question (methodology), including a timeline
 - d) a brief description of the "intellectual merits" and "broader impacts" of your researchInclude full citations in AMS style. Upload it to google-docs and send it to your writing mentor *and peer review team* by **5 pm, Wednesday June 1**.
- 2) Discuss your work plan with your mentors. Upload to google docs, and share completed copies with your mentoring team by **5 pm, Wednesday June 1**. If a different format than that provided is more useful to you, that's fine.

3) Read your team's research proposals in preparation for Friday's workshop.

Background Readings:

- The Structure of a Scientific Paper: Chapter 4, *Eloquent Science* (particularly sections 4.6 & 4.7)
- Using Effective Words and Phrases: Chapter 10, *Eloquent Science*
- Citations and References: Chapter 12, *Eloquent Science*
- AMS reference formatting
http://www.ametsoc.org/pubs/journals/author_reference_guide.pdf
- NSF Graduate Research Fellowship Program: <https://www.nsfgrfp.org/>
- Useful suggestions for writing an NSF GRFP: <http://grfpessayinsights.missouri.edu/>

June 3: Introduction and methods

Ethics discussion topic: Data fabrication in science

Discussion [Group]: We will begin this workshop working in groups to provide peer-review feedback on your proposals – this is a great chance to get a feeling for what works well and what doesn't! We will then have our first two group presentations – on the *Introduction* and on the *Methods* sections.

Homework:

- 1) Complete a **draft** of 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 8.
- 2) Read your team's method sections in preparation for the workshop on the 10th.

Background readings:

- The Structure of a Scientific Paper: Chapter 4, *Eloquent Science* (particularly sections 4.4 - 4.8)
- Using Effective Words and Phrases: Chapter 10, *Eloquent Science*

June 10: Illustrations, figures, and writing about your results

Ethics discussion topic: Ethical issues in atmospheric science

Discussion [Group]: We will begin this workshop working in groups to provide peer-review feedback on each other's methods sections. We will then have group presentations on how we present results using figures, captions, tables, charts, and how we talk about them in the results and discussion sections.

Homework:

- 1) Write a draft of your introduction. Upload it to google-docs and send it to your writing mentor by 5 pm, Wednesday June 15.

Background readings:

- Figures, Tables and Equations: Chapter 11, *Eloquent Science*
- The Structure of a Scientific Paper: Chapter 4, sections 4.9 and 4.10, *Eloquent Science*

June 17: *Awesome posters and presentations*

Ethics discussion topic: Authorship

Discussion [Group]: In these group presentations, we will talk about creating and presenting your work in oral and poster forms, and share tips and tricks for talking to your audience.

Homework:

- 1) Prepare 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!
- 2) Discuss your presentation with your mentors.

Background readings:

- Constructing Effective Oral Presentations: Chapter 25, *Eloquent Science*
- Delivering Compelling Oral Presentations: Chapter 26, *Eloquent Science*
- Potent Poster Presentations: Chapter 27, *Eloquent Science*

June 24: *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.

July 1: *Preparing for your career: CVs, resumes, personal statements and cover letters*

Today our workshop will be a bit different, focusing on creating professional CVs (with discussion of the difference between a CV and a resume). We will also discuss how to best describe your research experience, skills and training in a personal statement or cover letter. Bring your CV if you have one.

July 8: *Abstracts and how to talk about expected results*

Discussion [Bec]: 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 do an in-class critical analysis of some sample abstracts, and will discuss your abstracts for the conferences you may choose to attend in the fall, as well as the EWSS abstract and figure that you'll be preparing for SOARS.

Homework:

- 1) Prepare a draft conference abstract for SACNAS, AMS or AGU (talk with your mentors and/or Bec or Rebecca about the best conference for you). Upload it to google-docs and send it to your writing mentor **and your peer review team** by 5 pm Wednesday, July 13th. Critically review your team's abstracts in preparation for the workshop on the 15th.
- 2) Write your EWSS (and 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. Discuss it with your mentors, and incorporate their feedback (your peer-review feedback of your conference abstract next week may be helpful too). **The final version of your figure and EWSS abstract, on the EWSS template, will be due at 5 pm, July 20.**

Background readings:

- The Abstract and Extended Abstract: Chapter 23, *Eloquent Science*
- 2015 SACNAS National Conference: <http://sacnas.org/events/national-conf>
- SACNAS abstract submission information: <http://sacnas.org/events/national-conf/student-postdoc-research-presentations>
- AMS conferences as part of 97th annual AMS meeting (January 22-26, Seattle, Washington) - abstracts due August 1 <https://annual.ametsoc.org/2017/index.cfm/call-for-papers/>
- AMS Student conference (January 21-22, Seattle, Washington), abstract deadline October 1: <https://annual.ametsoc.org/2017/index.cfm/programs/conferences-and-symposia/16th-annual-ams-student-conference/>
- AGU Fall Meeting, (12-16 December, San Francisco, CA) - abstract deadline TBD (early August) <https://fallmeeting.agu.org/2016/>

July 15: Tying it all together

Discussion [Bec]: We will begin this workshop reviewing each other's abstracts in small peer groups. I encourage you to also bring your EWSS figure for discussion during this time. After peer-review, we will talk about bringing all the pieces of your paper together, drawing conclusions and editing for coherence and flow.

Homework:

- 1) Complete drafts of your results and discussion section and conclusions, upload to google docs and send to your writing mentor by **5 pm, Wednesday July 20.**

Note: At this point you will ideally have a near-complete paper. I suggest you aim to send the entire paper draft, having reworked previous sections as your research changed and to incorporate earlier feedback, to your mentors at this time (or a mutually agreed on alternative).

- 2) **Reminder: The final version of your EWSS abstract, on the EWSS template, is due to Bec by 5 pm, July 20.**

Background readings:

- The Structure of a Scientific Paper: Chapter 4, *Eloquent Science*

July 22: We're nearly there!

Discussion: No formal discussion this week. Instead we'll have workshop time where you can break into small groups to assist with editing, do a practice talk, show your poster or simply work on your output with opportunities for feedback/help.

Homework:

- 1) In addition to the SOARS deliverables (all due next week), conference abstracts are due in the first week of August (see Background Readings, July 8 for deadlines).
- 2) Please complete the **SOARS Conference Abstract Pre-Submission Form** for all conferences you plan to attend, and have them signed off by your mentors and Rebecca before submitting your abstract(s).

SOARS Colloquium	25 July
DEADLINE: Poster required for printing	27 July, 8 am
Poster Session	28 July, 2 pm
DEADLINE: Paper due	29 July, 5 pm

Deadline Summary

(All deadlines 5 pm unless otherwise noted)

Wednesday, May 25:	Working title
Friday, May 27:	1 minute elevator speech (during SCW)
Wednesday, June 1:	1-2 page research proposal; Work plan
Wednesday, June 8:	Methods section (draft)
Wednesday, June 15:	Introduction (draft)
Friday, June 24:	Practice talks (7 minute, intro and methods)
Wednesday, July 13:	Conference abstract (draft)
Wednesday, July 20:	EWSS abstract and figure (FINAL) Results and Discussion, Conclusions (draft) - Suggest also whole paper draft around this time
Sunday, July 24, 8 pm:	Colloquium presentation to Bec (FINAL)
Monday, July 25:	Colloquium (12 minute talk, 3 minutes for questions)
Wednesday, July 27, 8 am:	Poster due for printing (FINAL)
Thursday, July 28, 2 pm:	Poster Session SOARS conference abstract pre-submission form completed
Friday, July 29, 5 pm:	Paper (FINAL) Conference abstracts submitted