

ATMOS 6910: Scientific Writing and Oral Presentation



Department of
ATMOSPHERIC SCIENCES
MINES AND EARTH SCIENCES | THE UNIVERSITY OF UTAH

by John C. Lin (Associate Professor)

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2017 Spring Semester (1 credit)

Course Description:

The objective of this class is to help graduate students early in their career develop their skills in scientific communication, in both written and oral forms. The course will seek to answer the question: “*What makes a compelling scientific presentation?*” and identify common pitfalls in scientific communication. The class, which will meet weekly, will involve discussions and group activities, including peer review by students of each other’s writing and talks.

In addition to aiming to improve students’ writing and speaking, an ancillary but important outcome of this course is to cultivate a culture of esprit de corps and teamwork among graduate students in the Atmospheric Sciences Department as they help one another throughout the course of the school term. Toward this end, I ask you to:

- Actively participate in group discussions and providing feedback for your fellow students
- Complete your assignments on-time so that you would be ready to contribute to group activities

Likewise, providing and receiving feedback require positive mindsets from both sides to make the effort worthwhile. For those providing feedback, please provide *constructive criticisms*. The goal is not to tear down a fellow student's work, but to identify weaknesses so that they can be properly addressed. Closely related to this is an attempt to provide suggestions to how the weaknesses can be addressed. For those receiving criticism, please maintain an open mind! Your fellow students are seeking to help you improve your writing and oral presentation; try not to take the criticism personally (unless it is indeed personal, in which case I will step in).

Class Objectives:

- Identify ways to improve scientific writing
- Practice and improve scientific presentations
- Build comraderie and friendships among 1st year students
- Help you succeed in the research prospectus (oral and written)--a key part of the Department's "exam" for graduate students

Instructor

John C. Lin

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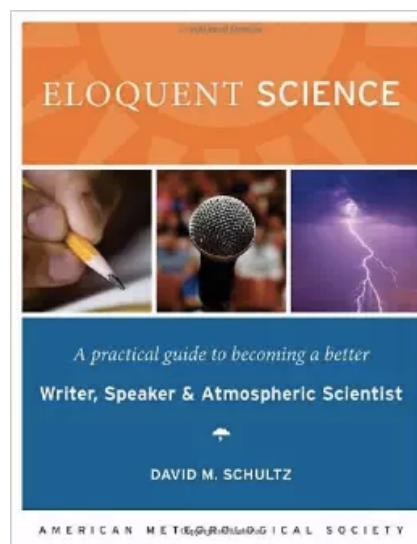
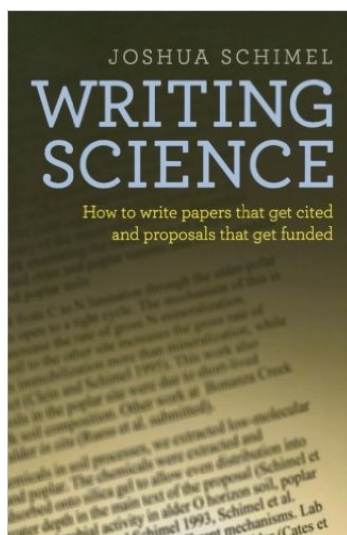
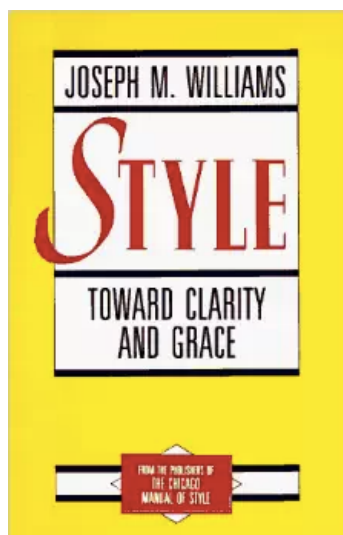
Phone: (801)581-7530

Office: 721 WBB

Office Hours

By appointment with the instructor—just email John.Lin@utah.edu

Books with Assigned Reading:



Assignments

The assignments are planned to help you prepare for the comprehensive examination and in particular the written and oral portions of the Research Prospectus! The assignments are timed to help you build up to the version of Prospectus that will be presented to the Department's faculty members.

Other than assigned reading, the main assignment in class consists of pieces of writing. In order to share your writing with your peers during class, I ask you to:

- 1) Upload an electronic copy to CANVAS
- 2) Print out a hard copy and bring to class

In the latter part of the semester, you will also be asked to prepare oral presentations.

Schedule

Week 1: Introductions, ice breaker, plans for the term [1/13/2017]

Reading: Williams book--Preface, Chaps. 2 & 3

Assignment: write 2 pages (double-spaced) about "What is Atmospheric Science?"--aim towards undergraduate college level (focus just on writing part, so no references needed)

Week 2: What is good writing (in general)? [1/20/2017]

Class activity: examine one assignment

Reading: Schimel book--Chaps. 1 ("Writing in Science") & 2 ("Science Writing as Storytelling")

Assignment: write 2 pages (double-spaced) about research project--aimed towards undergraduate college level

Week 3: What is good scientific writing? [1/27/2017]

Scientific paper as "story-telling"; logical flow of ideas

Group activity: peer evaluation of assigned writing

Reading: Schimel book--Chaps. 3 ("Making a Story Sticky") & 4 ("Story Structure")
Chapt. 4 of Schultz book (scientific paper)

Assignment: identify key story points for your own work

Week 4: What characterizes successful science storytelling? [2/3/2017]

S: Simple

U: Unexpected

C: Concrete

C: Credible

E: Emotional

S: Stories

Group activity: read and criticize peers' assignments, looking for SUCCES principles

Reading: Schimel book--Chaps. 5 ("The Opening") & 6 ("The Funnel: Connecting O and C")

Assignment: read sample scientific papers

Week 5: Sample scientific papers [2/10/2017]

Class activity: critique sample papers, identify the "actors" and "story" the papers are trying to tell, look for SUCCES principles

Reading: Schimel book--Chapt. 7 ("The Challenge")

Assignment: write Introduction, including key research questions that research/prospectus will focus on

Week 6: Introduction, research questions [2/17/2017]

Group activity: peer review of opening to challenge, key research questions

Reading: Schimel book--Chapt. 8 ("Action")

Assignment: revise Introduction section of prospectus

Week 7: Introduction [2/24/2017]

Group activity: peer review of Introduction (ask group members: what is the question the writer is trying to answer?)

Assignment 1: finish Introduction section of prospectus, give to advisor

Assignment 2: write Methodology section of prospectus

Week 8: Figures & Tables [3/3/2017]

Group activity: peer-review of Methodology section

Reading: Schimel book--Chapt. 9 ("The Resolution")

Assignment: generate figures and Preliminary Results section for prospectus

Week 9: Results section [3/10/2017]

Group activity: Evaluate figures

Reading: Schultz book--Chapt. 23 ("Conference Abstract")

Assignment 1: write Abstract of prospectus

Assignment 2: write Discussion & Work Plan/Timeline sections of prospectus

-----SPRING BREAK-----

Week 10: Oral Presentations [3/24/2017]

Class activity: look at YouTube videos of various presentations--both poor and good

Group activity: talk about personal hobby; then talk about research project

-Q: how is the personal conversation different from a public presentation?

Reading: Schimel book--Chapt. 10 ("Internal Structure")

Reading: Schultz book--Chapt. 24 ("Accessible Oral Presentations")

Assignment: peer evaluation of prospectus document

Week 11: SCIENTIFIC Oral Presentations [3/31/2017]

Class activity: look at YouTube videos of scientific presentations--both poor and good

Group activity: evaluate whole research prospectus

Reading: Schultz book--Chapt. 25 ("Constructing Effective Oral Presentations")

Assignment 1: put together draft electronic presentation

Assignment 2: **Submit written prospectus to advisor**

Week 12: Examine students' draft oral presentations [4/7/2017]

Class activity: go through slides of oral presentation together

Reading: Schultz book--Chapt. 26 ("Delivering Compelling Oral Presentations")

Assignment: finish oral presentations, prepare for "dress rehearsal" next week

Week 13: Practice oral presentations [4/14/2017]

Class activity: dry runs (aka "dress rehearsal"), peer evaluation using identical forms faculty will use

Week 14: Practice oral presentations [4/21/2017]

Class activity: dry runs (aka "dress rehearsal"), peer evaluation using identical forms faculty will use