

ATS 693, Spring 2017
Research in Atmospheric Science
Fridays 10:00 – 10:50 PM
ATS West 121

Instructor: Prof. Sonia Kreidenweis
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Objectives:

The intent of this seminar-style course is to introduce graduate students and early career postdocs to the research process, the responsible conduct of research, and the MS and PhD degree processes in the Department of Atmospheric Science. Research topics will range from conceptual (developing research questions, time management) to practical (keeping research notebooks, laboratory safety) and ethical (data manipulation, intellectual property) considerations. This course is designed to satisfy federal agency requirements for face-to-face training in responsible conduct of research.

Texts (resources, not required):

* R.V. Smith, *Graduate Research: a Guide for Students in the Sciences*, 3rd ed., 1998. (~\$17, Amazon.com)

* I. Valiela, *Doing Science: Design, Analysis, and Communication of Scientific Research*, 2nd ed., 2009. (~\$25, Amazon.com)

S. Christopher, *Navigating Graduate School and Beyond*, Geopress (AGU), 2011. (\$20 for members at agu.org)

J. Rachels and S. Rachels, *The Elements of Moral Philosophy*, McGraw-Hill, 2010. (\$48 at barnesandnoble.com)

Weekly PowerPoints and additional reading and discussion materials are posted on the course website:

<http://chem.atmos.colostate.edu/AT693>

The username is at786. The password will be distributed via email to each participant.

Course Structure, Expectations, and Grading Criteria:

IMPORTANT:

All students are expected to have completed the online RCR training course and the associated Mastery Quiz, at <http://rcr.colostate.edu/training.html>, prior to attending the first class.

Course material will be delivered in a lecture / discussion format, meeting for one 50-minute period each week. Lectures (.pptx or .pdf format) are posted on the class website. At least 2 hours of effort (2 hours per each hour of class time) outside of class each week are expected to complete readings and homework assignments. In particular, all students are expected to read assigned materials prior to the class time in which it will be discussed.

This class is graded on a satisfactory/unsatisfactory (S/U) basis. This is a discussion-based class and satisfies CSU and federal agency requirements for face-to-face training. As such, students will be graded based on their (mandatory) attendance and participation in class discussions. Students may have up to two excused absences from class, and should make arrangements with the instructor to make up any assignments and to ensure they are prepared for the next class.

Academic Integrity:

All students are subject to the policies regarding academic integrity found in Section 1.6 of the 2010 – 2011 General Catalog, found at <http://www.catalog.colostate.edu/Content/files/2012/FrontPDF/1.6POLICIES.pdf>, and the student conduct code (<http://www.conflictresolution.colostate.edu/conduct-code>). Other information on academic integrity can be found on the Learning@CSU website (<http://learning.colostate.edu/integrity/index.cfm>). Examples of academic dishonesty can be found in these sources. At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

Special Needs:

Please see the instructor during the first two weeks of the semester, if you have special learning needs that should be accommodated in this class, and refer to <http://rds.colostate.edu/csuintfo/accommodations.asp> for more information.

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Responsible Conduct of Research in Atmospheric Science
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Course Topics and Tentative Outline:

Week	Discussion Topic	Reading assignment (for next week)
Jan 20	Course overview Roles and responsibilities in academia	Bebeau et al., Developing a Well-Reasoned Response to a Moral Problem in Scientific Research
Jan 27	Data ownership and storage	
Feb 3	Lab notebooks	
Feb 10	The Scientific Method / Design and Conduct of Research	
Feb 17	Research Misconduct / Plagiarism	
Feb 24	Publication Practices and Responsible Authorship	
Mar 3	Responsible Authorship	
Mar 10	Research with Human and Animal Subjects / Lab Safety / Whistleblowing	
Mar 17	<i>Spring Break</i>	
Mar 24	Time Management	
Mar 31	Resume Preparation and Interview Skills	
Apr 7	Conflict Resolution and Effective Communication (presented by Office of Conflict Resolution) Mentor/Trainee Relationships	
Apr 14	Effective Tables, Figures, and Posters Effective Presentations	
Apr 21	Seeking Funding and Writing Successful Proposals	
Apr 28	Preparing Research Budgets Financial Management & Fiscal Responsibility	
May 5	Course wrap-up	