

ATS 693, Spring 2023
Responsible Conduct of Research in Atmospheric Science
Fridays 10:00 – 10:50 PM
ATS 101

Instructor: Prof. Sonia Kreidenweis
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Objectives:

The intent of this seminar-style course is to introduce graduate students and early career scientists 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:

For reading, distributed electronically:

Muriel J Bebeau, Kenneth D Pimple, Karen MT Muskavitch, Sandra L Borden, David H Smith, Moral reasoning in scientific research: Cases for teaching and assessment. Bloomington, IN: Poynter Center for the Study of Ethics and Assessment, 1995.

Miguel Roig, Avoiding plagiarism, self-plagiarism, and other questionable writing practices: A guide to ethical writing, 2015 update. US Department of Health and Human Services, Office of Research Integrity

Weekly PowerPoints and reading and discussion materials are posted in Dropbox:

<https://www.dropbox.com/sh/sb2wri46vk1qzac/AADAqypWpsu4WEb15KcNEkMla?dl=0>

Of interest:

CSU Graduate School Professional Development website:

<https://graduateschool.colostate.edu/professional-development/>

Course Structure, Expectations, and Grading Criteria:

IMPORTANT:

All students are expected to complete the online RCR training course, accessed as explained here: https://www.research.colostate.edu/ricro/wp-content/uploads/sites/22/2021/12/CITI-SSO-Integration-Instructions_RCR.pdf

We will complete these modules during the semester.

Course material will be delivered in an online lecture / discussion format, meeting for one 50-minute period each week. All students are expected to join the class synchronously and are encouraged to participate via video. Lectures (.pptx or .pdf format) are posted in the class Dropbox. 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 and complete online modules 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 the class. 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 the CSU General Catalog, <https://catalog.colostate.edu/general-catalog/policies/students-responsibilities/> and the student conduct code (<https://resolutioncenter.colostate.edu/student-conduct-code/>). 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 Student Resolution Center.

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/csuinto/accommodations.asp> for more information.

COVID-19 (updated information at the CSU [COVID-19 site](#)):

All students are directed to report any COVID-19 symptoms to the university immediately, as well as exposures or positive test results from a medical provider or home test.

- If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID (even with a home test), you are directed to fill out the [COVID Reporter](#).
- If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online [COVID Reporter](#). Do not ask your instructor to report for you.
- If you do not have internet access to fill out the online [COVID-19 Reporter](#), please call (970) 491-4600.
- You may also report concerns in your academic or living spaces regarding COVID exposures through the [COVID Reporter](#). You will not be penalized in any way for reporting.
- When you complete the [COVID Reporter](#) for any reason, the CSU Public Health Office is notified. Students who report symptoms or a positive antigen test through the [COVID Reporter](#) may be directed to get a PCR test through the CSU Health Network's medical services for students.

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Week	Discussion Topic	Accompanying Module / Reading or Activity Assignment
Jan 20	Course overview Roles and responsibilities in academia	Introduction to RCR Module Bebeau et al., Developing a Well-Reasoned Response to a Moral Problem in Scientific Research
Jan 27	Authorship (and IP ownership)	Authorship Module Jessica Banks case
Feb 3	Reproducibility; lab notebooks	Reproducibility of Research Results Discuss record keeping with group members Bring to class: your notebook / record
Feb 10	Plagiarism	Plagiarism Module Charlie West case; Roig article (resource)
Feb 17	Research Misconduct	Research Misconduct Module
Feb 24	Conflicts of Interest / Whistleblowing (<i>guest</i> : Kim Cox-York)	Conflicts of Interest Module Marty Brown Case / Bob Bailey case
Mar 3	Mentoring (<i>guest</i> : Emily Fischer)	Mentoring Module
Mar 10	Peer Review / Publishing	Peer Review Module Diane Archer case
Mar 24	Data Management (<i>guest</i> : Mara Sedlins)	Data Management Module
Mar 31	Research with Humans and Animals; Lab Safety	Human Subjects and Animal Subjects Modules
Apr 7	Collaborative research	Collaborative Research Module
Apr 14	Preparing Research Budgets Financial Management & Fiscal Responsibility (<i>guest</i> : Shannon Irely)	Bring to class: your laptop, with the budget spreadsheet uploaded
Apr 21	Developing a Proposal / Prospectus	Bring to class: a hypothesis-based research idea / outline
April 28	Implicit Bias (<i>guest</i> : Melissa Burt)	Complete online exercises (URLs will be emailed to you)
May 5	Export Controls and Related Issues	