

ATS 693

Responsible Research in Atmospheric Science

Thursdays 1:00 – 1:50 PM

ATS 101

Instructor: Prof. Jeff Collett

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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 and the responsible conduct of research, with a focus on applications in Atmospheric Science. Topics will range from conceptual (e.g., research design, authorship) to practical (keeping research notebooks, safety, constructing project budgets) 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, <https://ori.hhs.gov/avoiding-plagiarism-self-plagiarism-and-other-questionable-writing-practices-guide-ethical-writing>[Links to an external site.](#)

Weekly copies of lecture slides and other reading and discussion materials will be posted here in Canvas

Of interest -- CSU Graduate School Professional Development website:

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

Course Structure, Expectations, and Grading Criteria:

All students are expected to complete the online RCR training course, accessed as explained here:

[CSU RCR Module Access Instructions](#)

We will complete these modules during the semester.

Course material will be delivered in a lecture/discussion format, meeting for one 50-minute period each week. All students are expected to join the class and participate in group activities and class discussions. Lecture materials will be posted here in Canvas.

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 corresponding class discussion.

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. If you will miss more than two classes, please contact the instructor to make arrangements to discuss how to make up any assignments and to ensure you 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/Links to an external site.](https://catalog.colostate.edu/general-catalog/policies/students-responsibilities/Links%20to%20an%20external%20site) 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. Refer to [https://disabilitycenter.colostate.edu/accommodations-process/Links to an external site.](https://disabilitycenter.colostate.edu/accommodations-process/Links%20to%20an%20external%20site) for more information.

ATS 693, Spring 2025
 Responsible Conduct of Research in Atmospheric Science
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Date	Discussion Topic	Accompanying Module Reading or Activity Assignment
Jan 23	Course overview; Roles and responsibilities in academia	Introduction to RCR Module (see above for access signup instructions) Bebeau et al., Developing a well-reasoned response to a moral problem in scientific research Lecture 1
Jan 30	Authorship and Data Ownership	Authorship Module Jessica Banks Case Response Form Lecture 2
Feb 6	Reproducibility; lab/field notebooks & code documentation (<i>guest: Justin Hudson</i>)	Reproducibility of Research Results Module Discuss record keeping with your research group members; bring to class: your notebook/record Lecture 3a (Documenting Code) Lecture 3b (Lab Notebooks)
Feb 13	Imposter Syndrome (<i>guest: Sue van den Heever</i>)	
Feb 20	Plagiarism	Plagiarism Module Charlie West case

		Roig plagiarism article Lecture 4
Feb 27	Research Misconduct	Research Misconduct Module Marty Brown case Lecture 5
Mar 6	Mentoring	Mentoring Module Bob Bailey case Lecture 6 Sample Mentoring Compact CSU ATS IDP Example
Mar 13	ATS Code of Conduct (guest: Jeff Pierce) Conflicts of Interest/Whistleblowing	Read ATS Code of Conduct Conflicts of Interest Module Lecture 7
Mar 20	SPRING BREAK -- NO CLASS	
Mar 27	Data Management (guest: <i>Rachelle Ramer</i>)	Data Management Module Lecture 8
Apr 3	Preparing Research Budgets; Financial Management and Fiscal Responsibility (guest: <i>Shannon Irey</i>)	No pre-class work Lecture 9 Example budget template
Apr 10	Implicit Bias (guest: <i>Melissa Burt</i>)	Before class take <u>3</u> Implicit Association Tests from Project Implicit Social Attitudes. https://implicit.harvard.edu/implicit/takeatest.html . Each test will take roughly 10 minutes. Reflect on the

		<p>testing experience (e.g. how you felt) and your results.</p> <p>Read Dutt et al. (2016) differences in recommendation letters for postdoctoral fellowships in geosciences</p> <p>Lecture 10_Melissa Burt</p>
Apr 17	AI and scientific writing (<i>guest: Rachele Ramer and Mara Sedlins</i>)	<p>Collaborative Research Module</p> <p>Reading and pre-class activities</p> <p>Lecture 11 _ Rachele Ramer and Mara Sedlins</p>
Apr 24 (To be rescheduled)	Picture a Scientist Discussion	<p>Watch <i>Picture a Scientist</i> with a classmate or on your own ahead of class</p>
May 1	Publishing: Authorship & Peer Review	<p>Peer Review Module</p> <p>Lecture 12</p> <p>Diane Archer case</p>
May 8	Research with Humans and Animals; Export Controls; Safety (<i>guest: Amy Sullivan</i>)	<p>Human Subjects and Animal Subjects Modules</p> <p>Lecture 13</p>