

## ATS 693

Spring 2024

**Responsible Conduct of Research in Atmospheric Science**

**Fridays 10:00 – 10:50 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, the responsible conduct of research, and the MS and PhD degree processes in the Department of Atmospheric Science. Topics will range from conceptual (e.g., developing research questions, time management) 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>

Weekly PowerPoints and 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 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.

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Date	Discussion Topic	Accompanying Module Assignment	Reading or Activity
Jan 19	Course overview; Roles and responsibilities in academia	<a href="#">Introduction to RCR Module (see above for access signup instructions)</a> <a href="#">Bebeau et al., Developing a well-reasoned response to a moral problem in scientific research</a>	

Jan 26	Authorship (and IP ownership)	<a href="#">Authorship Module</a> Jessica Banks Case
Feb 2	Reproducibility; lab/field notebooks & code documentation ( <i>guest: Justin Hudson</i> )	<a href="#">Reproducibility of Research Results Module</a> Discuss record keeping with your research group members; bring to class: your notebook/record
Feb 9	Plagiarism	<a href="#">Plagiarism Module</a> Charlie West case; Roig article
Feb 16	Research Misconduct	<a href="#">Research Misconduct Module</a>
Feb 23	Conflicts of Interest/Whistleblowing ( <i>guest: Kim Cox-York</i> )	<a href="#">Conflicts of Interest Module</a> Marty Brown case / Bob Bailey case
Mar 1	Mentoring	<a href="#">Mentoring Module</a>
Mar 8	Peer Review/Publishing	<a href="#">Peer Review Module</a> Diane Archer case
Mar 15	SPRING BREAK -- NO CLASS	
Mar 22	NO CLASS - ATS Faculty Retreat	<a href="#">Collaborative Research Module</a>
Mar 29	Data Management ( <i>guest: Mara Sedlins</i> )	<a href="#">Data Management Module</a>
Apr 5	Implicit Bias ( <i>guest: Melissa Burt</i> )	Complete online exercises (to be assigned)
Apr 12	Research with Humans and Animals; Export Controls; Safety ( <i>guest: Amy Sullivan</i> )	<a href="#">Human Subjects and Animal Subjects Modules</a>
Apr 19	Developing a Proposal/Prospectus (Double class period)	Bring to class: a hypothesis-based research idea/outline
Apr 26	Preparing Research Budgets; Financial Management and Fiscal Responsibility ( <i>guest: Shannon Irely</i> )	Bring to class: your laptop with the budget spreadsheet loaded
May 3	AI and scientific writing	TBD