

Research Integrity Fall 2022 Syllabus Philosophy 56

This is an online, asynchronous class.

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Catalogue Description: “Basic regulatory and ethical requirements for doing research. Topics covered include protection of human subjects, data management, authorship, peer review, mentoring, animal experimentation, conflict of interest, and collaborative research.”

Course description: This course is about the ethics of research. You have been and/or are being trained in a specific scientific field, and this course is going to invite you to consider ethical questions that arise in the practice of scientific research. Some of those questions are specific to particular fields (e.g. ethical questions surrounding the use of human subjects in research, ethical questions about the application of maths in cutting-edge technologies), while others are common to all scientific fields (e.g. general questions about values in science, the complexities of authorship and interpersonal relationships in research teams). This course used to require completing the CITI certification exams for Student Researchers. This certification lasts for three years and allows you to participate as a researcher in research projects at Sacramento State. It also satisfies federal requirements for RCR/RI training which is an eligibility requirement for participation in federally funded research projects. But from now on the successful completion of this course DOES NOT require completing the CITI certification exams. Some of you might have already completed those exams.

Textbook: *On Being a Scientist: A Guide to Responsible Conduct of Research*, 3rd edition (National Academies, 2009). Free PDF is available online.

Other readings will be made available in Canvas.

Learning Objectives:

- (1) Identify, define, and explain various rules, regulatory systems, and resources available to ensure responsible conduct of research.
- (2) Explain and apply ethical decision-making in a variety of professional research settings, from a variety of perspectives (as researcher, peer, reviewer, etc.).
- (3) Apply principles of RCR/RI to specific cases of misconduct.
- (4) Assess and evaluate conditions which enable or impede responsible conduct of research in a variety of professional research settings.

Universal Accessibility:

This course and all material have been designed for universal access. If you have difficulty accessing any of the material, please let me know at your earliest experience of difficulty.

Also, this course has been designed to facilitate accommodation for specific disability needs. If you have a documented disability (visible or invisible) and require accommodation for assignments, tests, course material, etc., please let me know *the end of the FIRST week of semester* so that arrangements can be made. Failure to notify and consult with me by this date may impede my ability to offer you the necessary accommodation and assistance in a timely fashion. Also be sure to consult with the Services to Students with Disabilities (Lassen Hall 1008, or <http://www.csus.edu/sswd/>) to learn what other campus services and accommodation options are available for you.

Students with other types of accommodation requirements, such as English as a second language, are invited to discuss accommodations with the instructor to facilitate understanding and the best learning experience for all. All information will remain confidential. ESL students are advised to make use of the University Writing Center (Calaveras Hall 128, <http://www.csus.edu/writingcenter/>).

Policy Regarding Late Submissions: There will be no exceptions made for late submissions. All assignments are due at the time indicated in the assignment. Late submissions will be subject to a 20% grade reduction per calendar day late.

Grading System: Credit-No Credit. To receive credit, students must submit **all** required work. Failure to complete all the required coursework will result in No Credit being issued.

Required Assignments: Satisfactory completion of the course involves at least one practice quiz attempt scoring above C- for each module, two written assignments (for Module 1 and Module 6), playing a minimum of cases in The Dilemma Game as directed by the instructor, AND responding to the discussion prompt and one peer for each module.

1. **Quizzes:** students must score above C- for each module.
2. **Written assignments:** students must submit the required assignments (two in total, one for Module 1 and one for Module 6) by the deadline, and must score above C- in each of them.
3. **Discussion board:** students must make one original post and one reply to a classmate for each module. Their contributions need to be relevant and critical. Please read “how to do well in this course” on the course site for tips (under “Start here”) on how to make critically engaged responses to prompts and to classmates’ posts.
4. **The Dilemma Game:** students need to download the app The Dilemma Game and play according to instructor’s directions. Information on the game and link to download it under “Welcome/start here” and under “Introduction + Module 0” material. Specific instructions on how to play the game in a way that satisfies the course requirements will be provided by the instructor via announcements.

Course Schedule:

Biweekly schedule	Course Topics and Learning Objectives for biweekly modules	Read / Watch / Complete
<p>Weeks 1-2 Aug 29 – Sept 9</p>	<p>Introduction + Module 0</p> <p>Introduction</p> <ul style="list-style-type: none"> • Become familiar with the importance of ethics training. <p>Module 0</p> <ul style="list-style-type: none"> • Recognize and explain the role and value of the researcher in society. • Identify the key features of responsible conduct of research. • Explain the value of ethics to the research project. • Understand the course requirements and structure. 	<p>Read: “Why ethics training” page.</p> <p>Review Module 0 slideshows.</p> <p>Read: <i>On Being a Scientist</i> [henceforth OBS], 1-3, “Introduction to the Responsible Conduct of Research”</p> <p>Read: OBS, 48-50, “The Researcher in Society”</p> <p>Watch: video(s) in Canvas.</p> <p>Complete: practice quiz online in Canvas.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>
<p>Weeks 3-4 Sept 12-23</p>	<p>Module 1: Intro to values & The ethics of the research topics we choose</p> <p>1.1. Intro to values</p> <ul style="list-style-type: none"> • Identify what we mean when we talk about values in general and in the context of science. • Reflect on what values you find more important as a scientist. <p>1.2. The ethics of the research topics we choose to investigate</p> <ul style="list-style-type: none"> • Appreciate the difference between individual and collective values. • Reflect on what are the collective values of the society you live in. • Appreciate the influence of values in the research topics scientists choose to pursue. • Reflect on the question of whether there are research projects more important than others. 	<p>Read: Ursula LeGuin’s short story.</p> <p>Read: David Brooks’ OpEd</p> <p>Review slideshow “Intro to Values”</p> <p>Read. Kevin Elliot’s “What should we study”</p> <p>Review slideshow: “The ethics of the research topics we choose”</p> <p>Complete: assignment online in Canvas.</p> <p>Complete: discussion board original post AND comment</p>

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		on a classmate in Canvas.
Weeks 5-6 Sept 26 – Oct 7	<p>Module 2: Data Management & Conflict of Interest</p> <p>2.1 Data Management</p> <ol style="list-style-type: none"> 2. Recognize both the scientific and legal-regulatory approaches to the definition and classification of data, and the implications of that classification. 3. Appreciate the differences between proper and improper methods for collection and selection of data, and the importance of having sufficient methodological skills. 4. Become familiar with the appropriate technical methods for storage and protection of data, and the requirements for retention or destruction of data. 5. Appreciate the difference between proper and improper methods for data analysis and presentation, and the importance of having sufficient methodological skills. 6. Describe what is required, recommended, discouraged and prohibited with respect to data publication. 7. Recognize the obligations and limitations on data sharing, depending on ownership. <p>2.2 Conflict of Interest</p> <ol style="list-style-type: none"> 8. Define conflict of interest. 9. Articulate why it is important to identify conflicts of interest. 10. Describe different types of conflicts of interest. 11. Articulate why it is imperative to manage conflicts of interest. 12. Identify issues relating to an institutional conflict of interest. 13. Explain why an Institutional Review Board (IRB) member can have a conflict of interest. 14. Understand government policies relating to conflicts of interest. 15. Describe conflict of interest policies from institutions and professional organizations. 	<p>Read: OBS, 8-11, “The Treatment of Data”</p> <p>Read: OBS, 43-7, “Competing Interests, Commitments, and Values”</p> <p>Watch: video(s) in Canvas and review linked files.</p> <p>Complete: practice quiz online in Canvas.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>
Weeks 7-8 Oct 10-21	<p>Module 3: Authorship & Peer Review</p> <p>3.1 Authorship</p> <ul style="list-style-type: none"> • Identify the three best-known transgressions of scholarly communication - fabrication, falsification, and plagiarism. • Recognize the criteria for authorship. 	<p>Read: OBS, 12-14, “Mistakes and Negligence”</p> <p>Read: OBS, 15-18, “Research Misconduct”</p> <p>Read: OBS, 19-23,</p>

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	<ul style="list-style-type: none"> • Recognize the responsibilities of authors. <p>3.2 Peer Review</p> <ul style="list-style-type: none"> • Recognize the importance of a responsible peer review. • Characterize the role of a peer reviewer in assessing a paper or grant application. • Examine the major ethical issues surrounding publication and peer review. • Describe some of the ways to deal with controversies or conflicts that might arise in the peer review process. • Describe the role of editor and peer reviewer. 	<p>“Responding to Suspected Violations of Professional Standards”</p> <p>Watch: video(s) in Canvas.</p> <p>Complete: practice quiz online in Canvas.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>
<p>Weeks 9-10 Oct 24 – Nov 4</p>	<p>Module 4 Human and Non-Human Subjects</p> <p>4.1. Human Subjects Research</p> <ul style="list-style-type: none"> • Identify ethical principles related to the regulation of human subject research. • Discuss U.S. regulations governing the use of human subjects in research. • Describe the roles of the Institutional Review Board (IRB) and the function of the Federalwide Assurance (FWA). • Recognize the ethical responsibilities of the researcher/investigator working with human subjects, including identifying the different categories of vulnerable subject. • Describe how to report non-compliance with federal regulations and policies. <p>4.2 Animal Subjects</p> <ul style="list-style-type: none"> • Identify ethical perspectives on animal research. • Discuss U.S. regulations governing animal research. • Describe the roles of the Institutional Official (IO), the Institutional Animal Care and Use Committee (IACUC), and the Attending Veterinarian (AV) in animal care and use programs. • Recognize the ethical responsibilities of researchers working with laboratory animals. • Describe how to report animal abuse and non-compliance with federal regulations and policies. 	<p>Read: OBS, 24-27, “Human Participants and Animal Subjects in Research”</p> <p>Read: OBS, 28, “Laboratory Safety in Research”</p> <p>Watch: video(s) in Canvas.</p> <p>Complete: practice quiz online in Canvas and review linked files.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>
<p>Weeks 11-12 Nov 7-18</p>	<p>Module 5 Mentoring & Collaborative Research</p> <p>5.1 Mentoring</p> <ul style="list-style-type: none"> • Clarify the roles and responsibilities of mentors and those that they mentor. 	<p>Read: OBS, 4-7, “Advising and Mentoring”</p> <p>Read: OBS, 29-34, “Sharing of Research Results”</p>

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	<ul style="list-style-type: none"> • Provide guidance to assist all who participate in research to avoid problems and to optimize the mentoring experience. • Describe barriers to mentoring, particularly for women and minority researchers, and potential solutions to these barriers. • Describe the importance of mentoring and the way in which mentoring occurs. <p>5.2 Collaborative Research</p> <ul style="list-style-type: none"> • Recognize the increased tendency toward collaborative research in many fields. • Identify the pitfalls that may occur in collaborative research. • Gain familiarity with ways to enhance good collaborative research. • Describe the institutional processes involved in collaborative research. • Examine some of the ethical considerations in collaborative research. • Appreciate the resources available to deal with collaborative research. 	<p>Read: OBS, 35-38, “Authorship and the Allocation of Credit.”</p> <p>Read: OBS, 39-42, “Intellectual Property”</p> <p>Watch: video(s) in Canvas and review linked files.</p> <p>Complete: practice quiz online in Canvas.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>
Weeks 13-15 Nov 21- Dec 9	<p>Module 6 Ethical questions in Maths, Physics, Data Science, Astronomy & Technology</p> <ul style="list-style-type: none"> • Maths, Data Science and Algorithmic bias. • Objectivity in Maths. • The ethics of space exploration. • What do we want our future to be like? 	<p>Read/ review: TBA</p> <p>Complete Module 6 Assignment.</p> <p>Complete: discussion board original post AND comment on a classmate in Canvas.</p>