

**Ethical & Professional Science**  
Cathy and Steve Constable  
SIO 232: 2 units, spring quarter class

This class will meet for 2 hours per week during the quarter and review professional behavior in the physical sciences, ethics, authorships, preparing proposals, public speaking, working with industry, etc. Students will receive lectures, carry out assigned reading, and participate in class discussions. Grading will be S/U and judged by attendance, participation in presentation groups, and completion of assignments. It is intended that this class will meet the National Science Foundation's implementation of Section 7009 of the COMPETES Act for training in responsible and ethical conduct of research (RCR), mandatory for all students and postdocs. Postdocs who participate in the class will receive a certificate of completion.

**Syllabus:**

*Ethics:*

What does professional ethics mean?  
Science is built on trust.  
Obligations for reporting research.  
Errors versus outliers.  
What is scientific misconduct?  
Reporting misconduct  
Plagiarism

*Authorships:*

What warrants authorship?  
Choosing first authors.  
Various ways to acknowledge contributions.  
Responsibilities of authors.  
Peer review.

*Writing papers:*

Writing a paper.  
Writing a review.  
Choosing a journal/ impact factors.  
Reporting misconduct  
Plagiarism

*Proposals:*

The anatomy of an NSF proposal.  
Getting new ideas across effectively.  
Preparing a budget.

*Politics and science:*

Science and advocacy.  
UC policies on lobbying etc.

*Public Speaking:*

Introduction, body, conclusions, acknowledgements  
Effective slide preparation  
Keeping to time

*Conflict of interest:*

What is a conflict of interest?  
Managing COI  
Appropriate use of University facilities

*Conflict of Commitment:*

What is conflict of commitment?  
University regulations and guidelines

*Working with industry*

The BayhDole act  
Patents and the University  
The Tech Transfer Office  
Consulting

*Mentoring:*

Student-Adviser relations  
Collaborations  
Working in a research group

*Applying for jobs:*

Setting up a postdoc position  
Applying for a faculty position  
Industry

**Reference Materials:**

*On Being a Scientist: Third Edition, A Guide to Responsible Conduct in Research*, Committee on Science, Engineering, and Public Policy, National Academies Press <http://www.nap.edu/catalog/12192.html>

Goodstein, David S., (2010) *On Fact and Fraud*, Princeton University Press.  
Greenberg, Daniel S. (2007), *Science for Sale: The Perils , Rewards, and Delusions of Campus Capitalism*, University of Chicago Press.

Macrina, F.L. (2005) *Scientific Integrity: Text and Cases in Responsible Conduct of Research*, American Society for Microbiology Press

Oreskes, N., & E.M. Conway 2010, *Merchants of Doubt* Bloomsbury Press.

Vest, C.M. (2007) *The American Research University from World War II to World Wide Web*, University of California Press.