

Ethical & Professional Science
Cathy and Steve Constable
SIO 232: 2 units, spring quarter class
Website: <http://marineemlab.ucsd.edu/~ethics/>

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.

Students must consult the class website to stay current on assignments and expectations.

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.

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 Bayh-Dole 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 and other alternatives

Reference Materials: See also <http://marineemlab.ucsd.edu/~ethics/> and Canvas listing

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

David W. Mogk, Geoethics and Professionalism: The Responsible Conduct of Scientists, download ANALS OF GEOPHYSICS, 60, FAST TRACK 7, 2017; DOI: 10.4401/AG-7584

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

Chapter 1, of Naomi Oreskes' book, *Why Trust Science?* available electronically from UCSD library at <https://www.jstor.org/stable/j.ctvfjczxx> (Links to an external site.)

Schimmel, J., (2011) *Writing Science: How to Write Papers that get Cited and Proposals that Get Funded*, <https://ebookcentral.proquest.com/lib/ucsd/detail.action?docID=845932>

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