Ethics and Survival Skills in Academia
Winter 2001

Ethics and Survival Skills in Academia (Winter 2001)
SYLLABUS

Cognitive Science / Neurosciences / Pathology / School of Medicine Interdisciplinary 241
Thursdays, 9:00 a.m -12:00 noon (Cognitive Science Building Rm. 180)

Instructor: Mike Kalichman, Ph.D., Department of Pathology (kalichman@ucsd.edu, 0003)

Course Web Site: http://ethics.ucsd.edu/courses/survival

Associated Faculty Lecturers and Discussants:

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Objective: The primary objective of this course is to provide graduate students and postdocs with ideas and resources for achieving academic and career goals. The ethics component of the course can be used to satisfy the NIH training grant requirement for instruction in the responsible conduct of research.

Who is the course for? The course is open to all UCSD graduate students or postdocs. Although primarily intended for trainees in the experimental sciences, much of the material is relevant to other academic disciplines as well.

Schedule:
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<tr>
<th>Date</th>
<th>Discussants</th>
<th>Topics and Guest Lecturers</th>
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<tbody>
<tr>
<td>Jan. 18</td>
<td></td>
<td><strong>INTRODUCTION AND OVERVIEW</strong>&lt;br&gt;Ethics and survival in academia</td>
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<tr>
<td>Jan. 25</td>
<td>Berman, Caserio, McCulloch</td>
<td><strong>ROLES AND RESPONSIBILITIES</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>Marjorie Caserio</strong>: Academic survival, advancement&lt;br&gt;<strong>Fran Berman</strong>: Roles and responsibilities of faculty&lt;br&gt;&lt;br&gt;Academic duty; Mentors and mentoring; Letters of recommendation; Managing a research group; Diversity and discrimination; Time and stress management; Balancing work and personal life</td>
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<td>Feb. 1</td>
<td>Cosman, Powell</td>
<td><strong>Lori Chamberlain</strong>: Gender, discrimination, and harassment</td>
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<td>Feb. 8</td>
<td>Engler, Masys, Palmer</td>
<td><strong>RESEARCH</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>Dan Masys</strong> <em>(2/8)</em>: Use of Human Subjects&lt;br&gt;&lt;br&gt;Creativity; Experiment design; Data collection, ownership, sharing, and retention; Use of animal and human subjects</td>
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<td>Feb. 15</td>
<td>Varki, West</td>
<td><strong>WRITING</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>Ajit Varki</strong> <em>(2/15)</em>: Code of Ethics for Authors, Reviewers, and Editors&lt;br&gt;<strong>Jeff Graham</strong> <em>(2/22)</em>: Grantwriting&lt;br&gt;&lt;br&gt;Scientific writing; Grant writing; Reviewing (refereeing) Papers and Grants</td>
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<td>Feb. 22</td>
<td>Graham, Wagner, West</td>
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<tr>
<td>March 1</td>
<td>Koo, Sawrey, Wixted</td>
<td><strong>SPEAKING</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>Barbara Sawrey</strong> <em>(3/1)</em>: Teaching&lt;br&gt;<strong>Jeff Elman</strong> <em>(3/8)</em>: Job Talks&lt;br&gt;&lt;br&gt;Teaching; Science talks; Job talks</td>
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<td>March 8</td>
<td>Schneiderman, Taylor</td>
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<tr>
<td>March 15</td>
<td></td>
<td><strong>CAREERS</strong>&lt;br&gt;&lt;br&gt;Career options; Resumes; Networking; Job interviews; Keeping a job; Productivity; Tenure</td>
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**Format**: Participants will interact through frequent discussions and assignments involving case studies and exercises. Each session will typically include some lecture, small group discussions, and assignments to be completed before the following session.
Grading: The following are all required to pass the course or to satisfy the NIH requirement for instruction in responsible conduct of research:

1. Attend all meetings of the course
2. Lead and submit one Email discussion
3. Participate in at least two other Email discussions
4. Write one case and analysis, submit via the Web site, and be prepared to present at final meeting of course.

Graduate students may take this course for credit (P/F or S/U only). Postdoctoral researchers may audit the course; however, registration with the instructor is required.

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INTRODUCTION

RESOURCES

- General Ethics Resources
- Guidelines / Misconduct Definition / Whistleblowing
- Misconduct Cases
- Survival Skills

Introduction to course: Syllabus

- Objectives and Schedule
- Format
- Grading

What are ethics and survival skills?

- Ethics
  Morality or virtue
  Ethical theory
  Applied ethics

- Survival Skills
  Survival or success?
  Superficial?
  With integrity?

History

- 17th Century: Galileo / Experimental science
- 19th Century: Mendel / Genetics
- 1910-1913: Millikan / Charge of electron
• 1940s: Antibiotics; Manhattan Project

• 1950s: Polio vaccine; Start of Cold War

• 1960s: Space race

• 1970s: War on cancer

• 1980s: Bayh-Dole Bill (Patent Reform Act) - Dec. 1980

• 1990s: End of Cold War; Government budget surplus?

Where are we now?

• Sources of Money

• Graduate students

• Academic Positions

• NAS Report
  1. Oversupply of PhDs?

  2. Increased time to degree

  3. Increased time as postdoc

  4. Increased time to tenure

Misconduct in Science

• Summerlin

• Slutsky

• Kari

What is misconduct?

• Guidelines and Regulations

• Standards
• Ethical decision-making

**Whistleblowing**

• Disadvantages

• Advantages

• What should you do?
  1. Documentation
  2. Perspective
  3. Conflict resolution
  4. Mediation or arbitration
  5. Allegation

*Is teaching the answer?*

• Kalichman and Friedman, 1992

• Eastwood et al., 1996

• Brown and Kalichman, 1998

**Analysis and discussion of cases**

**Assignments**

**Resources for Week 1**

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Resources: Research Ethics

UCSD COURSES

- Bioethics, summer workshop for Biology Graduate Students
- Contemporary Topics in Pharmacology (BMS 231), includes 2 weeks on ethics: Taylor
- Ethics and Survival Skills in Academia (COGS 241 / SOM 241): Elman and Kalichman
- Professional Ethics in Science (SIO 273): Dayton and Mullin
- Scientific Ethics (PED 226 / SOM 226): Kalichman

GENERAL RESOURCES - Web Sites

- bioethics.net (University of Pennsylvania)
  This Web site is dedicated to "Bioethics - the moral implications of science, medicine, and research"
  (For the subject of bioethics, this is the leading site on the Web.)
  http://bioethics.net

- Center for Academic Integrity (Duke University)
  "The Center for Academic Integrity is affiliated with the Kenan Institute for Ethics Program at Duke University, Durham, North Carolina...The Center for Academic Integrity provides a forum to identify and affirm the values of academic integrity and promote their achievement in practice."
  http://www.academicintegrity.org

- Ethics Updates (University of San Diego)
  "Ethics Updates is designed primarily to be used by ethics instructors and their students. It is intended to provide updates on current literature, both popular and professional, that relates to ethics." (This is one of the most comprehensive online ethics sites.)
  http://ethics.acusd.edu

- Moral Reasoning in Scientific Research (Poynter Center and Indiana University)
  Materials developed for teaching moral reasoning by Muriel Bebeau, Ph.D., Center for the Study of Ethical Development, University of Minnesota with KD Pimple(Poynter Center), KMT Muskavitch (Indiana University), DH Smith (Poynter Center and Indiana University), and SL Borden (Poynter Center).
  http://www.indiana.edu/~poynter/mr-main.html

PROFESSIONAL ETHICS - Web Sites

- Association for Practical and Professional Ethics
  "The Association for Practical and Professional Ethics is committed to encouraging high quality
interdisciplinary scholarship and teaching in practical and professional ethics by educators and practitioners who appreciate the theoretical and practical impacts of their subjects."
http://ezinfo.ucs.indiana.edu/~appe/home.html

- Centre for Applied Ethics (University of British Columbia)
  Links to a variety of Web-based resources on applied ethics and codes of conduct.
  http://www.ethics.ubc.ca/resources/resources.html

- Codes of Ethics Online (Illinois Institute of Technology)
  The Illinois Institute of Technology has an ongoing project to collect online codes of ethics in a variety of disciplines.
  http://cssep.iit.edu/codes/codes.html

- Institute for Business and Professional Ethics (DePaul University)
  General ethics information.
  http://condor.depaul.edu/ethics/resource.html

- Institute for the Study of Applied and Professional Ethics (Dartmouth College)
  Dartmouth Ethics Institute with links to many other science ethics sites.
  http://www.dartmouth.edu/artsci/ethics-inst/Othersites.html

- On Being a Scientist
  Committee on the Conduct of Science, National Academy of Sciences (1995): On Being a Scientist: Responsible Conduct in Research (2nd ed.) National Academy Press, Washington DC. Designed for undergraduate and graduate students beginning to do science, this short book describes basic features of life in contemporary research and ethical issues researchers will likely encounter in their work.
  http://www.nap.edu/readingroom/books/obas

- Online Ethics Center (Case Western Reserve University)
  The mission of the Ethics Center is to provide engineers, scientists, science and engineering students with resources useful for understanding and addressing ethically significant problems that arise in their work life.
  onlineethics.org

- Professional Ethics Report
  Published by AAAS (American Association for the Advancement of Science).
  http://www.aaas.org/spp/dspp/sfrl/per/per.htm

- Science Ethics Resources on the Net
  Listing of online resources including centers, individuals, and codes of conduct.
  http://www.chem.vt.edu/ethics/vinny/ethxonline.html

**BIBLIOGRAPHY**


• Hamilton DP (1994). In the trenches, doubts about scientific integrity. Science 255:1636. *Addresses the question of the frequency of serious misconduct.*

• Institute of Medicine, Division of Health Sciences Policy (1989): The responsible conduct of research in the health sciences: Report of a study by a Committee on the Responsible Conduct of Research, National Academy Press, Washington, D.C.


• Macrina FL (2000): Scientific Integrity. American Society for Microbiology Press, Washington, D.C. *One of the first, and one of the best, general sources for information and cases on the topic of integrity in science.*


• Sigma Xi (1991): Honor in Science. 3rd ed. Sigma Xi, Publications Office, Sigma Xi, P.O. Box 13975, Research Triangle Park, NC 27709. *An excellent pamphlet emphasizing the obligation of scientific integrity.*

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Resources: Guidelines for Scientific Integrity

Guidelines | Definition of Misconduct | Whistleblowing

GUIDELINES

GENERAL

- Codes of Science Ethics Online (Illinois Institute of Technology)
  The Illinois Institute of Technology has an ongoing project to collect online codes of ethics in a variety of disciplines. A complete listing in a variety of disciplines can be found at:
  http://csep.iit.edu/codes/codes.html
  http://csep.iit.edu/codes/science.html

  This booklet is comprised of thoughtful discussions about a variety of ethical problems faced by scientists as well as cases for further discussion. [available online at:
  http://www.nap.edu/readingroom/books/obas/]

- Tri-Council Policy Statement: Integrity in Research and Scholarship (Canada)
  Joint statement on integrity from the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC)
  http://www.sshrc.ca/english/programinfo/policies/integrity.htm

PROFESSIONAL SOCIETIES

- The Role and Activities of Scientific Societies in Promoting Research Integrity
  Conference convened by the American Association for the Advancement of Science and the Office of Research Integrity (April 10-11, 2000)
  http://www.aaas.org/spp/dspp/sfrl/projects/integrity.htm

  The following are a sampling of professional societies that have published exemplary guidelines on the responsible conduct of research.

- American Academy of Microbiology
  This is a pdf file containing the summary proceedings of a colloquium on "Dynamic Issues in Scientific Integrity: Collaborative Research" (sponsored by the American Society of Microbiology and the National Science Foundation)
  http://www.asmusa.org/acasrc/pdfs/research.pdf
INSTITUTIONAL

The following are a sampling of institutional policies on the responsible conduct of research.

- University of Michigan
  http://www.research.umich.edu/research/policies/policies.html

- University of Minnesota
  http://www1.umn.edu/regents/policies/academic/Conduct.html

Guidelines | Definition of Misconduct | Whistleblowing

DEFINITION OF MISCONDUCT

GOVERNMENT-WIDE DEFINITION OF MISCONDUCT

- Report of the DHHS Implementation Group
  Raub Report (June 1996): see heading "FASEB Statements on Research Integrity"
  http://www.faseb.org/opar/raub.html

- Office of Science Technology and Policy
  Proposed new, government-wide definition of scientific misconduct (Oct. 14, 1999)

Guidelines | Definition of Misconduct | Whistleblowing

WHISTLEBLOWING

UCSD RESOURCES ON WHISTLEBLOWING

- UCSD School of Medicine Ombudsman Program
  For confidential discussion of allegations of misconduct
  http://medicine.ucsd.edu/research/ethics/ombudsman.htm

- UCSD Conflict resolution strategies, resources
http://www-hr.ucsd.edu/~employeerl/introd.html

- UCSD policy on reporting of misconduct.
  http://www-ogsr.ucsd.edu/research/integ95.html#REPORTING

- Office of the President (1990): Policy and Procedures for Reporting Improper Governmental Activities and Protection Against Retaliation for Reporting Improper Activities, University of California


- Contacts for Allegations of Misconduct:
  - Michael Melman, Director, Employee/Labor Relations, Human Resources, X42810
  - Jerry Schneider, Dean for Academic Affairs, School of Medicine, X44877
  - Michael Kalichman, Office of Graduate Studies and Research, X22027

WEB SITES

- Whistleblower Protection Act of 1989
  http://thomas.loc.gov/cgi-bin/query/z?c101:S.20:ENR:

- Whistleblower's Roles, Rights, and Protections
  Office of Research Integrity, Dept. of Health and Human Services

- Ryan Commission Report
  Commission on Research Integrity (November 1995): Integrity and Misconduct in Research, Dept. of Health and Human Services
  http://gopher.faseb.org/opar/cri.html

BIBLIOGRAPHY


  This is an excellent summary for whistleblowers about what to expect and how to proceed. It is essential reading for anyone who is involved in an allegation of research misconduct.


  Intended to provide guidance in responding to possible retaliation against whistleblowers in cases involving PHS extramural research and provide information to whistleblowers regarding the appropriate method for submitting a retaliation complaint. Issued 11/95. (available from ORI at:


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Resources: Misconduct in Science (Cases)

**VARIOUS CASES**

- [www.caltech.edu/~goodstein/fusion.html](http://www.caltech.edu/~goodstein/fusion.html)
  The case regarding cold fusion.
  Quarterly Newsletter from Office of Research Integrity - case summaries and results

- Broad W, Wade N (1982): Betrayers of the Truth. Simon and Schuster, New York. Remains as one of the most comprehensive (although sensational) reviews of recent (to 1982) and historical examples of scientific misconduct.

**IMANISHI-KARI CASE (WEB SITES)**

  NY Times Review of book by Kevles - provides detailed history of case
- [the-tech.mit.edu/V116/N28/baltimore.28n.html](http://the-tech.mit.edu/V116/N28/baltimore.28n.html)
  "Panel Clears MIT Scientist of Fraud: Imanishi-Kari, Baltimore Vindicated"
- [the-tech.mit.edu/V116/N55/baltimore.55n.html](http://the-tech.mit.edu/V116/N55/baltimore.55n.html)
  "Panel Focuses on Baltimore, Ethics in Scientific Research"
- [http://www.hhs.gov/dab/decisions/dab1582.txt](http://www.hhs.gov/dab/decisions/dab1582.txt)
  Final decision in appeals board found that the case against Imanishi-Kari was not proven by a preponderance of the evidence

**IMANISHI-KARI CASE (CHRONOLOGICAL ORDER)**

• Travis J (1993). Imanishi-Kari says her new data shows she was right. Science 260(5115):1073-4.

JOHN DARSEE CASE


WILLIAM SUMMERLIN CASE


ROBERT SLUTSKY CASE


STEPHEN BREUNING CASE


GALLO CASE

• Gallo aide convicted on three counts [news]. Science 257(5068):323.

ANGELIDES CASE

• http://ori.dhhs.gov/html/misconduct/ori_summary_angelides.asp
Kimon Angelides was recently (February 1999) found guilty of "intentionally falsifying data and misrepresenting research results in grant applications submitted to the National Institutes of Health (NIH) and in five papers published while he ran a laboratory at the Baylor College of Medicine (Baylor)"

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Resources: Survival Skills

UCSD COURSES

- UCSD Preparing Professional Faculty Workshops, presented by the Center for Teaching Development (www.ctd.ucsd.edu/ppf.htm)
- Scientific Communication (NS 251 / SIO 292): Kalichman and Yayanos

WEB SITES

- Consensus report on graduate education, FASEB, July 1997
  http://gopher.faseb.org/opar/eduerpt.html

- Graduate Education Report, Association of American Universities
  The Association of American Universities (AAU) formed the Committee on Graduate Education to evaluate the conduct of graduate education on its member campuses. The Committee examined the institutional perspectives on graduate education, surveyed its institutions about their graduate programs, and developed guidelines on best practices for graduate education policies and programs.

- GREAT Group of the Association of American Medical Colleges
  The GREAT Group provides a national forum for professional development and the exchange of information and ideas related to biomedical graduate education and training.
  http://www.aamc.org/about/gre/aboutgrt.htm

- National Science Board, NSF
  Views on the role of the Federal government in graduate and postdoctoral education.

- Preparing Future Faculty
  Preparing Future Faculty is a national network of academic leaders reshaping graduate education to include preparation for the full range of faculty roles subsumed by the terms teaching, research, and service.
  http://www.preparing-faculty.org

- Reshaping the Graduate Education of Scientists and Engineers
  http://www.nap.edu/readingroom/books/grad

- Statistical Reports on U. S. Science and Engineering

- Survival Skills Web page, University of Pittsburgh
  http://www.pitt.edu/~survival
Trends in the Early Careers of Life Scientists
This report extends the analyses of the previous reports by examining the changes that have occurred over the last 30 years in graduate and postgraduate training of life scientists and the nature of their employment on completion of training.
http://www.nap.edu/readingroom/books/trends

BIBLIOGRAPHY


• Fiske PS (1996): To Boldly Go ... A Practical Career Guide for Scientists. American Geophysical Union Special Publicaton, Washington, DC.


• Medawar PB (1979): Advice to a Young Scientist. Harper & Row, Philadelphia.


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ROLES AND RESPONSIBILITIES

RESOURCES

- Time and Stress Management
- Academic Duty
- Mentoring
- Diversity and Discrimination

TOPICS TO BE DISCUSSED:
1. TIME AND STRESS MANAGEMENT
2. ACADEMIC DUTY
3. BALANCING WORK AND PERSONAL LIFE
4. MENTORS AND MENTORING
5. LETTERS OF RECOMMENDATION
6. MANAGING A RESEARCH GROUP
7. DIVERSITY AND DISCRIMINATION

1. TIME AND STRESS MANAGEMENT

- GOALS OF TIME MANAGEMENT?

- PROBLEMS

- APPROACHES

(these notes are based on Covey SR, AR Merrill, RR Merrill (1994): A Review of time management literature. First Things First, Simon & Schuster, New York, pp. 322-341.)

1. Get Organized (Lists)
2. Warrior (Protect personal time)
3. Goals (long-term planning, goal setting)
4. Magic Tools (technology is the answer)
5. Go with the flow (time away from the clocks)

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2. ACADEMIC DUTY (these notes are based on Kennedy D (1997): Academic Duty. Harvard University Press.)

- ACADEMIC FREEDOM

- ACADEMIC DUTIES
  1. Teach
  2. Mentor
  3. Discover
  4. Tell the truth
  5. Publish
  6. Serve the university
  7. Serve the community
8. Change

3. BALANCING WORK AND PERSONAL LIFE

- DO YOU NEED A PERSONAL LIFE?
- CAN YOU BE A SERIOUS SCIENTIST AND ALSO HAVE A LIFE?
- COLLEAGUES AND FRIENDS
- DEALING WITH THE CONFLICTS

4. MENTORS AND MENTORING

"Mentors are advisors, people with career experience willing to share their knowledge; supporters, people who give emotional and moral encouragement; tutors, people who give specific feedback on one's performance; masters, in the sense of employers to whom one is apprenticed; sponsors, sources of information about and aid in obtaining opportunities; models, of identify, of the kind of person one should be to be an academic." (Morris Zelditch, 1990: cited by Council of Graduate Schools, 1995)

- WHAT IS A MENTOR?
- ADVANTAGES AND DISADVANTAGES
- RESPONSIBILITIES OF A MENTOR
- QUALITIES OF A GOOD MENTOR
- SELECTING A MENTOR
- RESPONSIBILITIES OF THE TRAINEE
- DISAGREEMENTS
- WHEN DOES MENTORING NEED STOP?

5. LETTERS OF RECOMMENDATION
WRITING EFFECTIVE LETTERS
- Should you / Can you write the letter?
- Responsibilities:
  - Content of letter:
    How do you know the candidate?
    Details
    Comparison with others
    Potential for future
    Teaching ability
    Collegiality
    Conventional hyperbole (if stellar, need to be creative)
    Deal with obvious problems

ASKING FOR LETTERS
Who, How, and What?

6. MANAGING A RESEARCH GROUP
(these notes are adapted from a presentation made by Dr. Susan McCarthy, University of Pittsburgh, at a Workshop on "Teaching Survival Skills & Ethics," May 18-21, 1995)

REMINDER: IDEALS VS. REALITY

FIND THE RIGHT PEOPLE
Define the job
Does the candidate fit the job?
Does the job fit the candidate?

HELP THE TRAINEE DO THE JOB AS WELL AS POSSIBLE
Teach and trust trainee to do professional job
Meet your obligations -- promptly
Help when needed
When problems occur...

HELP THE TRAINEE GROW IN THE POSITION
Meeting times
Encourage continuing education
Don't "underemploy"; Increase trainee's activities
Give credit
• HELP THE TRAINEE MOVE TO THE NEXT LEVEL
  Periodic discussions of career options
  Networking
  Letters of recommendation
  Going away party!
  Keep in touch

• HELP YOUR GROUP FUNCTION AS A SUCCESSFUL UNIT
  Group size
  Group cohesion
  Synergy vs. competition
  Fix problems quickly

7. DIVERSITY AND DISCRIMINATION

• BIAS AND PREJUDICE

• CHALLENGES
  Changing demographics
  Affirmative Action, Proposition 209, etc.
  Women in academia

• ADVANTAGES
  Biological Model
  Diversity as a strategy for survival

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Resources: Time and Stress Management
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UCSD RESOURCES

- Faculty and Staff Assistance Program (534-5523; Web site: http://www.hr.ucsd.edu/~fsap): For UCSD employees with personal problems that adversely affect work performance
- OASIS Student Support Services (534-3760; Web site: http://oasis.ucsd.edu)
- Psychological/Counseling Services (534-3755; Web site: http://www.ucsd.edu/psychserv)

WEB SITES

- Time and stress management (from the University of Buffalo) http://ub-counseling.buffalo.edu/stressmanagement.shtml
- Controlling Stress "These articles help you to understand how stress affects you, and explain a range of strategies and techniques that will help you to control it." http://www.demon.co.uk/mindtool/smpage.html
- Stress "These articles help you to understand how stress affects you, and explain a range of strategies and techniques that will help you to control it." http://www.drkoop.com/wellness/mental_health/stress/

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GUIDES AND GUIDELINES

• NIH Mentoring Guide
  "A Guide to Training and Mentoring in the Intramural Research Program at NIH"
  http://www1.od.nih.gov/oir/sourcebook/ethic-conduct/mentor-guide.htm

• Mentoring handbook for graduate students
  "How to Get the Mentoring You Want: A Guide for Graduate Students at a Diverse University, Horace H. Rackham School of Graduate Studies, University of Michigan"
  http://www.rackham.umich.edu/StudentInfo/Publications/StudentMentoring/contents.html

• Mentoring handbook for faculty
  "How to Mentor Graduate Students: A Guide for Faculty in a Diverse University, Horace H. Rackham School of Graduate Studies, University of Michigan"
  http://www.rackham.umich.edu/StudentInfo/Publications/FacultyMentoring/contents.html

• Mentor Teacher Handbook
  "This book is written for mentors and those who wish to serve as mentors, and for individuals who are responsible for establishing and evaluating mentor programs."
  http://apollo.gse.uci.edu/MentorTeacher/Contents.html


• Virginia Commonwealth University
  http://www.vcu.edu/teaching/bestpractices/medicinementoring

GENERAL RESOURCES

• Mentoring Projects
  "Links and listings for mentoring projects, maintained at Yale University"
  http://www.cs.yale.edu/HTML/YALE/CS/HyPlans/tap/mentoring.html

• Articles on Mentoring
Science's "Next Wave: resources for the next generation of scientists"
http://www.nextwave.org/cgi/content/full/1998/03/29/245

- Mentoring Network
  "The National Electronic Industrial Mentoring Network for Women in Engineering and Science"
  http://www.mentornet.net


Guides and Guidelines | General Resources | Science and Academia

SCIENCE AND ACADEMIA


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Resources: Diversity and Discrimination
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UCSD PROGRAMS

• Academic Affirmative Action (Jon Welch, Director, welchj@ucsd.edu, X43623; Web site: http://academicaffairs.ucsd.edu/offices/aaa)

• Cross Cultural Center (Edwina Welch, Director, ewelch@ucsd.edu and Nancy Magpusao, Program Assistant, nmagpusao@ucsd.edu, X49689; Web site: http://orpheus-1.ucsd.edu/ccc/home.html)

• Diversity Education Program (Rosemarie Mirano, Staff Education and Development, X20609; Web site: http://enrollmentcentral.ucsd.edu/sed_course.cfm?celsius=DIVERS)

• Lesbian, Gay, Bisexual, and Transgender Resource Office at UCSD (X23493; rainbow@ucsd.edu; Web site: http://orpheus-1.ucsd.edu/caclgbi/office/index.html)

• Office of Sexual Harassment Prevention and Policy (Lori Chamberlain, Director, lachamberlain@ucsd.edu: X48297 or X48298; Web site: http://orpheus.ucsd.edu/oshpp)

• UCSD Chancellor's Advisory Committee on Lesbian, Gay, Bisexual, and Transgender Issues
http://orpheus-1.ucsd.edu/caclgbi/home.html

GENERAL RESOURCES


• Kucera TJ, ed. (1993): Teaching Chemistry to Students with Disabilities. (3rd ed.) American Chemical Society.


WOMEN IN SCIENCE

• Women in Science Links
hyperion.advanced.org/20117

• Women in Science and Engineering (listserv@uicvm): This listserv is for discussions between women and men on issues relevant to women in science and engineering. To subscribe, send message:

SUBSCRIBE WISENET yourfirstname yourlastname

• American Association of Medical Colleges (1993): Building a Stronger Women's Program:


- Sandler BR (1986): The campus climate revisited: Chilly for women faculty, administrators, and graduate students. Association of American Colleges, Washington, D.C. Although nearly 15 years old, Sandler's paper is one of the best summaries of problems faced by women, useful recommendations, and selected resources. Individual copies can be purchased from the AAC (1818 R St., NW, Washington, D.C. 20009; 202-387-3760).


UNDERREPRESENTED MINORITIES

- **Affirmative Action and Diversity Project** (UC Santa Barbara): "This site presents diverse opinions regarding Affirmative Action topics..."
  http://aad.english.ucsb.edu

- **Americans United for Affirmative Action**: Comprehensive site arguing in favor of affirmative action.
  http://www.auaa.org

- **U.S. population by race**: US Census bureau projections for 1998-2100
  http://www.census.gov/population/www/projections/natsum-T5.html


Press, New York City. *A provocative argument that affirmative action has done more harm than good.*
RESOURCES

- Planning, Creativity, and Design
- Data Management
- Animal Subjects
- Human Subjects

TOPICS TO BE DISCUSSED:
1. PLANNING, CREATIVITY, AND DESIGN
2. DATA MANAGEMENT
3. USE OF ANIMAL SUBJECTS
4. USE OF HUMAN SUBJECTS

1. PLANNING, CREATIVITY, AND DESIGN

- PLANNING
  - Why Plan?
  - Long-range Planning
  - Short-range Planning / Time Management

- CREATIVITY / IDEAS
  - What is the goal?
  - What is genius? intelligence?
  - Where do ideas come from?
  - Can creativity be taught?
  - Critical reading and thinking
  - What can/should you do? [same or different?]

- EXPERIMENT DESIGN
  - What are statistics?
  - Hypotheses
• Criteria for valid inferences
• Errors (Type I and II)
• Issues in experiment design
controls
blinding
statistical methods

2. DATA MANAGEMENT

1. WHAT ARE DATA?

2. DATA COLLECTION
   • Importance of documentation, recordkeeping
   • "The Lab Notebook"
   • Other methods of recording data
   • "Good Laboratory Practice"

3. DATA OWNERSHIP
   • Definition(s) of ownership
     retention of data
direction of research
interpretation
publication
   • Who owns the data?
   • Who has rights to access "your" data?
   • Ownership of ideas

4. DATA SHARING
   • Advantages
   • Disadvantages
   • When should data be shared?

5. DATA STORAGE AND RETENTION
   • When can you throw it away?
   • Who keeps it?

3. USE OF ANIMAL SUBJECTS

• HISTORY
   • Experimental science
• Animal experimentation
• General anesthesia for animals AND humans (late 19th century)
• 1963: Guide for the Care and Use of Laboratory Animals (NIH)
• 1966: Life magazine report on animal dealers / dogs
• 1966: Laboratory Animal Welfare Act / Pet Protection Act
• 1970 - 1985: Animal Welfare Act
• PHS Policy (1973): compliance with the Animal Welfare Act and the Guide
• 1986: Health Research Extension Act

• ANIMAL RIGHTS?
  • 1975: Animal Liberation by Peter Singer
  • Ethical judgments
    Based on consequences: Utilitarianism
    Independent of consequences: Individual rights
  • Speciesism
  • Animal rights vs. animal welfare

• ANIMAL WELFARE
  • Why use animals in research?
  • Replacement, Reduction, and Refinement (Russell and Burch, 1959)
  • No consensus
  • UCSD and the VA
    IACUC Committees
    Review and approval of proposed animal studies
    Review of research and animal facilities

4. USE OF HUMAN SUBJECTS

• ABUSES OF RIGHTS OF HUMAN SUBJECTS
  • Tuskegee study
  • Beecher examples

• INTERNATIONAL GUIDELINES (1947-1996)
  • Nuremberg Code (1947)

  • United Nations General Assembly
  • Declarations of Helsinki (World Medical Association)

  • Council for International Organizations of Medical Sciences / World Health Organization
• BELMONT REPORT (Contents)
  Ethical Principles and Guidelines for Research Involving Human Subjects
  A. Boundaries Between Practice and Research
  B. Basic Ethical Principles
     1. Respect for Persons
     2. Beneficence
     3. Justice
  C. Applications
     1. Informed Consent
     2. Assessment of Risk and Benefits
     3. Selection of Subjects

• CURRENT GUIDELINES AND REGULATIONS
  • Institutions with Federal Support
  • Institutional Review Board (IRB)
  • Informed Consent
  • UCSD IRB
  • Special Populations
     People with decreased decisionmaking capacity
     Prisoners
     Children

Return to Home Page
Resources: Creativity, Planning, and Design

WEB SITES

- Creativity Resources
  Links to various sites on creativity and innovation

BIBLIOGRAPHY


  Fred Grinnell is a working scientist who has given substantial thought to the process of scientific thinking.


  Examples and exercises to enhance creativity (recommended by Univ. of Pittsburgh "Survival Skills" program: "Don't know whether or not it works but it looks like fun.")

This book provides useful insights into what the extent to which much of what we call "creativity" can be learned

Return to Home Page
Resources: Animal Subjects
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UCSD AND VA OFFICES

- UCSD Animal Subjects Program (mail code 0071; ext. 46069)
- VA Veterinary Medical Unit (mail code 9151; VA ext. 3774)

Regulation and Oversight | IACUCs | Animal Welfare | Animal Rights

REGULATION AND OVERSIGHT

- AAALAC
  Association for Assessment and Accreditation of Laboratory Animal Care
  http://www.aaalac.org

- AALAS
  American Association for Laboratory Animal Science
  http://www.aalas.org

- Animal Welfare Act
  AWA and Regulations (USDA)

- Guide for the Care and Use of Laboratory Animals
  National Academy Press
  http://www.nap.edu/readingroom/books/labrats

- Guidelines for Animal Use (American Psychological Association)

- OLAW
  NIH Office of Laboratory Animal Welfare
  http://grants.nih.gov/grants/olaw/olaw.htm

- PHS Policy on Humane Care and Use of Laboratory Animals (1996)
  http://grants.nih.gov/grants/olaw/references/phspol.htm

Regulation and Oversight | IACUCs | Animal Welfare | Animal Rights

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEES
• Animal Care and Use Committees (USDA National Agricultural Library)

• IACUC Administration (UTHSCSA Laboratory Animal Programs)
  http://oerweb.uthscsa.edu/iphcula/iacue101.htm

ADVOCACY: ANIMAL WELFARE

• Links to Animal Welfare and Animal Rights Web Sites

• National Association for Biomedical Research
  http://www.nabr.org

• Foundation for Biomedical Research
  http://www.fbresearch.org


• Office for Protection from Research Risks (1992): Institutional Animal Care and Use Committee Guidebook. National Institutes of Health, Bethesda, MD


ADVOCACY: ANIMAL RIGHTS

- AnimalConcerns.org
  Animal Rights Resource Site
  http://animalconcerns.netforchange.com

- "The moral status of animals"
  Philosophy web site that emphasizes work of Peter Singer and others
  http://www.acusd.edu/ethics/animal.html

- Humane Society of the United States
  Apparently one of the best-funded animal protection groups in the country
  http://hsus.org


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Resources: Human Subjects
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UCSD Resources

- Lucille Pearson, Director, Human Subjects Program; X44520; lpearson@ucsd.edu
  Room 202, University Center (mail code 0052); FAX: 619-534-5725

  Regulation and Oversight | Ethics and Guidelines | Bibliography

REGULATION AND OVERSIGHT

- OHRP
  Office for Human Research Protections
  http://ohrp.osophs.dhhs.gov

- Federal Policy for Protection of Human Subjects
  Title 45 Part 46, Protection of Human Subjects

- FDA regulation of Institutional Review Boards
  Title 21 Part 56, Institutional Review Boards
  http://www.access.gpo.gov/nara/cfr/waisidx_00/21cfr56_00.html

  Regulation and Oversight | Ethics and Guidelines | Bibliography

ETHICS AND GUIDELINES

- Nuremberg code

- Helsinki declaration

- Belmont Report

- NLM Bibliography
  National Library of Medicine Bibliography on Human Subjects Research
  Ethical issues in research involving human subjects

- ELSI
Ethical, legal, and social implications of the project of the National Human Genome Research Initiative.
http://www.nhgri.nih.gov/ELSI

- Human Subjects Guidelines in Canada
  Resources for research involving human subjects in Canada.
  - Ethical Conduct for Research Involving Humans (1998):
    http://www.nsere.ca/programs/ethics/english/policy.htm
  - National Council on Ethics in Human Research:
    http://www.ncchr-cnrcr.org/english/mstr_frm.html

Regulation and Oversight | Ethics and Guidelines | Bibliography

BIBLIOGRAPHY


Return to Home Page
WRITING

RESOURCES

- Publishing Papers
- Grantwriting

TOPICS TO BE DISCUSSED:
1. WRITING AND REVIEWING PAPERS
2. WRITING AND REVIEWING GRANTS

1. WRITING AND REVIEWING PAPERS

A. WHY COMMUNICATE? PUBLISH OR PERISH?
   - Primary Publication (Council of Biology Editors)
   - We publish our research findings because...

B. WHAT TO COMMUNICATE (AND NOT)
   - Truth in reporting is the first and obvious principle; to make your point is the second
   - How much to include
     can others replicate?
     do you include pilot data?
     do you report failures?
     when is it alright to exclude data?

C. AUTHORSHIP AND ATTRIBUTION OF CREDIT
   - Elements of publication
     Ideas
     Planning of work
     Resources and materials
     Data collection
     Interpretation
     Writing and revision
   - why should we care about credit?
Framework for science
Attract trainees, collaborators
Research funding
Promotion
Intellectual property rights

- ways to attribute credit
- authorship
  - many models. Issues: who and what order
  - Uniform Requirements guidelines
  - what are reasons to include many authors?
  - what are reasons not to include many authors?
  - authorship: responsibility as well as credit
    - Intellectual understanding
    - Ability to defend work
    - Assurance of integrity of data
    - Sharing of resources and knowledge
  - how to deal with authorship issues

D. WRITING THE PAPER
- how to write a paper with other people
- what type of paper are you writing? know your genre
- where to submit
- writing the paper

E. THE SUBMISSION AND REVIEW PROCESS
- contact editor beforehand?
- suggest reviewers (or people to exclude?)
- track process
- possible outcomes

F. WHEN THE EDITOR SAYS "NO"
- calm down
- major points? minor points? bottom line?
- if the paper is rejected, why?
- if revisions requested: what must be done vs. what could be done?
- what if you don't agree?
- when you resubmit
  - explain what you have done and why
  - explain what you haven't done and why
- don't forget to acknowledge the reviewers

G. REVIEWING PAPERS
- responding to invitation
- be clear on what is asked of you; criteria for the journal; form of review
- review on two levels
- types of flaws
- the Golden Rule: be sharp but polite
- confidentiality
2. WRITING AND REVIEWING GRANTS

A. WHAT ARE THE POSSIBILITIES?
   1. Fellowships vs. Contracts & Grants
   2. Contracts vs. Grants
      • contracts:
      • grants:
   3. Funding sources
      • public
      • private foundations
      • industry
      • other

B. WHERE DO YOU GET INFORMATION?
   [see resources]

C. GETTING STARTED
   1. (Getting) Ideas
   2. Locate the funding source
   3. Talk to colleagues: examine other proposals
   4. If this is your first time, find a mentor!
      ...And if this is your second time, third time, tenth time,
      also find a mentor!

D. OTHER THINGS THAT GO IN THE PROPOSAL?
   • budget
      direct costs:
      indirect costs: add 50%-100% of direct costs
      budget justification
   • cv
   • research environment: facilities & personnel available
   • approvals
      human subjects
      animal subjects

   • References
   • Appendices
   • Consortium and contractual arrangements
   • Letters of support/co-PIs?
   • Consultants
   • Technical details, manuscripts

E. WRITING THE PROPOSAL
Sections to include
  Introduction
  Specific Aims/Abstract/Summary
  Background and Significance
  Prelim. Studies / Progress Report
  Research Design and Methods

• MECHANICS
  (Short hand version)
  Tell you what I am going to tell you.
  Tell you what I am telling you.
  Tell you what I told you.

• Introduction
  • Qualifications
  • Credibility
  • Set the Tone for the Proposal
  • Link project to priorities of agency,
  • State objectives in ways that link them to sponsor focus
  • Does the proposal:
    □ Establish who I am?
    □ Describe my organization's (research) goals?
    □ Establish my qualifications (credibility) for the proposed project?
    □ Logically develop the problem statement and link it to sponsor's objectives?

• Need to Stress:
  □ What about your background or current work setting, etc. is conducive to the project.
  □ Your track record in a project of this kind and the focus of your group.
    (If you need to compensate for a low credibility (weak track record), do this with colleagues, consultants, etc.)

• Statement of the Problem
  • Summarize problem clearly
    indicate your familiarity with problem
    your background and credentials for dealing with it
    why your approach and expertise is needed.
  • Do not assume reviewers will see the problem as clearly as you
  • Even if they do, they may not have your approach in mind.
  • Does my problem statement:
    • Show a precise understanding of what I am attempting to solve?
    • State my focus early and clearly?
    • Show how my project relates to the larger set of knowledge
    • Justify why my approach has relevance?
    • Establish the significance and importance of the problem?
    • Justify the problem?
    • Spell out the problem in terms of what the field needs
or what new insights will come from your approach?

- Demonstrate the feasibility of my approach/solution?
- Compel the reviewer to read on?

• The Transition Paragraph is Critically Important --

Make a convincing need statement for your project by stating how present state of knowledge or present condition does not permit...something...in other words.........

State the consequence of the information gap rather than say...

there is little information about there is a lack of data no research has dealt with

• Objectives
  
  - State the outcome of your project...its end products.
  - This is what the funders of your project are buying.
  - State the objectives in S-I-M-P-L-E terms:
    Specific - precise indication of objectives
    Immediate - time frame for dealing with problem
    Measureable - how the success of your approach can be gauged
    Practical - indicate how objectives apply to problem
    Logical - objectives fit together in a systematic approach to the overall goal
    Evaluable - how much change has to occur for the project to be deemed effective

  - Some of these are mutually exclusive and/or do not apply to science/research grants

  - Does my objectives section:
    - Clearly state the objectives, hypotheses, and research questions?
    - In a way that will allow a later evaluation/testing?
    - State project objectives clearly, without burying them in text?
    - Comprehensively include the scope of the project?
    - Link objectives to goal of the program from which funding is sought?
      Or are objectives buried in the text?
    - Establish the objectives as timely and important to funder.

• Methods
  
  - Detail precise methods/steps you will use to accomplish objectives.
  - What will be done, by whom, when.
  - Sequence, flow and interrelationships of approaches need emphasis
  - What kind of results will be obtained? How will data be collected?
  - Cover every step.
  - Time and Task Chart

• Significance

F. THE REVIEW PROCESS NSF

- NSF's mission: basic research, not applied
- Research Directorates, then Division, then Program
  Directorate for Biological Sciences (BIO)
Computer and Information Science and Engineering Directorate (CISE)
Directorate for Education and Human Resources (EHR)
Directorate for Engineering (ENG)
Directorate for Geosciences (GEO)
Mathematical and Physical Sciences Directorate (MPS)
Office of Polar Programs (OPP)
Social, Behavioral, and Economic Sciences Directorate (SBE)
Crosscutting Areas of Research and Education (CROSS)
  ■ who determines program?
  ■ review by multiple programs
  ■ program Review Panels
  ■ importance of mail reviews
  ■ deadlines, review cycles, etc. differ across programs

Return to Home Page
Resources: Writing and Reviewing Papers
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WEB SITES

- Advice on Research and Writing (Indiana University)
  "A collection of advice about how to do research and how to communicate effectively (primarily for computer scientists)."
  http://www.cs.cmu.edu/afs/cs.cmu.edu/user/mleone/web/how-to.html

- Authorship Task Force (Council of Science Editors, formerly Council of Biology Editors)
  http://www.councilscienceeditors.org/services_ATF.shtml

- Council of Science Editors, 60 Revere Drive, Suite 500, Northbrook, IL 60062, tel 847/480-6349,
  fax 847/480-9282
  www.councilscienceeditors.org

- Uniform Requirements for Manuscripts (International Committee of Medical Journal Editors)
  www.acponline.org/journals/resource/unifreqr.htm

- American Chemical Society
  pubs.acs.org:80/instruct/ethic.html

- Society for Neuroscience
  www.sfn.org/guidelines

BIBLIOGRAPHY - AUTHORSHIP

- Shapiro DW, Wenger NS, Shapiro MF (1994): The contributions of authors to multiauthored biomedical research papers. 271(6):438-42.
BIBLIOGRAPHY - PUBLICATION

- Day RA (1998): How to Write and Publish a Scientific Paper. 5th ed., Oryx Press, Phoenix. Considered by many to be the definitive text on paper writing, Day takes the "how to" approach and his entertaining writing style makes the book both enjoyable and instructive. (275 pp.)
- Woolf PK (1987): Ensuring integrity in biomedical publication. JAMA 258:3424-3427. 4

BIBLIOGRAPHY - PEER REVIEW

1871-1874.

Return to Home Page
Resources: Writing and Reviewing Grants
DATE: 02/14/01

UCSD RESOURCES

- The Office of Contract and Grant Administration (OCGA)

- Biomedical Library (ext. 41201)
  Presents occasional classes on "Getting at Grants Information" and other related topics; also has maintains a page of useful links on grantwriting (scilib.ucsd.edu/bml/grants.htm)
  scilib.ucsd.edu/bml

SOFTWARE / EMAIL

- OCGA Briefing.
  The briefing is a bi-weekly newsletter that contains summaries of funding opportunities, contracts and grants announcements, and helpful hints. If you would like to subscribe to the briefing, send an email to ocgarequests@ucsd.edu with "subscribe to briefing" as the subject and include your email address, first and last name, mail code and phone number in the text.

WEB SITES - GENERAL

- UCSD Office of Contract and Grant Administration (OCGA)
  OCGA is UCSD's office for contracts & grants. OCGA collects and disseminates information about funding opportunities, and advises prospective PIs. All contracts and grants from PIs at UCSD officially emanate from this office, and so OCGA must examine and approve all proposals to all extramural agencies. Their WWW page on Funding opportunities and agency information [ocga.ucsd.edu/funding_opps.html] has a large number of links to other WWW sites and is a valuable starting point.
  oCGA2.ucsd.edu

- The Community of Science Web Server
  "The Community of Science is designed to help you identify and locate researchers with interests and expertise similar to your own. It contains an on-line inventory of researchers, inventions, and facilities at leading U.S. and Canadian universities, and other R & D organizations. The Community of Science contains over 40,000 first-person expertise records, 5,000 inventions records, and 2,000 facilities records. " [From WWW page]
  www.cos.com

- National Council of University Research Administrators
  Links to agencies (www.ncura.edu/resources/agencies.htm) and funding opportunities
On-Line Funding Search Tools (Univ. of Illinois)
Univ. of Illinois page with links to many on-line search tool for finding both public and private funding sources.
www.uic.edu/depts/ovcr/ors/fundsrch.html

IRIS Funding Opportunities Database
Univ. of Illinois on-line database of funding opportunities.
www.library.uiuc.edu/iris

The CRISP Database
"The CRISP (Computer Retrieval of Information on Scientific Projects) System is a major biomedical database containing information on research ventures supported by the United States Public Health Service (US-PHS). CRISP also contains information on intramural research programs of the NIH and FDA. The research is conducted by scientists employed by the FDA and the various institutes of the NIH. This full text Searchable version of the CRISP database is updated weekly. Retrieval of scientific information for each project in CRISP is made available by project title, principal investigator's abstract, and term descriptors assigned by Technical Information Specialists in the Research Documentation Section, Information Systems Branch, Division of Research Grants." [From WWW page]
www-commons.cit.nih.gov/crisp

YAHOO Search Engine for Grants
YAHOO is a WWW-search engine which classifies WWW & Internet resources into a variety of categories, and then permits searching for specific keywords. The Education-Grants area is a search tool for information about public and private grants, as well as other funding-related tools, software, products, and consultant services.
dir.yahoo.com/Education/Financial Aid/Grants

WEB SITES - FEDERAL

Federally-Funded Research in the U.S. (Federal Information Exchange, Inc.)
On the Research and Management Systems (RAMS) Home Page: "FEDIX is an outreach tool for participating agencies to provide opportunity information to educational and research organizations. Receive emailed funding opportunities from participating agencies through FEDIX Opportunity Alert."
http://content.sciencewise.com/fedix

Federally-Funded Research in the U.S. (from Community of Science)
Search for information about current specific funding opportunities.
fundingopps2.cos.com

National Science Foundation World Wide Web Server
NSF main home page; links to pages describing programs, the agency, and many on-line forms.
www.nsf.gov

NIH Grants Home Page
NIH main home page; similar to NSF.
www.grants.nih.gov

- Grant Reviewing Procedures
  NIH "procedures to be used for the review of research grant applications"

WEB SITES - PRIVATE

- The Foundation Center
  "The Foundation Center is an independent nonprofit information clearinghouse established in 1956. The Center's mission is to foster public understanding of the foundation field by collecting, organizing, analyzing, and disseminating information on foundations, corporate giving, and related subjects. The audiences that call on the Center's resources include grantseekers, grantmakers, researchers, policymakers, the media, and the general public." [From WWW page.] Excellent starting point for information about private foundations. Contains links to many sites, as well as practical tips and suggestions about raising money from private sources.
  fdncenter.org

- Private funding sources (Commercial and Non-profit foundations, corporations, & associations)
  Univ. of Illinois page listing many private funding sources.
  www.uic.edu/depts/ovcr/ors/private.html

- Foundations On-Line
  A directory of charitable organizations and foundations. Also includes pointers to fund-raising software; fund-raising consultants; books; other products.

BIBLIOGRAPHY


Return to Home Page
TOPICS TO BE DISCUSSED:
1. SCIENCE TALKS AND TEACHING (Kalichman, Barbara Sawrey)
2. THE ACADEMIC JOB TALK & INTERVIEW (Jeff Elman)

1. SCIENCE TALKS AND TEACHING

A. SCIENCE TALKS
   • Oral communication and your career
   • Many types of talks: what is expected?
   • Seminars
   • Lectures
   • Dealing with questions
   • Other

B. WHY TALK ABOUT TEACHING?

C. CAREER OPTIONS
   • Research / Teaching Position
   • Research, some teaching
   • 4 yr. teaching college / university
   • Community college
   • Public / Private primary /secondary education

D. THOUGHTS ON BEING A TEACHER
   • We tend to teach the ways that were effective for us
   • Reflective teachers
   • Understanding vs. Learning
   • Experiment with new approaches
   • Technology is the answer, but what is the question?
E. PREPARING OR REVISING A COURSE
- Talk with faculty who have taught it previously
- Review textbooks on topic of course
- Identify constraints
- Relationship to other courses
- Define goals
- Toss excess baggage
- Emphasize core ideas
- Detailed syllabus

F. HELPING STUDENTS TO LEARN
- Motivating Students
  (adapted from Lambert et al., 1996: p. 105)
  Discussions
    - Ground rules
    - Starting
    - Guiding Discussion
    - Evaluation

- Encourage Student Participation

G. COLLABORATIVE LEARNING
- Definition
- General strategies
- Design of group work
- Group test taking

H. EVALUATION
- Evaluate Student Performance
- Fast Feedback (effectiveness of learning rather than teaching)
  Decide what you want to assess
  Ethical Dilemma
  Two quick questions
  Short questionnaire
  email, answering machines, suggestion box
  "Minute paper"
  1-2 mins, at end of class
  e.g., "What is the most significant thing you learned today?"

- Self-evaluation
- Student Evaluations

I. TEACHING PORTFOLIO
- Principles of portfolios
  Purpose determines evidence
  Academic and professional goals should drive portfolio development
  Begin collecting evidence early and systematically
• Materials to collect:

<table>
<thead>
<tr>
<th>TEACHING</th>
<th>RESEARCH/CREATIVITY</th>
<th>SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• syllabi</td>
<td>• description of past and future agendas</td>
<td>• descriptions of service to university and departmental committees</td>
</tr>
<tr>
<td>• descriptions of courses previously taught</td>
<td>• sample reprints</td>
<td>• notations of community service related to university position</td>
</tr>
<tr>
<td>• examples of class assignments</td>
<td>• notations of research presentations</td>
<td>• notations of service to local schools</td>
</tr>
<tr>
<td>• selected copies of student work</td>
<td>• evidence of service (editor, reviewer, etc.)</td>
<td></td>
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<tr>
<td>• videotaped sessions</td>
<td>• evidence of research funding</td>
<td></td>
</tr>
<tr>
<td>• evaluations: students, peers, your own</td>
<td>• peer reviews of work</td>
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<tr>
<td>• notations of awards, recognition</td>
<td>• notations of awards, recognition</td>
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</tr>
<tr>
<td>• reflective statement about teaching philosophy</td>
<td>• evidence of success of your trainees</td>
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</tr>
<tr>
<td>• notes page for thoughts (reflective statement) on your teaching philosophy</td>
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• Different portfolios for different audiences
• Utility at every stage of your career
• Process is more important than the product

2. THE ACADEMIC JOB TALK & INTERVIEW

PDF File containing lecture notes

Return to Home Page
Resources: Speaking
DATE: 02/20/01

UCSD PROGRAMS AND COURSES

- **Center for Teaching Development**, Rosalind Streichler, Director (534-3958)
  The CTD has an extensive library of teaching resources, including handbooks on teaching prepared by colleges and universities from across the country. The CTD runs seminars and courses on teaching and can also help graduate students with developing a "teaching portfolio."
  www.ctd.ucsd.edu

- Scientific Communication (NS 251 / SIO 292): Kalichman and Yayanos

WEB SITES

- **Teaching Suggestions** (UC Berkeley)
  "...a series of suggestions for improving teaching, this compendium describes more than 200 teaching techniques that faculty members have found to be effective in their courses at the University of California, Berkeley. Taken together, these suggestions cover the major aspects of college and university teaching from planning and preparing courses to presenting material and motivating students to giving and getting feedback on learning."
  uga.berkeley.edu/sled/compendium

- **Center for Science and Mathematics Teaching** (Tufts University)
  Comprehensive program to develop tools for teaching students (middle school through University).
  ase.tufts.edu/csmt

- **National Education Association**
  Resources for improving public school education
  www.nea.org

- **Computers and teaching** (Arizona State University)
  Course on using computers in teaching
  seamonkey.ed.asu.edu/emc300

- **Instructional resources** (Univ. of Washington)
  Center for Instructional Development and Research at the University of Washington
  depts.washington.edu/cidrweb

- **Teaching resources** (Mississippi State University)
  Highly recommended teaching resource
  www.ais.msstate.edu/TALS

- **Resources for Teachers** (Ameritech Education)
Good list of links with descriptions; also links to education resources.
www.ameritech.com/community/education/index.html

- CoVis (Northwestern University)
  "CoVis is a community of thousands of students, over one hundred teachers, and dozens of researchers all working together to find new ways to think about and practice science in the classroom."
  www.covis.nwu.edu

- Teacher's Edition Online
  Online "journal" with teaching suggestions, employment opportunities, etc.
  www.teachnet.com

- Guide for Teaching Assistants
  UCSD OGSR guide for teaching assistants
  www-ogsr.ucsd.edu/stulife/tahbtext.html

BIBLIOGRAPHY - SPEAKING

- Stuart C (1989): How to Be an Effective Speaker. NTC Publishing Group, Chicago.

BIBLIOGRAPHY - TEACHING

- Excellent, extensive list of tips for teaching.


Return to Home Page
CAREERS

RESOURCES

- Finding a Job

Topics to be discussed:

1. THE JOB MARKET IS DIFFICULT
2. THERE ARE JOBS OUT THERE
3. WHERE ARE THE JOBS?
4. WHAT WORKS TO FIND A JOB?
5. GOING ON THE MARKET
6. ACADEMIC ADVANCEMENT AT UCSD

1. THE JOB MARKET IS DIFFICULT

Ph.D. SCIENTIST AND ENGINEERS:
Number doubled between 1973 and 1991
Continuing to rise

DURATION OF GRADUATE SCHOOL INCREASING

LIKELIHOOD OF POSTDOCTORAL POSITION IS INCREASED

DURATION OF POSTDOCTORAL POSITION IS INCREASED

2. THERE ARE JOBS OUT THERE

UNEMPLOYMENT AMONG PhDs IS LOW
Overall unemployment rate has been steady (~3%) since 1973

63% of all workers had jobs during the Great Depression

PART-TIME EMPLOYMENT AMONG PhDs IS LOW
"PhDs are increasingly finding employment outside universities and more and more are in types of positions that they had not expected to occupy." (NAS Report on "Reshaping Graduate Education")

3. WHERE ARE THE JOBS?

UNIVERSITIES AND COLLEGES
  Research
  Teaching and Research
  Teaching

INDUSTRY

GOVERNMENT

OTHER?

4. WHAT WORKS TO FIND A JOB?

FLEXIBILITY AND HARD WORK

COMPARISON OF APPROACHES (Bolles: "What Color is Your Parachute"):

<table>
<thead>
<tr>
<th>SEARCH STRATEGY</th>
<th>SUCCESS RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resumes, agencies and ads</td>
<td>0-24%</td>
</tr>
<tr>
<td>Leads through relatives</td>
<td>27%</td>
</tr>
<tr>
<td>Leads through friends</td>
<td>34%</td>
</tr>
<tr>
<td>Applying in person, without doing homework</td>
<td>47%</td>
</tr>
<tr>
<td>&quot;Creative job-hunting&quot;</td>
<td>86%</td>
</tr>
</tbody>
</table>

5. GOING ON THE MARKET

WHEN DOES THE PROCESS START?

THINGS TO DO EARLY IN YOUR CAREER
  • be visible (conferences; make contacts; visit)
  • monitor progress of more advanced students
• target places and people
• planning postdocs

FINDING JOBS
• Mentors
• Networking
• Information Interviewing

THE APPLICATION PROCESS
• researching the job

• what goes in your application
  your letter
  CV
  letters of recommendation?
  publications?

6. ACADEMIC ADVANCEMENT AT UCSD
WHAT ARE LADDER RANKS?
• The professorial series at the University of California

• Ranks & steps; merits and promotions

ACADEMIC REVIEWS: THE MECHANICS
• when are reviews carried out?

• what goes in the file?
• departmental review
• outside letters
• university-internal review
• Committee on Academic Personnel

WHAT DOES IT TAKE TO GET TENURE?
• What's the goal?
• What are the metrics?
• What counts and why?

PITFALLS AND FAQS
• isolation (field; department; importance of a mentor)
• thinking mechanically
• not knowing the process (and weighting of the components)
• useless activity
• breadth vs. depth?
• play it safe or take a risk?
• when to bail; soliciting other offers

LIFE AFTER TENURE

Return to Home Page
Resources: Finding a Job
DATE: 03/06/00

UCSD PROGRAMS AND COURSES

- Career Services Center, Marcy Swain, Graduate Careers Coordinator (534-3750)
  The Career Services Center provides a variety of resources to assist graduate students with career
decision-making, job searching, and finding mentors.
  www-csc.ucsd.edu/csc/espgrad.htm

- Fellowship Information, Office of Graduate Studies and Research
  Information about graduate student fellowships (Greg Llacer, 534-3556); information about
  postdoctoral fellowships (Jennifer Oh, 534-6632).
  www-ogsr.ucsd.edu/fellowships.html

WEB SITES - Starting Points

- Getting a Job
  This is a pdf file containing a draft chapter on finding jobs. This document was written by Fran
  Berman (Professor of Computer Science and Engineering, UCSD) for the CRA Workshops on
  Academic Careers for Women in Computer Science and Engineering.
  www-cse.ucsd.edu/users/berman/files/jobs.pdf

- Getting the Next Job (University of Western Ontario)
  This is an excerpt from the Web site "Survival Skills for Graduate Students." The questions and links
  provide a useful starting point for the thought process that should begin an effective career search.
  dlis.gscis.ucla.edu/people/pagre/network.html

- Landing an Academic Job
  This essay includes many useful tips and provides a point by point analysis of the steps that form the
  job search. The essay is written by Jonathan Dantzig of the Department of Mechanical and
  Industrial Engineering, University of Illinois at Urbana-Champaign
  quattro.me.uiuc.edu/~jon/ACAJOB/Latex2e/academic_job/academic_job.html

WEB SITES - General Resources

- Career Center (Nature)
  A wide range of useful career resources from the journal Nature.
  www.nature.com/naturejobs

- "Next Wave" (Science)
  Collection of career-related information
• Employment links for the Biomedical Scientist
  This well organized Web site includes links to a variety of pages relevant to job hunting. Examples of links range from positions advertised in Nature to search firms ("headhunters") and online postings of resumes.
  www.his.com/~graeme/employ.html

• On-Line Job-Search Resources and Services
  This is another "comprehensive" site with links to well over 200 locations with job ads, recruiting agencies, etc.
  www.job-hunt.org

• Career Planning Center
  "The Career Planning Center (CPC) for Beginning Scientists and Engineers is the "one-stop shopping" location for job openings and the guidance and information needed to make decisions about education and career choices."
  www2.nas.edu/cpc

• Job search engine
  "scijobs.org is now the largest internet source of biology jobs, chemistry jobs, biotechnology jobs, and other science jobs!"
  www.scijobs.org

• Science, Math, and Engineering Career Resources
  This Web site provides links to a variety of job-related searches. The site is easy to navigate and also identifies Top Sites by categories of "highest rated", "most popular", and "newest".
  www.phds.org

WEB SITES - Resumes, Networking, and the Job Interview

• Resume and CV service (Science)
  A premier on-line service dedicated to help scientists find top quality jobs in the life sciences industry and simultaneously aid employers in filling job openings.
  www2.sciencecareers.org/resumes/asp/indexA.asp

• Networking on the Network
  An excellent essay on networking, community-building, and how to get a job. (written by Phil Agre, Department of Information Studies, Univ. of California, Los Angeles).
  dlis.gseis.ucla.edu/people/pagre/network.html

• Job Interviewing Strategy (Network of Emerging Scientists)
  Checklist of things to do for a successful job interview.
  psyche.uthct.edu/nes/interviu.html

BIBLIOGRAPHY


• Jackson AL (1993): How to Prepare Your Curriculum Vitae. VGM Career Horizon, Chicago.


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