Teaching research ethics

An overview

(of the topic, not the workshop)

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A non-quiz (3 minutes)

1. Define or explain one or more of the following terms: responsible conduct of research (RCR), research integrity, research ethics.
2. Give one or more reasons to teach research ethics / integrity / RCR.

Outline: Key questions

1. What is research ethics?
2. Why teach research ethics?
3. How can it be taught?
4. What can be taught?
5. Who can teach it?
6. Who can be taught?
7. When and where can it be taught?

1. What is research ethics?

a. Compliance
b. Responsible conduct of research
c. Research integrity
    - integrity of the research process
    - integrity of the research record
    - scientific integrity
d. Research ethics

2. Why teach research ethics?

- Because most graduate students, postdocs, faculty, technicians, staff, and administrators are unethical without special training ***NOT!***
  - Not a good way to establish rapport
  - Misconduct is rare (Pimple 2011)

Research misconduct

Source	Number	Rate
Reported to ORI	~24/yr	~ 0.01%
Swazey est.	~300/yr	~ 0.13%
Titus et al. est.	~2,300/yr	~ 1.5%
Fanelli meta-analysis	~3,800 to ~32,500/yr	~ 1.97% to ~14.12%

Why … (continued)

- Because NIH and NSF say so
  - Historical forces (Pimple 2008)
  - Mandates (Pimple 2012b)
- To make it easier for researchers to be responsible

Why … (continued)

- To build moral community and promote a culture of responsible research
  - promote reliable research
  - protect the public
  - safeguard public funds
  - protect the reputation of science and scientists

Why … (continued)

- To help researchers to understand science better
- To protect responsible researchers from irresponsible researchers, administrators, industries, etc.
- Why not?

Why … NSF 2010a:IV-3

- Required for funded research trainees – undergraduate and graduate students, postdoctoral researchers
- Institutional plan “subject to review, upon request”
- Institutional oversight and verification of training

Why … NIH 2009

- Definition
- Basic principles
- Instructional components
  1. Format
  2. Subject matter (9 areas)
  3. Faculty participation
  4. Duration (at least 8 hours)
  5. Frequency

3. How can it be taught?

- Woven into the texture of every research experience (Example: Keeping lab notebooks)
- Discuss case studies
- Read and critique rules and regulations
- Hold mock IRB or IACUC reviews
- Use the Internet
- Use any other method of teaching/learning

4. What can be taught? – NIH

a. conflict of interest
b. human and non-human subjects, safe laboratory practices
c. mentor/mentee responsibilities and relationships
d. collaborative research, including with industry
e. peer review
f. data acquisition, management, sharing, ownership
g. research misconduct and policies
h. responsible authorship and publication
i. science and society, contemporary issues, etc.

4. What … G601 compared to NIH

1. Introduction to the course and moral theory
2. Research regulation, self-regulation, and research ethics **(g)**
3. Honesty, candor, compromise, and integrity
4. Authorship **(h)**, plagiarism **(g)**, and peer review **(e)**
5. Data ownership and stewardship **(f)**, conflicts of interest **(a)**, and collaboration **(c, d)**
6. Non-human animal subjects **(b)**
7. Human subjects **(b)**
8. Research and researchers in society **(i)**

5. Who can teach it?

- Every responsible teacher of research should teach the responsible conduct of research
- Administrators, such as IRB or IACUC staff
- Ethicists

6. Who can be taught?

- Everyone involved in research should study the responsible conduct of research
- High school, undergraduate, and graduate students
- Post-doctoral researchers
- Research faculty
- Research staff and technicians
- Research administrators

7. When and where can it be taught?

- As part of required undergraduate courses for students not majoring in science
- As the focus of senior-level undergraduate courses for science majors (capstone courses)
- As an integral part of all research courses, especially required introductory courses (e.g., methods courses)

When and where … (continued)

- As the focus of a stand-alone course for graduate students, possibly across disciplines
- As a frequent topic of informal conversations between students and faculty members, especially research advisors/mentors

When and where … (continued)

- As an occasional part of laboratory meetings
- As an occasional part of departmental seminars
- As an occasional campus-wide lecture by an outside speaker

When and where … (continued)

- As an informal, but scheduled, series of meetings for graduate students and faculty members, perhaps over lunch
- As a series of campus-wide presentations on topics cutting across disciplines
- As an event co-sponsored by the Office for Human Research Protections or the Office of Research Integrity

When and where … (continued)

- As an annual half-day or full-day meeting sponsored by the Vice President for Research (Provost, Chancellor)
  - Collaborate with OHRP or ORI
- As a session or forum at a professional meeting
- As an Internet-based module, tutorial, or seminar

Consider what's at stake

- "Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results." (OSTP 2000)
- Plagiarism is a different kind of offense than fabricating or falsifying data

Three broad categories

- **Research integrity** – honesty, accuracy, transparency, etc.
- **Research relationships** – plagiarism, authorship, collegiality, mentoring, human and animal subjects, peer review, etc.
- **Social responsibility** – research priorities, public education, advocacy, environmental impact, etc.

Sources

G601 syllabus

https://oncourse.iu.edu/access/content/user/pimple/G601-Syllabus.pdf

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