Teaching research ethics
An overview
(of the topic, not the workshop)
Kenneth D. Pimple, Ph.D.

Presented at the Twentieth Annual
Teaching Research Ethics Workshop
Indiana University Bloomington
May 2013

Copyright © 2013 by Kenneth D. Pimple; all rights reserved.

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?

2. Why teach research ethics?
➤ Because most graduate students,
postdocs, faculty, technicians, staff, and
administrative staff are unethical without
special training
• Not a good way to establish rapport
• Misconduct is rare (Pimple 2011)

A non-quiz (3 minutes)
Choose #1 or #2
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 RCR /
research integrity / research ethics

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

[Table: Source Number Rate]

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

Pimple 2011
2. Why teach ...

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

- 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

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

2. Why teach ... 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

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)

4. What ... A short heuristic framework

a) Is it true?
   - Honest, candid, accurate, transparent...

b) Is it fair?
   - To other researchers, non-human animals, human subjects...

c) Is it wise?
   - Large-scale benefits and dangers...
     (Pimple 2002)

4. What ... Six domains

Is it true?

1. Scientific integrity
   - basic technical competence (including experimental design)
   - data manipulation
   - statistical methods
   - falsification and fabrication of data
   - unintentional bias
     (Pimple 2002)

Is it fair?

2. Collegiality (plagiarism, peer review, mentorship...)
3. Protection of human subjects
4. Animal welfare
5. Institutional integrity (conflicts of interest, regulatory compliance...)
     (Pimple 2002)

Is it wise?

6. Social responsibility
   - research priorities
   - fiscal responsibility
   - public service and education
   - advocacy
   - environmental impact
     (Pimple 2002)
4. What ... Six domains

"Research misconduct is defined as fabrication, falsification [scientific integrity], or plagiarism [collegiality]..." (OSTP 2000:76262)

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)

7. When and where ...

- 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
- As an occasional part of laboratory meetings
- As an occasional part of departmental seminars
- As an occasional campus-wide lecture by an outside speaker
7. When and where …

- 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

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

Sources

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


http://ori.dhhs.gov/policies/fed_research_misconduct.shtml

Sources

http://mypage.iu.edu/~pimple/Ashgate-ResearchEthics.pdf  
Pimple, Kenneth D. 2011. “How common is bad behavior in science?”  
http://mypage.iu.edu/~pimple/bad_behavior_rate.pdf

Sources

Pimple, Kenneth D. 2012. “Summary of NSF and NIH instruction requirements.”  
http://www.depts.ttu.edu/provost/attt/2013/03/integrity.php

Contact information

Kenneth D. Pimple, Ph.D.  
(812) 856-4986  
FAX 855-3315  
pimple@indiana.edu  
http://poynter.indiana.edu/  
http://mypage.iu.edu/~pimple/  

See slide 1 for mailing address