

Responsible Conduct of Research

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- What does it mean?
- It simply means that one is honest in his/her academic and research endeavors and continually strives to do the right thing.
- It means that you maintain the best and highest standards while engaging in research
- Responsible Conduct of Research does not end with your study at Purdue University - this frame of mind and method for action should carry on all along one's career and life.

Why is RCR important?

- Obvious Reasons:
 - For student's reputation
 - Scientist's reputation and success
 - For Department's and University's reputation
 - For Graduate student retention and graduation
 - For Continued Funding
 - For Avoiding Emotional stress

Consequences of Misconduct

- Example : Plagiarism
 - Revoking a dissertation (Ohio University)
 - <http://thepost.baker.ohiou.edu/articles/2006/02/23/news/2486.html>
- Example: Fabrication and Falsification (PhD student –CSU)
 - <http://ori.dhhs.gov/misconduct/cases/Jin.shtml>
 - **Poehlman's case (The New York Times, Oct 22,'06) (Faculty – UV)**
 - http://ori.dhhs.gov/misconduct/cases/poehlman_notice.shtml
- Reputation and success is impaired
- Debarred from research
- Costly process for everybody involved
- Education and Prevention is better

Responsible Conduct of Research topics

1. Roles and Responsibilities
2. Research Misconduct
3. Data Collection and Management
4. Authorship and Publication
5. Intellectual Property
6. Conflict of Interest

- 7. Compliance Requirements
 - Animal welfare
 - Human subjects
 - Hazardous chemicals
 - Radiation and Lasers

1. Roles and Responsibilities

Of the mentor

- To provide
 - students with all policies, rules etc.
 - productive and supportive research environment
 - proper and periodic supervision and review
 - specific instructions in laboratory practices
 - detailed demonstration of experiments
 - specifics about work hours expectation, lab notebooks, cleanliness in lab

1. Roles and Responsibilities

- **Of the Graduate students**
 - read and pay attention to all policies and procedures (University/College/Department level) pertaining to your graduate education
 - be efficient in the use of your time
 - follow all departmental deadlines for various steps towards successful graduation
 - be respectful and respectable

1. Roles and Responsibilities

- **Of the Graduate students**
 - Honesty in data collecting and interpreting
 - Accuracy, reliability
 - Get all the required training
 - Consult statistician early in the project development
 - Pay attention to your advisor
 - Follow ‘good laboratory practices’
 - Be a good departmental citizen
 - Ask for help, if and when needed

2. Research Misconduct

- “Is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing or in reporting research results”**
- **http://www.ostp.gov/html/001207_3.html
- Examples of plagiarism – ‘pictures’
- How to avoid plagiarism – OWL workshops
- <http://owl.english.purdue.edu/owl/resource/589/01/>
- Outlining procedure for reporting and investigating research misconduct – Purdue University policies (C-22)
- Dr. Peter Dunn Associate Vice President for Research

3. Data Recording and Management

- rules and regulations about data collection
- data book – bound book, dates for all recordings of experiments /observations
- do not tear pages from the data book
- discuss data with advisors periodically
- label everything, for every data set write some narrative
- store data books in a safe place, lock it

4. Intellectual Property

- “Ownership of intellectual property created by Purdue employees and students, or through use of Purdue University resources is determined through the application of Purdue’s policy on intellectual property (Executive Memorandum B-10; http://www.purdue.edu/oop/policies/pages/teach_res_outreach/b_10.html). Graduate students should be familiar with the principles outlined in Purdue’s policy so that they understand their rights and their obligations regarding the intellectual property they create.”**
- **Taken from RCR booklet, Purdue University

5. Authorship and Publications

- practices for authorship vary from program, laboratories, journals in your respective field and most importantly your major professor
- authorship is limited to those who have made significant contributions
- open communications
- while reporting results be honest and accurate
- refer to Professional Authorship policies related to your field of research

6. Conflict of Interest

- **Conflict of Interest Policies**
- Executive Memorandum C-1
- Executive Memorandum C-39
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7. Compliance Requirements

- **A Guide to Following Federal Regulations and Purdue University Policies in Compliance Requirements for Specific Areas of Research**
 - *Eg. Protecting Human Research Subjects*
- **All research involving the use of human subjects must comply with Federal Regulations (45 CFR 46.102) and Purdue University policies to protect human subjects.**
 - Consult the IRB web site (<http://www.irb.purdue.edu/>) to review the policies and guidelines regarding the use of human subject's research.
 - Take the required CITI online training
 - Getting IRB approval for your research
 - Following all instructions properly

7. Compliance Requirements

- Suppose your research involves animals
 - All protocols for animal testing must be approved by PACUC. For details please study the following web site:
 - <http://www.purdue.edu/research/vpr/compliance/animals/index.shtml>
 - Mentors will make sure you get the appropriate training, and you must follow protocols, no short cuts.

Responsible Researcher

- You will be entering Graduate Programs soon
- Every University has special RCR requirements/training/programs etc.
- Make sure you take advantage of the RCR programs
- Now let's look at some 'Case studies'

- **onlineethics.org** *The Online Ethics Center for Engineering and Science*
- **Summer Vacation**
- Your roommate, Leslie, has a research assistantship with Professor Open who has made it clear that all her RAs will have two weeks vacation over the summer.
- You and Leslie plan a camping trip and you tell your research supervisor, Professor Tight, of your plans.
- Professor Tight replies that you will do nothing of the sort. He says that just as he works all through the summer, so do all his RAs.
- What, if anything, can you do?

Video Case Studies

- <http://gradschpdprograms.syr.edu/resources/videos.php>
- Video cases 13, 14, 15, 16 .

Choosing a mentor (Video # 13)

- Should both professors serve as –co-advisors?
- What are the ‘pros’ and ‘cons’ of doing rotations in both labs?
- What is more important to consider? ‘the science’ or ‘personalities of lab people’?
- How important are ‘research interests’ in the decision?
- How important are ‘personal interactions’ in deciding about the lab to work in or in choosing a mentor?

Problems with Mentor (Video # 14)

- What should Bob do?
- Should Bob be talking about this with his advisor? Or with other faculty?
- Can the members of the advisory committee help?
- If Bob asked you that question, what will your answer be?
- Bob asks his parents to talk to his advisor?

Sexual Harassment (Video 15)

- What can be done so there is no fear of sexual harassment in a lab?
- What resources are available to male/female (as the case may be) at the University?
- Should the student confront the person directly or get outside assistance?
- What if the person cracking these jokes is a faculty member?
- Should the sensitivities of one lab member influence the lab policy?

Disability (Video 16)

- Is there a training/workshop this student needs to attend?
- Generally speaking, is it the responsibility of the faculty advisor to make sure everybody in the lab gets along, respects each other?
- Could this simply be a case of discrimination?
- Is it expected that faculty and graduate students discourage this kind of behavior?

- A very brief introduction has been presented
- It is expected that you will get more on RCR via workshops, courses, on-line training, discussions, etc
- Good Luck and A Happy and Successful Research Career!!!!
- Want to learn more? Visit
- www.gradschool.purdue.edu/rcr/